John E. Ikerd

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page updated November 21, 2002
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American agriculture is in the midst of a “great transition.” The agriculture of the past, with its family farms, diverse landscapes, and viable rural communities, is rapidly disappearing. It is being replaced by an industrial agriculture with factory farms, monochromatic landscapes, dying rural communities. However, the signs of an industrial agriculture are becoming clearer only because agriculture is now in the final stage of industrialization. However, the process of industrialization is not sustainable, neither in agriculture nor for in other form of economic development. Beyond the corporate phase of industrialization lies only economic, social, and ecological desolation. We have fifty years, perhaps less, to create a new sustainable paradigm for agriculture. For if our agriculture is not sustainable, neither is our society.

The industrialization of agriculture is not a new phenomenon, having begun with the mechanization of farming in the early 1900s. However, the chemical technologies that emerged from World War II, particularly commercial fertilizers and pesticides, accelerated the process. Until recently, however, the most obvious consequence of industrialization had been larger farms, fewer farms, and fewer farm families. Until recently, farmers were still making the decisions concerning what was produced, how it was produced, and whom it was produced for. And most farmers considered how their decisions might affect the land and their neighbors as well as their own bottom line. Today, however, the important agricultural decisions increasingly are made in the boardrooms of giant, multinational corporations. The needs of families, communities, and the land are considered secondary, if at all, to the needs of the corporation.

Industrialization is characterized by specialization of function, standardization of process, and consolidation of control. Once-diverse crop and livestock farming operations first specialized in either crops or livestock, next in one or two crops or a single livestock species, and for many, in a single phase of production of a crop
or livestock species. Specialization allowed the various production processes to be broken down into their basic elements so they could be standardized, routinized, and in many cases mechanized. In fact, processes had to be standardized so the various specialized elements of production would fit together in producing a single product – just like activities at each position on an assembly line must be standardized so they all work together.

Finally, specialization and standardization make the production process far easier to control. Each person involved in the process simply carries out a predetermined specialized function according to some standard operating procedure, greatly simplifying management. Management decisions are then reduced to deciding how much land, labor, and capital will be invested and how these resources will be allocated or employed. Through industrialization, each decision-maker or manager can effectively control a larger business organization. This allows consolidation of control into fewer and larger production units, meaning fewer and larger farms in the case of agriculture.

Corporatization is but the final stage of the industrialization process. As the new industrial technologies invariably require larger and larger operations to justify the new investments, capital requirements eventually exceed the credit capacity of all but the largest of individual investors. In agriculture, many farmers formed family corporations to enhance their ability to raise investment capital. Increasingly, however, only the “publicly owned” corporations are able to meet the agricultural capital requirements of an increasingly industrial agriculture. Economists now proclaim corporate contracts as farmers’ only means of gaining access to the technology, capital, and markets they will need to be competitive in the 21st century. Most of the land and basic production facilities are still owned by individual farmers and family corporations, but production is carried out under direction of agri-business corporations. Through contracts, the agribusiness corporations, many of them multinational, are making the critical decisions concerning both the productivity and sustainability of agriculture.

So, what’s wrong with a corporate, industrial agriculture? Why should we be
concerned? First, many people don’t see anything wrong with a corporate, industrial agriculture, and they are not particularly concerned. As long as the corporations can give them food that is quick, convenient, and cheap, they are not going to ask too many questions. They aren’t all that concerned about where their food comes from, who produces it, how it is produced, and what the consequences are for rural people and the land. Many trust the competitive forces of our “free market” economy to ensure that the needs of society are met.

However, a growing number of people are concerned about the corporate industrialization of agriculture. They are concerned about what it is doing to the lives of farm families who are losing control of land that has been in their families for generations. They are concerned about people in rural communities who have supported and been supported by those family farms. They are concerned about the landfills, toxic waste dumps, and giant livestock feeding operations that pollute the once pristine rural environment with dangerous chemicals, biological wastes, and hazardous stench. They are concerned about the ability of the soil to continue to produce after the topsoil is eroded and it is saturated with chemicals. They are concerned about the chemical and biological pollution of groundwater, streams, and air. They are concerned about the safety of their food and safety of the people who produce it.

Increasingly, people are becoming concerned about the negative impacts of an industrial agriculture on the people who farm the land, who live in rural areas, and who eat food produced by industrial systems. They are concerned about those of future generations who will still be as dependent upon the land for their sustenance, their very survival, as we are today. They are concerned about the sustainability of agriculture.

A sustainable agriculture must be capable of meeting the needs of present, while leaving equal or better opportunities for those of the future. Thus, a sustainable agriculture must be ecologically sound, economically viable, and socially responsible. The concept of sustainable agriculture was first promoted, in the public policy arena, during the 1980s by the organic farming community – led by the Rodale Institute, a long-time advocate of environmental causes. So, it’s only
natural for most people to relate sustainability with the environmental movement. However, sustainable agriculture gained its initial credibility in the public policy arena as an economic issue. During the farm financial crisis of the 1980s, American farmers were caught in a financial squeeze between chronically depressed commodity prices and continually rising costs of production inputs – fertilizers, pesticides, fuels, etc. A compromise between conventional farmers, who wanted to reduce input for economic reasons, and organic farmers, who wanted to reduce inputs, for philosophical reasons, resulted in the USDA’s LISA (Low Input Sustainable Agriculture) research and education program.

Agribusiness opposed the LISA program because of the implication that the sustainability of agriculture depended on farmers using fewer purchased inputs. Ultimately, USDA abandoned the Low Input aspect of LISA and shifted the emphasis from reducing inputs to natural resource management through a new Sustainable Agriculture Research and Education (SARE) program.

The social dimension of sustainable agriculture rose to public awareness out of the USDA SARE program. Sustainable agriculture was defined in the SARE legislation, as systems of farming that, among other things, would “enhance the quality of life for farmers and society as a whole.” In the legislative discussion, “quality of life” was defined to mean, to "increase income and employment – especially self-employment – opportunities in agricultural and rural communities and to strengthen the family farm system of agriculture, a system characterized by small and moderate sized farms which are principally owner operated." Thus, sustainable agriculture was defined to include social responsibility – to increase self-employment opportunities in rural communities and on owner-operated, small- and moderate-sized, family farms.

So, sustainable agriculture is about environmental integrity, about economic viability, and about social responsibility, but ultimately, it’s about people. The fundamental purpose of agriculture is to meet the needs of people – to tip the ecological balance in favor of humans relative to other species. However, agriculture is rooted in nature – in soil, air, water, plants, animals, and the other elements of natural ecosystems. The earth and everything upon the earth,
including people, are parts of that natural ecosystem. And, according to the fundamental principles of ecology, if we attempt to tip the balance of nature in favor of humans too far or too fast, we will destroy the integrity of the ecosystems of which we ourselves are a part.

In other words, a healthy, diverse environment is necessary for the long run well-being of humans. If we degrade the natural environment – the soil, air, or water – we degrade its ability to provide for the food and fiber needs of people. If we destroy the quality of the environment, the purity of our air or water, we degrade the health and well-being of people. If we destroy other living species of the earth, we may ultimately destroy the ability of the earth to support human life. We must maintain the integrity of the natural ecosystem in order to sustain its ability to sustain the life and health of people, because we are a part of the natural environment.

However, the economy provides the means by which we relate to the natural environment, and relate to each other, within complex human societies. In primitive self-sufficient societies, people relate directly to each other. They provide most of their own needs, they work together, and they barter to acquire the things they cannot produce for themselves. In such societies, people also relate directly with the natural environment, they farm the soil, cut lumber from the forests, and dig minerals from the earth to meet their needs. However, as societies move beyond self-sufficiency, they develop “money” and “markets,” and other impersonal systems of “economics” to facilitate greater specialization and trade. As economies emerge, relationships between people and the natural environment become impersonal and indirect. Farmers, foresters, and miners sell their products to other specialized producers and receive money in return. The economy then determines who gets to make decisions about how the natural resources are used – who gets to be farmers, foresters, miners, etc.

In a market economy, if a farmer can’t make a living farming, he or she will be forced to find another line of work. So, if their current method of farming isn’t profitable, or otherwise financially viable, farmers are forced to either find a profitable alternative to their current system or find something else to do for a
living. Therefore, ecologically sound farming methods will not be used unless they are also economically viable. If the farmer goes broke, his or her farming operation is not sustainable, no matter how ecologically sound it may be.

Ecological integrity and economic viability are necessary, but not sufficient to ensure sustainability. Civilization is based on the premise that people are capable of rising above a “survival of the fittest” way of life. Certainly, there are some aspects of civilized societies in which it is deemed appropriate that people be rewarded in relation to their ability – whether it is physical strength, mental ability, or economic cunning. However, one mark of a civilized society is the ability to define and defend those rights that accrue equally to all, regardless of their physical or mental ability or their ability to earn an income or accumulate wealth.

A socially responsible agriculture must provide for the food and fiber needs of people. But, social responsibility goes beyond simply making sure that enough is produced to meet the needs of those who are willing and able to pay. In America, all people have a fundamental right to sufficient food to ensure their life, growth, and health, regardless of their ability to pay. In a “civilized society,” to the extent that such minimum levels of nutrition are available for any, they must be available for all. A society that is unwilling to accept this responsibility could hardly be called civilized. A socially responsible agriculture must ensure “food security” for all, without regard to income or wealth.

A socially responsible agriculture must ensure that the people who produce the food have an opportunity to lead successful, productive lives. This does not mean that society has a responsibility to ensure the success of everyone who might choose to farm by any means they might choose. However, it does mean that farmers should be protected from unfair competition in the market place. Farmers should not be forced to exploit their land, their neighbors, nor their customers in order to maintain the economic viability of their farming operation. The people, through government, have a responsibility to protect both people and nature from economic exploitation. The concept of “free markets” was never meant to imply
the freedom to degrade the earth or its people.

If an agricultural system fails to support the needs of a society, then society will not support that form of agriculture. A system that is not socially responsible ultimately will degrade its resource base, will lose its ability to produce, and thus, cannot survive economically. We need look only to the communistic farming systems of Eastern Europe for clear evidence of farming systems that were not socially responsible, could not sustain society, and thus, could not be sustainable by society.

So a sustainable agriculture must be capable of meeting the current food and fiber needs of people, all people, while leaving equal or better opportunities for people of the future. To be sustainable, agriculture must be ecologically sound, economically viable, and socially responsible. The three dimensions of sustainability are not a matter of formal definition or legal precedent, but are a matter of common sense. If the land loses its ability to produce, the farm is not sustainable. If the farmer goes broke, the farm is not sustainable. And if a system of farming fails to support society, it will not be supported by society, and thus, is not sustainable. The economic, ecological, and social dimensions of sustainability are like the three dimensions of a box. All three are necessary. A box that is lacking in height, width, or length, quite simply is not a box. A farming system that is lacking in ecological integrity, economic viability, or social responsibility, quite simply is not sustainable.

Some people see questions regarding the sustainability of agriculture simply as a challenge to make the current industrial food system more environmentally sound and socially responsible. They view biotechnology, for example, as a means of reducing reliance on agricultural chemicals, and thus, of reducing environmental risks. They believe that corporations can be encouraged to be more responsive to the needs of their workers, their communities, and of society as a whole. However, such people fail to recognize the inherent conflict between industrialization and sustainability.

The sustainability of life on earth, including human life, depends of the health and
viability of the living systems of the earth. All living things and are made up of cells and cells are distinguished and defined by their boundaries. Each cell is surrounded by a membrane or cell wall. The walls of living cells let some things pass through, but keep other things in and out – so they are called “semi-permeable” membranes. If the cells in our body were permeable or non-permeable, rather than semi-permeable, they would not support life. If they didn’t keep anything in, we would dry up. If they didn’t let anything out, we would blow up. If they weren’t semi-permeable, they wouldn’t be able to retain moisture or minerals; they wouldn’t be able to metabolize food, release energy, or eliminate waste. We would die.

This principle of healthy boundaries extends to many other aspects of life. All living organisms, plants, animals, people, etc. are defined by boundaries – skin, bark, leaf surface, scales, etc. – which give them form and identity. As with cells, the boundaries of organisms must be semi-permeable or selective with respect to what they allow to pass through and what they keep in or out. An organism that lets nothing in will starve from lack of nutrition and energy. An organism that allows nothing out will be poisoned by its own waste.

Larger living organizations, such as families, communities, and nations, have boundaries that are social or cultural rather than physical. The relationships we have with people within the boundaries of families, communities, or nations are different from those with people outside our family. We let some things pass through; we keep other things in or out. Without these personal, cultural, and political boundaries, human civilization, as we know it, could not exist. Without civilized human behavior, life on earth might well cease to exist. Good boundaries are necessary for life.

Business organizations are living organizations, and the boundaries of a business define its span of control. Economic relationships within a healthy economic organization are inherently different from relationships between organizations. For example, relationships among the various economic enterprises on a healthy farm are managed differently than are business transactions between the farm and
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its suppliers of inputs or markets for products. As with all living organisms, semi-permeable economic boundaries – neither self-sufficiency nor economic dependency – are necessary for the economic health of a farm.

Another fundamental characteristic of living things – plants, animals, insects, bacteria, etc. – is their ability to recreate and to reproduce themselves. They create new cells, new organisms, and thus, new boundaries. In fact, the natural tendency of all living systems is toward the creation of greater biological diversity – meaning multiple identities and forms of things, and thus, more boundaries. For example, after a field has been stripped of all vegetation, the first life to return likely will be a single, or possibly a few, species of “weeds.” The weeds will mature, reproduce, and die, but their rotted residue will create a favorable environment for other plant species. As a succession of regeneration processes continues, an increasing diversity of plant species will create a favorable habitat for an increasing diversity of microorganism, insect, and animal species. And, this increasing diversity of form and structure is defined by a multitude of new boundaries.

Unlike living things, the natural tendency for “dead things” – including inanimate, mechanistic things – is toward the dissolution or destruction of boundaries. In physics, this is called a natural tendency toward “entropy.” Entropy is defined as “the ultimate state reached in degradation of matter and energy of the universe; a state of inert uniformity of component elements; absence of form, pattern, hierarchy, or differentiation.” Entropy is characterized by the complete absence of boundaries.

In the definition of entropy, “degradation of energy and matter” refers to the fact that boundaries are destroyed in the process of releasing energy from matter and new energy then is required to rebuild boundaries. For example, when an oak log is burned, energy, in the form of heat, is released from the wood and the structure of the wood is turned to ashes. The boundaries that once defined the structure of the log are destroyed through the releasing of energy. The human body converts food to energy by a similar process of digesting or breaking down the structure of the things we eat. In both cases, the energy consumed is renewable because the
energy lost can be replaced by new energy captured by plants from the sun.

Each time energy is released from matter some energy must be used to restore the boundaries of matter, leaving less “useful energy” than before. Lacking a new infusion of energy from “outside” – as from the sun – systems slowly lose their ability to restore the structural boundaries of matter, and thus, slowly lose their ability to store and release energy. This is the essence of entropy – the degradation of energy and matter, as systems lose their form, structure, and diversity through the destruction of boundaries.

This may all sound a bit esoteric; however, the concept of entropy is critical in understanding why an industrial agriculture is not sustainable. Industrialization achieves its tremendous productivity through the dissolution of boundaries and by using no energy to restore them. The dissolution of biological, social, and economic boundaries that define different fields, enterprises, farms, families, etc., removes all restraints to specialization, standardization, and consolidation, and thus, allows maximum productivity and economic efficiency.

On farms, we have seen tremendous gains in productivity and economic efficiency made possible by the removal of such boundaries. Farmers removed fences that had separated fields, as they moved toward more mechanized and standardized systems of farming. The different functional roles of different family members at different stages of life have disappeared as such tasks are now performed by mechanical or chemical technologies. The diversity of crops and livestock enterprises that once defined the structure of typical family farms has been abandoned to achieve greater specialization. The economic boundaries that once defined separate family farms have been erased through farm consolidation. Now, the boundaries between farming and industry are being destroyed through corporate contract farming. The ecological, social, and economic “landscapes” of rural areas today are being left without form, pattern, hierarchy, or differentiation.

This dissolution of boundaries, this industrialization of agriculture, has released tremendous stocks of stored energy that were constrained by the boundaries that
once defined different fields, family functions, enterprises, farms, and even farming communities. The boundaries have been removed and the energy has been released. But, once the energy stored over millions of years has been depleted, nothing will be left to sustain agriculture, and thus, nothing will be left to sustain human society. Industrialization is a “dead” system. It destroys boundaries in order to extract the stored energy from land, water, air, plants, animals, and people. But, it has no means of restoring boundaries, of recreating matter, and thus, no means of renewing sources of energy for the future. The amount of fossil energy – fuel, fertilizer, pesticides, etc. – used by today’s industrial farming operations far exceed the amount of solar energy they are able to capture from the sun.

Industrial systems inherently tend toward entropy – toward degradation of matter and energy; toward a state of inert uniformity; toward an absence of form, pattern, hierarchy, or differentiation. A lifeless desert is about as close to entropy as most of us have seen. It is without form, pattern, hierarchy, or differentiation – without boundaries. Such will be the ultimate state of an industrial agriculture. An industrial agriculture is not sustainable.

Sustainable farming systems must be living systems – they must be self-renewing, reproductive, regenerative systems of production. Living systems must have boundaries – not barriers that keep everything in or out, but semi-permeable boundaries. Living systems are dynamic. Living boundaries are destroyed, through use and decay, but living boundaries also are restored through regrowth and reproduction. Living systems are able to capture energy from the sun to offset the natural entropy brought about by inevitable death and decay. Living systems tend toward greater diversity of form, structure, and pattern, as they create new boundaries. The process of energy renewal and regeneration, this natural tendency of living systems, is our only means of offsetting the natural tendency of dead systems toward entropy.

Sustainable systems are living systems and the earth is the foundation for all life. All living things require food of one kind or another. Life also requires air and water, but nothing can live with air and water alone. Things that are not directly
rooted in the soil – that lives in the sea, on rocks, or on trees, for example – still require minerals that come from the earth. They must have soil from somewhere. Living things other than plants get their food from plants or from other living things that feed on plants, and plants feed on the soil. By one means of another, all life is rooted in the soil. So, the seeds for a sustainable agriculture must be sown in the earth. And, the seeds that will grow into an understanding of sustainable agriculture, and the sustainability of humanity, must be sown in educational programs that are linked with the earth.

I am an economist, not a soil scientist. So, in talking about the soil, I try to stick to the things that almost anyone might know or at least understand. As I was doing some reading on the subject, I ran across a delightful little book, “The Great World’s Farm,” written by an English author, Selina Gaye, somewhere around the turn of the 20th century. Back then people didn’t know so much about everything, so they could get more of what they did know about a lot more things into a little book. The book begins by explaining how soil is formed from rock, proceeds through growth and reproduction of plants and animals, and concludes with cycles of life and the balance of nature. But, the book stresses that all life is rooted in the soil.

Initially molten lava covered all of the crust of the earth. So, all soil started out as rock. Most plants had to wait until rock was pulverized into small particles before they could feed on the minerals contained in the rock. Chemical reaction with oxygen and carbon dioxide, wearing away by wind and water, expansion and contraction from heating and cooling, and rock slides and glaciers have all played important roles in transforming the earth’s crust from rock into soil. However, living things also help create soil for other living things.

Lichen is a unique sort of plant that can grow directly on rock. Their spores settle on rock and begin to grow. They extract their food by secreting acids, which dissolve the minerals contained in the rock. As lichens grow and die, minerals are left in their remains to provide food for other types of plants. Some plants feeding on dead lichens grow roots capable of penetrating crevices in rocks caused by
weathering. Growing roots can split and crumble rock further, exposing more surfaces to weathering and accelerating the process of “soil making.”

Specific types of rock contain limited varieties of minerals and will feed limited varieties of plants – even when pulverized into dust. Many plants require more complex combinations of minerals than are available from any single type of rock. So the soils made from various types of rocks had to be mixed with other types before they would support the variety and complexity of plant life that we have come to associate with nature. Sand and dust can be carried from one place to another by wind and water, mixing with sand and dust from other rocks along the way. Glaciers have also been important actors in mixing soil. Some of the richest soils in the world are fertile bottomlands along flooding streams and rivers, loess hills that were blown and dropped by the wind, and soil deposits left behind by retreating glaciers.

Quoting from the “Great World’s Farm,” “No soil is really fertile, whatever the mineral matter composing it, unless it also contains some amount of organic matter – matter derived from organized, living things, whether animal or vegetable. Organic matter alone is not enough to make a fertile soil; with less than one-half percent of organic matter, no soil can be cultivated to much purpose.” After the mixed soil minerals are bound in place by plants, and successions of plants and animals added organic matter and tilth, the mixtures became what we generally refer to as soils.

The first stages of soil formation are distinguished from the latter stages by at least one important characteristic. The initial dissolving, grinding, and mixing required millions of years, whereas, soil binding and adding organic matter can be accomplished in a matter of decades. Thus, the mineral fraction of soil is a “non-renewable” resource – it cannot be recreated or renewed within any realistic future timeframe. Whereas, the organic fraction is a renewable or regenerative resource that can be recreated or renewed over decades or at least over a few generations. Misuse can displace, degrade, or destroy the productivity of both fractions of soils within a matter of years. And, once the mineral fraction of soil is lost, its productivity is lost forever.
If there are to be productive soils in the future, we must conserve and make wise use of the soils we have today. The soil that washes down our rivers to the sea is no more renewable than are the fossil fuels that we are mining from ancient deposits within the earth. In spite of our best efforts, some quantity of soil will be lost – at least lost to our use. Thus, our only hope for sustaining soil productivity is to conserve as much soil as we can and to build up soil organic matter and enhance the productivity of the soil that remains.

In times not too long past, the connection between soil and human life was clear and ever present. Little more than a century ago, most people were farmers and those who were not lived close enough to a farm to know that the food that gave them life came from the soil. They knew that when the soil was rich, the rains came, and the temperature was hospitable to plants and animals, food was bountiful and there was plenty to eat. They knew that when droughts came, plants dried out and died, and the soil was bare, there was little to eat. They knew when the floods came, plants were covered with water and died, and the soil was bare; there was little to eat. They knew very well that their physical well-being, if not their lives, depended on the things that lived from the soil.

Today, the connection between soil and life is no longer so direct or so clear, but it is no less critical. Most urban dwellers also have lost all sense of personal connection to the farm or the soil. During most of the past century many people living in cities either had lived on a farm at one time or knew someone, usually a close relative, who still lived on a farm. Their connection with farming gave them some understanding of their connectedness with the soil. At least they knew that “land” meant something more than just a place to play or space to be filled with some form of “development.” But these personal connections have been lost with the aging of urbanization. One of the most common laments among farmers today is that “people no longer know where their food comes from.” For most, any real understanding of the direct connection between soil and life has been lost. It’s sad but true.
Still, all of life depends upon soil. All life requires food and there is simply no other source of food except living things that depend directly or indirectly on the soil. Farmers are the living beings who care for the land, plant the seeds, and nurture the life that springs from the soil. This foundational principle of natural science, of human health, and of social studies should be taught at every level in every school in the world -- beginning in kindergarten and continuing through college. The connection between healthy soils and human health and life is as fundamental as our connection with the air we breathe, the water we drink, and the food we eat. It’s just less obvious.

Quite possibly, no aspect of environmental education is more critical to the sustainability of human life on earth than is a broad understanding of the critical linkage between the health of the soil and human life. A sustainable agriculture is but the means by which life is brought from the soil and which sustains the health of the soil to support future life. Even the economic and social dimensions of sustainability may be best understood in terms of ecological principles, such as the concepts of semi-permeable boundaries, regeneration, and entropy. Many students may not be particularly interested in such things as farming, economics, communities, or social responsibility, but everyone can relate to food and everyone experiences the earth.

Learning is a living process, like farming. The seeds of knowledge and understanding must be sown, at the right season, and then allowed to grow and mature into wisdom in their own time. Knowledge, understanding, and wisdom cannot be manufactured, packaged, and distributed for immediate use. The seeds of sustainable agriculture must be sown in the fertile minds of young people, with the right seeds sown in the right season. These young seedlings that spring forth must be nurtured, feed and cared for, until they are strong enough to survive on their own. Only through thoughtful, patient learning processes will we ultimately achieve the collective wisdom to choose to live sustainably.

Beginning in kindergarten, seeds of sustainability can be sown by environmental education programs, with children watching worms and other “creepy crawly things” that live in the soil. The lesson: the soil is alive, and many things live in
and from the soil. Later, children in environmental education classes may plant seeds in the soil, give them air, water, and sunlight, and watch them grow. The lesson: a healthy environment for living things depends on healthy soil, in addition to clean air and water. In higher grades, boys and girls could be given an opportunity to plant an “edible garden,” perhaps in raised bed or clay pots, if no suitable land is available. Crops such as lettuce and radishes mature quickly enough in most locations to be harvested during the school year. Other plants could be started indoors and transplanted outside after the threat of frost has passed. Regardless, the opportunity to plant a seed in the soil and watch it transform itself into food represents a powerful lesson of the linkage between the soil and human life. Saving seeds for replanting and composting food scraps, dead plants, and waste paper products, completes the cycle of regeneration and renewal of life from the soil.

Once young people understand the basic concepts of germination, growth, renewal, maturity, use, and reproduction, they will learn much more from field trips to community gardens, local farms, or other places where people work to bring life from the soil. And, once they understand the relationship of soil, plants, and people, the role of food animals can be introduced into the environmental education program. Some soils and climates won’t grow crops that people can consume directly but will grow crops that some animals can digest – coarse grasses and legumes being prime examples. So the animals thrive by eating such plants, and humans thrive by eating the products of the animals – eggs, milk, cheese, and meats are prime examples. Livestock wastes are then returned to the land where the crops were grown, completing the regeneration process. Some animals, such as hogs, actually thrive on human garbage, thus, helping to complete the nutrient cycle necessary to sustain life. The educational opportunities linking environmental education and sustainable agriculture would seem to be numerous and promising for the fertile minds of teachers and students alike.

An important point to remember is that learning, like farming, is a living process. The right seeds have to be planted at the right season. The lessons of
sustainability should be lessons children are capable of learning at their particular stage of maturity. For example, kindergartners won’t see farm animals as anything other than pets and even many high school youth are not sufficiently mature to understand much about economics. Once the seeds of wisdom have been sown, allow them to grow. And, plant seeds for new crops of knowledge to complement those already growing. Each new lesson can reinforce and expand the previous lessons. In the process of teaching, encourage students to learn on their own, and to teach others. The lessons of sustainability don’t require laboratories or a lot of teaching aids and equipment. Anybody can plant a seed and watch it grow, can recycle garbage, can raise a food animal, can do something to increase their understanding of the self-making, regenerative nature of life.

Understanding sustainability ultimately is about understanding how to live well, while helping others to live well, and leaving opportunities for those of future generations to live well. If we sow the seeds of sustainable agriculture, making sure the seed is appropriate for the soil and the season, those seeds will grow, and with a bit on nurturing will mature, reproduce, regenerate, and will grow into a sustainable human society. The time to begin sowing the seeds of sustainability is now.

[2] John Ikerd is Professor Emeritus, University of Missouri, Columbia, MO – USA. E-mail: JEIkerd@AOL.COM web site: http://www.ssu.missouri.edu/faculty/jikerd
North American agriculture is in the midst of a “great transition” – a transition that is fundamentally transforming rural America. Although my rural life experiences have been in the United States, I have spent enough time over the past decade in Canada, talking with Canadians, to believe the rural transformations of the U.S. and Canada are not all that different. Agriculture as we have known it, with family farms and viable rural communities, is being rapidly transformed into an industrial agriculture, with factory farms and dying rural communities.

This industrialization of agriculture is not a new phenomenon. The trend toward specialization, standardization, and consolidation – toward industrialization – began around the turn of the 20th century, with the mechanization of agriculture. Until recently, the most obvious consequence of this process had been larger farms, fewer farms, and fewer farm families. But, farmers and families, real people, were still making the decisions concerning what was produced, how it was produced, and for whom it was produced. Today, however, these important decisions increasingly are made in the boardrooms of giant, multinational corporations. These corporations are not real people; they have no families, no friends, no communities, and increasingly no single nationality. Their decisions are driven by the never-ending need to generate profits and to grow. The needs of families, communities, the land, and society in general, must be considered secondary to the needs of the corporation.

Nowhere is the industrialization more evident, in all of its dimensions and all of its ugliness, than in large-scale, confinement animal feeding operations (CAFOs) and in the corporations which control and promote them. One of the most repulsive aspects of corporate livestock production is the process by which contract production is promoted to the farmers and residents of rural North
America. Farmers are told that these corporate contract operations will give young people an opportunity to return to the farm and that significant government regulation of these CAFOs will deny rural youth of their only opportunity.

First, the number of independent U.S. hog farmers has declined dramatically since the large-scale operations have become prominent and most dramatically in those areas where CAFOs have been most prominent. The state of Missouri, for example, has lost about three-fourths of its hog farmers over the past decade, since large-scale contract operations first entered the state. The state of North Carolina preceded Missouri by doubling hog production, through CAFO operations, while cutting the number of independent hog producers in half. And, the CAFO operations have been virtually unregulated. So, unregulated corporate hog farms destroy opportunities for family hog farmers rather than create them – the facts on this are clear.

Second, contract hog production is not “farming,” it’s a factory job that just happens to involve animals that traditionally have been raised on farms. Real farmers make their own decisions. Until recently, although farmers were becoming fewer and larger, farmers were still making all of the important production decisions, and most of these farmers considered how their decisions might affect the land and their neighbors. In contract livestock production, the corporation makes the decisions concerning design of buildings and equipment, genetics, feeding, animal health, time of placement, time of marketing, and virtually every other aspect of the production process. The corporation gives little consideration, if any, to the implications of these decisions for the land, the community, or even for the families of contract producers. A future in contract production is not a future in farming, no matter what the corporate representative or their lackeys in government or the state universities may say. Real farmers make their own decisions and accept the responsibilities for the impacts of their decisions on the land and on other people.

Third, it is difficult to understand why any parent would want their children to work in an unhealthy environment, to hire others to work in an unhealthy
environment, or to impose an unhealthy environment on their neighbors. So, if parents want their children to become contract producers, it’s difficult to understand why they would be opposed to regulations necessary to ensure their health and to protect the quality of the water and the air in rural areas. The only logical conclusion is these parents want their children to live nearby and are willing to sacrifice the health of others to realize their own ambitions for their children.

Finally, there are other, better ways to farm and to raise hogs; the “sustainable agriculture” movement addresses the need to protect the rural environment and support rural communities, while providing opportunities for farmers to earn a decent living. But, sustainable farming takes more imagination and creativity than contract production – it requires taking care of each other and taking care of the land. Sustainable hog producers all across North America are finding that deep-bedding systems, including hoop house structures, and pasture based hog production systems often are not only more humane, ecologically sound, and socially responsible, but also, are more profitable than CAFOs. But, such systems require more management, more imagination, more creativity, more thinking, and thus, are more difficult to “promote.”

In a few years, the agribusiness corporations will leave North America, leaving their contract growers with useless investments in facilities, without “jobs,” without farming skills, and with “big messes” for which they must be held responsible. The community will be left with nothing on which to base future economic development. But, rural people don’t seem to be willing to look that far ahead. They are lured by the corporate promises of more jobs, increased tax base, and the false promise of corporate livestock production as a viable future for farmers.

Nearly ten years ago I was asked by a group of farmers in north Missouri to evaluate the potential impacts of large-scale, confinement hog feeding operations on rural communities. Since then, I have worked on this issue with grassroots community groups all across the U.S. and Canada.
Every community is a bit different, but the fundamental issues are always the same. Some people in these communities expect to benefit economically by adopting an industrial model of livestock production, while others expect to suffer the inherently negative consequences of agricultural industrialization. Perhaps no public issue has so split the social fabric of rural communities, as when those who benefit economically confront those whose quality of life is diminished and the rest of the community is asked to choose sides.

The basic arguments are quite straightforward. Large-scale, commercial hog producers, most operating under corporate contracts, feel compelled to adopt a factory model of production, involving concentrated confinement housing, cesspool-like lagoon storage of hog feces and urine, and the spreading or spraying of manure on open fields. These producers claim that such operations represent a natural evolution of hog production and essentially are the same as any other family farming operation. Factory farming supporters argue that irrational and fanatical opponents are trying to deny their inherent “right to farm” and their right to pursue their economic interests in a free enterprise economy. They argue that without compelling scientific proof of extraordinary risks to the environment or to human health, there is no reason to treat these factory livestock operations any differently than any other family farm.

However, common sense leads to a quite different conclusion. For example, all hog waste “lagoons” (cesspools) leak wastes into the groundwater. The only questions relate to how much they leak and how great a risk they present to human health. Inevitably, hog manure from these operations pollutes streams. The only questions relate to how many spills will occur in how many months and how great a risk they present to human health. All large confinement hog feeding operations stink. The only questions relate to how much of what chemicals are contained in the stench and how great a risk they present to human health. All hog large CAFOs rely on human antibiotics to control disease. The only questions relate to how much this contributes to antibiotic resistance in treating human diseases and how great a risk it presents to human health.
The common sense answer to all of these questions is the greater the number of hogs concentrated in one place, the greater will be the risk to the natural environment, and ultimately, the greater the risk to human health. Large-scale confinement animal feeding operations are not “farms” they are livestock factories. When hogs are raised on real farms, they are given sufficient space to move about, they spread their own waste – and with common sense management, don’t pollute the groundwater or streams. When hogs are raised on real farms, they “smell” but don’t “stink” – the difference being, “smell” doesn’t make people sick. When hogs are raised on real farms, they need antibiotics only when they are sick, and generally, they stay healthy. The greater the number of hogs crowded into one building, on one farm, in one county, the greater will be the risk to human health. It’s a matter of common sense.

Certainly commercial hog producers have a right to pursue their economic self-interest in a free enterprise economy. But, they don’t have a right to endanger the public health. “Private property rights” have never included the right to benefit at your neighbor’s expense. The “right to farm” has never included the right to operate an “animal feeding factory.”

The state and federal government agencies may feel compelled to wait for scientific proof, perhaps for a significantly large number of people to become disabled or die from hog related illnesses. But at the local level, people have the responsibility of ensuring that they and their neighbors don’t become those public health statistics. It is a contentions issue. People have no choice but to choose sides in this matter. Common sense – not economics and not science – should be our guide in deciding which side we should choose.

Today, rural North America is being “colonized.” Multinational corporations are extending their economic sovereignty over the affairs of people in rural places everywhere, including rural America – corporate livestock production is but a symptom of a far more serious problem. Rural people are losing control of their local public institutions, as outside corporate interests, previously alien to their
communities, use their economic power to gain controlling influence over local economies and local governments. Irreplaceable precious rural resources, including rural people and rural culture, are being exploited to increase the wealth of investors and managers of corporations that have no commitment to the future of their “rural colonies.” This is classic “colonization.”

Historically, a colony has been defined as a territory, acquired by conquest or settlement, over which a people or government, previously alien to that territory, has imposed outside control. A colonial relationship existed whenever one people or government extended its sovereignty by imposing political control over another people or territory. The only fundamental difference between the current colonization of rural areas and previous colonization of “lesser developed” countries is the nature of the entity carrying out the process – the source of power. Historically, colonization has been carried out by political entities, by governments. Today, colonization is being carried out by economic entities, by multinational corporations. However, the colonization process and its consequences are virtually identical, regardless of the source of power.

Rural people, whether in North America or elsewhere, are being told that they must rely on outside investment, like corporate livestock producers, to support local economic development. Outside investment will bring badly needed jobs and income, stimulate the local economy, and expand the local tax base. Economically depressed rural communities will be able to afford better schools, better health care, and expanded social services, and will attract a greater variety of retail outlets – restaurants, movie theaters, and maybe even a Wal Mart. Their rural community will begin to look more like an urban community and local people can begin to think and act more like urban people. Rural people have been left behind, they are told, and outside corporate investment is the only means by which they can advance fast enough to catch up with the rest of society.

These same basic arguments have been used by the powerful of all times to justify their colonization of the weak. Colonization was the only feasible means of improving the lives of the “natives” left behind in “primitive” societies –
economically, socially, and morally. Since the indigenous people had no adequate means of developing their resources themselves, it was only fair they give up some of the benefits to the colonizing nation in order to acquire the outside investment needed for the development process. It was a “win-win” situation, so they were told.

Historically, the British, Spanish, Portuguese, French, Germans, and Dutch were among the great empire builders. They colonized much of North, South, and Central America, Australia, and Africa, as well as major regions of Asia. Through colonization, the “primitive” people already occupying these territories were given an opportunity to become a part of a modern society. After failing to gain cooperation through persuasion, the leaders of the indigenous “tribes” were invariably bribed, threatened, or coerced into colluding with the colonizing powers. After all, it was for the ultimate good of the “their people.” The 19th century empire builders, in particular, claimed they had a moral responsibility to help bring “backward people” some of the fruits of modern Western Civilization. And, if the “natives” continued to resist, they were subdued by force and their indigenous cultures destroyed – for their own good, of course.

Clearly, becoming part of a colonial empire brought numerous economic, health, education, and technological benefits to past colonies. In some cases, such as North America and Australia, the indigenous population was sufficiently small to be essentially eliminated by immigrants who shared the culture of their colonial masters. Some colonies became strong enough to gain independence and a few are now more powerful than are their one-time masters. But, most colonies were not granted independence until well into the 20th century, when world opinion shifted against colonialism on ethical and moral grounds.

According to contemporary standards of international behavior, colonialism is inexcusable because it conflicts directly with the basic rights of national sovereignty and self-determination. The recognition of such rights, worldwide, ended political colonialism as a means of promoting economic and cultural development. Political colonialism was abolished worldwide, because it had
obvious harmful effects on the people of colonized areas – socially, culturally, ecologically, and economically. Long established social life-styles were suddenly disrupted, complete cultures were destroyed, natural resources were depleted, and the natural environment was polluted with industrial chemicals and toxic wastes.

After the colonizers had completed their exploitation, the local economy was left in shambles with no indigenous community structure or any other means of self-government to address the shameful legacy of colonialism. In spite of the obvious economic and technological benefits of colonization, the indigenous people of virtually every previously colonized country of the world, including the United States, still harbor a deep resentment of their former colonial masters. Political colonization is no longer morally or ethically excusable.

However, the “corporate colonization” of rural areas everywhere, including America, continues virtually unchecked. The earliest colonial intrusions into rural America were motivated by exploitation of its abundant wildlife, vast forest lands, and precious minerals deposits – invariably leaving behind frontier “ghost towns,” after the wealth had been extracted from the land. More recently, intrusions have been motivated by the exploitation of cheap rural labor, by the textile and food processing industries, for example. But, once the corporations found people who would work even harder for less money in other countries, the textile industry moved on, leaving behind deserted factories and unemployable people. With the creation of the North American Free Trade Agreement, the food processing industry now seems likely to abandon North America to colonize rural Mexico instead. However, corporate colonialism continues in rural America. Many rural areas are still being colonized to exploit remaining pockets of valuable rural resources, including an agricultural work ethic, trusting communities, and open spaces in which to dump various kinds of noxious wastes, which urban people have rejected.

Today, corporate livestock production provides a prime example of corporate colonization of rural North America. Local people are promised new jobs, more income, an expanded tax base, and an opportunity to “catch up” with the rest of
American society. Local leaders are courted or coerced, as necessary, to shape local policies to accommodate industrial hog production methods. Local farmers are told industrialization is the wave of the future for agriculture and they must embrace the new technologies to survive. Rural people are told that local regulations to protect the public health and natural environment will drive existing farmers out of business, will stifle economic development, and will doom their community to continued “backwardness.” These arguments are no different from past arguments used to support political colonization; only the source of power is different.

In reality, few local people will gain from such colonization. A few local officials and land speculators may line their pockets and a few local people may get relatively good paying jobs, for a time. But, nearly all of the profits and good paying jobs will go to corporate investors and managers who will remain outside the community. Most rural Americans eventually will refuse to work for exploitative employers, leaving most of the low-paying jobs to be filled by immigrant labor. Eventually, the colonizing corporations will move on, once local resources have been depleted or local resistance to their exploitation begins to affect their bottom line. Perhaps some post-colonial rural communities will be prosperous, but these so-called success stories will be limited to places with unique landscapes and climates deemed worthy of preserving for the enjoyment of affluent outsiders.

As in earlier times, the 21st century corporate empire builders claim they feel some responsibility to help bring “backward people” of rural areas some of the benefits of the modern economy. However, rural people are not necessarily “backward,” just because they have not embraced the exploitative system of industrial development and have been reluctant to discard their traditional rural cultural values. After the corporations are gone, there is no reason to believe that rural Americans will be less resentful of their previous “corporate colonial masters” than are indigenous people of previously colonized nations of their previous “political corporate masters.” They will resent the loss of rural culture, rural values, and their previous sense of connectedness to place. They will resent
the loss of a once safe and healthy rural environment in which they had hoped to
live and raise their families. They will resent the loss of their self-governing
ability, as their communities will have been split apart by dissention during the
colonizing process. They will resent the loss of their sense of community.

The threat of colonization is always present. The economically and politically
powerful will always be tempted to dominate and exploit the weak. However,
differences in economic and political power only make colonization possible –
not necessary or inevitable. The powerful can be restrained from their natural
tendency to expand their sovereignty over the weak, and even if they are not,
the weak can always find ways to resist the powerful.

The strongest defense rural North America has against the threat of corporate
colonization is the knowledge of what is happening to their communities, why it
is happening, and what are the consequences of their doing nothing to stop it.
The colonization of rural America is not inevitable. But, rural Americans must
stand together to preserve their priceless rural culture, to protect their valuable
natural and human resources, and pursue a different strategy of “sustainable”
rural economic development. But first, the people of rural North America must
come to realize that corporate livestock production is not a solution to their
problems, but instead, is but an exploitative response to their growing
desperation. The solution for rural North Americans is not to submit to
corporate colonization, but instead, to declare their economic independence and
begin rebuilding their own communities from the grass roots.

[1] Panel presentation, “Corporate Livestock Production,” National Farmers Union Convention,
Saskatoon, Saskatchewan, Canada, November 23, 2002.
[2] John Ikerd is Professor Emeritus, University of Missouri, Columbia, MO – USA. E-mail:
JEIkerd@AOL.COM web site: http://www.ssu.missouri.edu/faculty/jikerd
How Big Should A Small Farm Be? [1]

John Ikerd [2]

Back in the 1960s, I had an opportunity to work with a genuine “giant.” His name was Henry Hite. I worked with merchandizing and sales promotion for Wilson & Co., meat packers, and Henry was one of the “gimmicks” we used to lure people to supermarkets to buy our bacon and hams. Henry billed himself as being eight feet, two inches tall – although the Guinness Book of World Records lists him at something like seven feet, nine-and-a-half inches. Henry admitted to me that he wasn’t actually eight-foot-two, but he said he was at least two inches taller than some other fellow who claimed to be eight-foot-even. Regardless, Henry Hite was a tall fellow – a genuine “giant.”

Even more impressive, Henry was in his mid-forties at the time and he lived into his early sixties. Most “giants” die young – few even survive their thirties. Henry was lucky. All of his abnormal growth came during his teenage years and by age nineteen he had stopped growing. Most “giants” keep right on growing, until their body becomes so large its vital organs can no longer support its bulk and they die. In the case of giants, the biological process that naturally limits the size of the human body fails to function. Apparently, each of us has a “normal” size, beyond which our health begins to decline, and a maximum size, beyond which we get sick and die. Henry wasn’t particularly healthy, at least partially due to his size, but he had quit growing before he grew too big to live. Henry’s case was notable because he pushed the limits of size and survived.

So what does the size of Henry Hite have to do with the right size for a small farm? Henry, like you and me, was a living being – a living biological organism. And, all living organisms have a “right size,” or at least a “right size range.” Some elephants are bigger than others and some mice are smaller than others, but the “right size” for all elephants obviously is much larger than the “right size” for a mouse. If a mouse were as big as an elephant, it couldn’t survive by doing the things that mice do, and if an elephant were as small as a mouse, it couldn’t
survive by doing the things that elephants do. But equally important, a mouse
could never live to grow nearly as large as an elephant and an elephant couldn’t
survive without becoming much larger than a mouse. In nature – in the “grand
order of things” – living things have evolved over time so their size now fits their
purpose and function within nature. Living things are naturally the right size to
do what they need to do. And, a farm is a living thing.

A farm is a living organism – in many respects, like the body of a plant or an
animal. A farm is a complex “organization” made up of biological organisms
within the soil, of plants and animals above the soil, and of the farmer, who cares
for the farm and lives from the farm. The health of the farm is dependent upon
the health of its various elements, or “organs,” but also, upon the health of the
relationships among the various organs that make up the living organism or farm
as a whole. And, as with all other living organisms, each farm has a “healthy
size,” beyond which its health begins to decline, and a “maximum size,” beyond
which it will “become sick and die.”

Unlike plants and animals, however, healthy farms may be different sizes. Unlike
natural organisms, farms have neither a predetermined purpose to perform nor a
specific set of elements, organs, or resources to be used in carrying out their
necessary functions. Thus, farmers must decide the purpose of their farms and
then must organize the resources – the land, labor, capital, and management skills
– necessary for the farm to function effectively. In a sense, farmers create their
unique farm “organism.” However, all farm organizations still must function
according the basic principles of living organisms. Each unique farm
organization, being a living organism, has a healthy size and a maximum size,
beyond which it cannot survive. But for each farm, the farmer must discover the
“right size” necessary to keep their farm healthy and the size beyond which it
must not be allowed to grow.

In general, the health of a farm depends on its ecological, social, and economic
dimensions. A healthy farm, as with any other living organism, must function in
harmony within its ecological niche. The farm organization and the diversity of
its enterprises must fit its natural environment and the diversity of its natural resources – its climate, land, and biological environment. A healthy farm also must function in harmony with the people who farm the land and the people affected by the way it is farmed – the farm family, community, and society. And a healthy farm must meet the realistic expectations of those who depend upon it for their economic livelihood.

A farm that expands beyond its ecological niche invariably degrades its natural resource base – soil, air, or water – and eventually diminishes its health and productivity. If it persists in trying to function in conflict with nature, the farm will not survive. A farm that expands beyond its social niche invariably creates conflicts within the family, within the community, or within the larger society. If it persists in trying to function in conflict with its social environment, the farm will not survive. However, a farm that fails to expand enough to fulfill its economic purpose, without creating ecological or social conflict, likewise, is not a healthy farm. For a farm to be healthy, it must be of a size that allows balance and harmony among its ecological, social, and economic functions. If it is too small, it cannot perform its economic purpose, but if it becomes too large, at some point, it will become sick and die.

Many farms today are too large to survive. Although today they may appear to be productive, even profitable, they are not sustainable over time. They are exploiting and degrading the natural resource base upon which their productivity ultimately depends. On many farms, soil is eroding at rates far in excess of its natural regenerative ability and agricultural chemicals are polluting groundwater and streams and destroying the biological life of the soil. Many farms are exploiting and degrading the people who work the land, the people of the surrounding rural communities, and people of society in general. The occupation of farming is being “de-skilled” through corporate contractual arrangements, which reduce the function of farming to that of low-skilled, low-paid labor. Consequently, the productivity and profitability of such farms are not sustainable. Sustainable farming systems must be ecologically sound and socially responsible if they are to be economically viable, and thus, sustainable over time.
Many farms today have expanded beyond their naturally healthy size. Their health is declining each year, and they are dying a slow death. Many farms today have become too big to live.

It seems reasonable to ask why so many farms have become so large. Why would so many farmers organize their farm resources in ways that ultimately destroy its health and its long run viability? The answer is, they have lost sight of the fact that a farm is a living organism. Instead, they treat their farms as if they were inanimate mechanisms. In the minds of many farmers today, a farm is simply a factory without a roof and fields and feed lots are nothing more than biological assembly lines. Agriculture is just another industry and a successful farm must be run like any other business. There is no natural limit to the size of industrial business organizations – the bigger they are the more successful they are considered to be. Thus, farmers who have this industrial, business organization mindset see no reason to limit the size of their farming operation. The bigger the farm, the more successful the farm, at least in the eyes of many.

Every farm has a purpose. The purpose of many farms has shifted over the years, from farming as a “way of life” to farming as an “economic investment.” This emphasis on economics has caused many farmers to adopt an industrial approach to farming – industrialization being the dominant economic development model of the 20th century. Industrialization is characterized by specialization of function, standardization of process, and consolidation of control. Once-diverse crop and livestock farming operations first specialized in either crops or livestock, next in one or two crops or a single livestock species, and for many, in a single phase of production of a crop or livestock species. Specialization allowed the various production processes to be broken down into their basic elements so they could be standardized, routinized, and in many cases mechanized. In fact, processes had to be standardized so the various specialized elements of production would fit together in producing a single product – just like activities at each position on an assembly line must be standardized so they all work together.

Finally, specialization and standardization make it far easier to control a
production process. Each person involved in the process simply carries out a predetermined specialized function according to some standard operating procedure, greatly simplifying the management process. Management decisions are then reduced to deciding how much land, labor, and capital will be invested and how these resources will be allocated or employed. Through industrialization, each decision-maker or manager can effectively control a larger business organization. This allows consolidation of control into fewer and larger production units, in the case of agricultural industrialization, into fewer and larger farms.

The key point of this discussion is that industrial organizations have no natural limits to size. As a production processes is reduced to smaller and smaller elements, and as each element is standardized, routinized, and mechanized, it becomes possible for larger and larger production units to be brought under the control of a single decision maker. The continuing consolidation of giant corporations that are already multinational in scope provides clear evidence of the lack of natural limits to size for industrial business organizations. The production processes on thousands of farms is now controlled by a few of these giant business organizations, providing equally clear evidence of the lack of natural control on the size of industrial organizations that we once called “farms.”

But, how can we be sure that the increasing size of these industrial farming operations will degrade the health and destroy the sustainability of farms? The answer: because the fundamental processes of industrialization conflict directly with the fundamental requirement for ecological and social health and for long run economic sustainability. The only way to maintain the health and sustainability of a farming operation is to treat the farm as a living organism rather than an inanimate mechanism. The size of a farm must be limited to a size that is consistent with its ecological and social health, and thus, with its economic viability.

The question of a healthy sustainable farm size is essentially a question of “boundaries” – how much land, labor, and capital should be included within the
“boundaries” of a single decision-making unit or farm. In addition, the health and sustainability of the farming operation depends directly on the health of the boundaries that define the various elements, or “cells,” which constitute the farm organization. A healthy farm must be of a size consistent with maintaining healthy boundaries.

All living things and are made up of cells and cells are distinguished and defined by their boundaries. I recall learning about cells in a high school science class. Each cell is surrounded by a membrane or cell wall. The walls of living cells let some things pass through, but keep other things in and out – so they are called “semi-permeable” membranes. If the cells in our body were permeable or non-permeable, rather than semi-permeable, they would not support life. If they didn’t keep anything in, we would dry up. If they didn’t let anything out, we would blow up. If they weren’t semi-permeable, they wouldn’t be able to retain moisture or minerals; they wouldn’t be able to metabolize food, release energy, or eliminate waste. We would die. All living things are made up of cells, which are distinguished and defined by their semi-permeable boundaries.

This principle of healthy boundaries extends to many other aspects of life. All living organisms, plants, animals, people, etc. are defined by boundaries – skin, bark, leaf surface, scales, etc. – which give them form and identity. As with cells, the boundaries of organisms must be semi-permeable or selective with respect to what they allow to pass through and what they keep in or out. An organism that lets nothing in will starve from lack of nutrition and energy. An organism that allows nothing out will be poisoned by its own waste.

Larger living organizations, such as families, communities, and nations, have boundaries that are social or cultural rather than physical. The relationships we have with people within the boundaries of families, communities, or nations are different from those with people outside our family. Without these personal, cultural, and political boundaries, human civilization, as we know it, could not exist. Without civilized human behavior, life on earth might well cease to exist. Good boundaries are necessary for life.
Business organizations are living organizations, and the boundaries of businesses define their span of control. Economic relationships within a healthy economic organization are inherently different from relationships between organizations. For example, relationships among the various economic enterprises on a healthy farm are managed differently than are business transactions between the farm and its suppliers of inputs or markets for products. As with all living organisms, semi-permeable economic boundaries are necessary for the economic health of a farm. Economic viability is not a matter of either self-sufficiency or mutual-dependence, but rather of maintaining semi-permeable, selective, economic boundaries.

Another fundamental characteristic of living things – plants, animals, insects, bacteria, etc. – is their ability to recreate and to reproduce themselves, and thus, to create new cells, new organisms, and thus, new boundaries. In fact, the natural tendency of all living systems is toward the creation of greater biological diversity – meaning more different identities and forms of things, and thus, more boundaries. For example, after a field has been stripped of all vegetation, the first life to return likely will be a single, or possibly a few, species of “weeds.” The weeds will mature, reproduce, and die, but their rotted residue will create a favorable environment for other plant species. As a succession of regeneration processes continues, an increasing diversity of plant species will create favorable habitat for an increasing diversity of microorganism, insect, and animal species. And, this increasing diversity of form and structure is defined by a multitude of new boundaries.

Unlike living things, the natural tendency for “dead things” – including inanimate, mechanistic things – is toward the dissolution or destruction of boundaries. In physics, this is called a natural tendency toward “entropy.” Entropy is defined as “the ultimate state reached in degradation of matter and energy of the universe; a state of inert uniformity of component elements; absence of form, pattern, hierarchy, or differentiation.” Entropy is characterized by the complete absence of boundaries.
In the definition of entropy, “degradation of energy and matter” refers to the fact that boundaries are destroyed by the release of energy from matter and that new energy is required to rebuild boundaries. For example, when an oak log is burned, energy, in the form of heat, is released from the wood and the structure of the wood is turned to ashes. The boundaries that once defined the structure of the log are destroyed through the releasing of energy. The human body converts food to energy by a similar process of digesting or breaking down the structure of the things we eat. In both cases, the energy consumed is renewable because the energy lost can be replaced by new energy captured from the sun.

Each time energy is released from matter some energy must be used to restore the boundaries of matter, leaving less “useful energy” than before. Lacking a new infusion of energy from “outside” – as from the sun – systems slowly lose their ability to restore the structural boundaries of matter, and thus, slowly lose their ability to store and release energy. This is the essence of entropy – the degradation of energy and matter, as systems lose their form, structure, and diversity through the destruction of boundaries.

This may all sound a bit esoteric; however, the concept of entropy is critically relevant to the health and sustainability of a farm. The dissolution of biological, social, and economic boundaries that define different fields, family values, business enterprises, etc., removes the obstacles to specialization, standardization, and consolidation, and thus, allows maximum productivity and economic efficiency. On farms, we have seen tremendous gains in productivity and economic efficiency through the removal of boundaries. Farmers removed fences that had separated fields, as they moved toward more mechanized and standardized systems of farming. The different functional roles of different family members at different stages of life have disappeared; as such tasks are now performed by mechanical or chemical technologies. The diversity of crops and livestock enterprises that once defined the structure of typical family farms has been abandoned to achieve greater specialization. The ecological, social, and economic “landscapes” of many farms today are left without form, pattern,
hierarchy, or differentiation.

This dissolution of boundaries, this industrialization of agriculture, has resulted in tremendous gains in agricultural productivity and economic efficiency. As with industrialization in general, it has released tremendous stocks of stored energy that were constrained by the boundaries that once defined different fields, family functions, enterprises, farms, and even farming communities. The boundaries have been removed and the energy has been released. But, once the stored energy has been used up, where will these industrial farming operations get new energy?

Industrialization is a “dead” system. It destroys boundaries in order to extract the stored energy from land, water, air, plants, animals, and people. However, it has no means of restoring boundaries, no means of recreating matter, and thus, no means of renewing sources of energy for the future. The amount of fossil energy – fuel, fertilizer, pesticides, etc. – used by today’s industrial farming operations far exceed the amount of solar energy they are able to capture from the sun. Industrial systems inherently tend toward entropy – toward degradation of matter and energy; toward a state of inert uniformity; toward an absence of form, pattern, hierarchy, or differentiation. A lifeless desert is about as close to entropy as most of us have seen. It is without form, pattern, hierarchy, or differentiation – without boundaries. Such will be the ultimate state of an industrial agriculture.

Sustainable farming systems must be managed as living systems – they must be self-renewing, reproductive, regenerative systems of production. Living systems must have boundaries – not barriers that keep everything in or out, but semi-permeable boundaries that keep “some” things in and keep “some” things out. Living systems are dynamic. Boundaries are destroyed, through use and decay, but boundaries also are restored through regrowth and reproduction. Living systems are able to capture energy from the sun, either directly or indirectly, which offsets the natural entropy brought about by inevitable death and decay. Living systems tend toward greater diversity of form, structure, and pattern, as they create new boundaries. The process of energy renewal and regeneration, this natural tendency of living systems, is our only means of offsetting the natural
tendency of dead systems toward entropy.

Through an understanding of the necessity of maintaining healthy boundaries, farmers can begin answering the question of how big their farm should be. The answer will be different for each farm and each farmer, because each farm has a different ecological, social, and economic niche to fill within the “grand order of things” and each farmer has a different purpose for farming. Each healthy, sustainable farm must be large enough to fulfill its purpose, but small enough to maintain healthy ecological, social, and economic boundaries. In sustainable farming, the goal is never to continue to become ever larger and more profitable; such farms are not sustainable. Instead, the “right size” for a farm is big enough to fulfill its purpose, but small enough to maintain its ecological, social, and economic health.

Thus, the question of size must begin with the question of purpose. Again, while the purpose of each farm may be different, a healthy, sustainable farm, being a living organization, must be regenerative as well as productive; its purpose must allow it to renew itself in the process of being productive.

So the purpose of any farm should include both to produce– whether the products are economic, social, or ecological – and to renew and regenerate. A farm that lacks either productivity or regenerative capacity eventually lacks health and will “become sick and die.” Many large farms, however, have no “right size,” because their purpose is inconsistent with the size necessary for their health and sustainability. Like a giant, they simply strive to become larger and larger until they become unhealthy and eventually die. If the purpose of a small farm is to become a large farm, then like a large farm, it has no “right size.” The farmer will simply strive to make the farm larger until it eventually “gets sick and dies.”

Those on small farms, who want to keep their farms small, still may have different purposes for farming. But in one way or another, the purpose of successful small farmers is always related to quality of life, rather than just making money. Certainly, economic well-being is an important aspect of quality
of life. And, some small farms are organized for the specific purpose of generating income, and many of them succeed quite impressively. Such farms tend to rely on high-valued enterprises, lower-input production methods, and more direct, niche marketing than do larger farms. Small farms can be quite profitable, however, to sustain the profitability of a low-cost and higher-valued farming operation, the farmers must maintain a healthy relationship with the land and healthy relationships with their customers and neighbors. Thus, the economic success of a small farm is intrinsically linked with the overall quality of life of the farmer, regardless of its purpose.

Many small farms are “quality of life farms.” Their primary purpose is not to generate cash income, but instead, to provide the farmer or farm family with those things that are made possible through a life on the farm. The primary purpose of many small farms is to provide an opportunity for open spaces, fresh air, scenic landscape, privacy, peacefulness, or other unique qualities of rural life. Others are looking for a good place to raise a family within the context of a caring community, where families can both live and work together, and people actually know their neighbors. Others farm because they want to live close to nature; many are stewards of the land by choice, because stewardship gives purpose and meaning to their lives. For them, farming is an expression of spirituality.

Quality of life farms, by nature, are not full-time, family farms. One or more family members typically have significant off-farm income to meet the needs of the family for cash income. But, such farms make possible a quality of life that would be unaffordable to most families, if they tried to “buy” the amenities of rural farm life in an urban area. The economic value of such amenities can add up to tens of thousands of dollars, even if they have no net income to report for tax purposes. And, most of these quality of life farms are small farms.

Regardless of whether the purpose is to generate profits or create a desirable quality of life, the purpose of most small farms is consistent with finding a “right size” for a farm to maintain its health and sustainability.
Living systems must be managed by principles rather than by prescriptions or standardized processes. Principles define the basic nature of the production process, and thus, determine whether the process is consistent with the purpose. Principles provide the conceptual DNA for a farm. The DNA of living things determines what they are – plants, animals, insects, humans, etc. – but it also defines the uniqueness of each member of each living species. Likewise, the principles by which a farm operates define the basic nature of a farming operation, e.g. whether it is industrial or sustainable, as well as define the uniqueness of each particular farm.

The principles of a living farm replace the goals of an industrial farming operation. The number and nature of guiding principles should be sufficient to ensure that, if followed, the purpose of the farm can be carried out. However, principles that are not necessary in carrying out the purpose should be omitted, to avoid unnecessary complexity and distraction. For example, for sustainable farming the principles must ensure ecological integrity, economic viability, and social responsibility. Any farming operation that fails to address these basic principles cannot be sustained over time.

Once the principles by which a farm is to operate have been defined, the most useful strategy to follow is discovering the “right size” to focus on maintaining healthy boundaries – economic, social, and ecological. Healthy boundaries must let some things in while keeping some things out, and allow some things out while keeping some things in. Healthy boundaries must be “semi-permeable” selective boundaries. Boundaries are inevitably destroyed in the process of productivity, in the process of releasing energy, and thus, boundaries must be rebuilt to replace those inevitably lost in order to maintain health and sustainability. A healthy farm is a productive farm, but also, a self-renewing farm.

Admittedly, a farm can be too small – at least, too small to meet the expectations of the farmer or farm family. In many cases, however, the problem is a matter of
unrealistic expectations rather than inadequate farm size. It takes a lot of land and money to support a family using a management-extensive, industrial approach to farming. Many farms that seem too small actually are plenty big to support a family using a more management-intensive, sustainable approach to farming. The problem is not a matter of too little land or money, but too little management or labor per acre farmed or dollar invested. However, in some cases, a farm may be too small to meet the income and quality of life goals of the farmer, regardless of how well it is managed. The extent to which management and labor can be substituted for land and money has finite limits. The most common sign that a farm is too small is when everyone on the farm is working so hard and thinking so hard that no one is having any fun and the farm still isn’t generating an acceptable income. When a farm is too small, the family must either lower its expectations, expand the farm, or abandon farming and try to find an acceptable quality of life elsewhere.

However, most American farms are not too small but rather too large. A farm that is too large eventually will lose its health and sustainability – although it may seem to be productive, at least for a while. Even many farms that are still small in acreage, investment, and production, are bigger than they need to be to do what they need to do. The clearest signs of a farm that has become too large are the deterioration of health of boundaries and then the loss of boundaries – as more boundaries are being destroyed than are being restored. Healthy relationships across healthy boundaries must be mutually beneficial to those on both sides. With unhealthy boundaries, one side benefits at the expense of the other. When farms become over-specialized, standardized, and centralized, relationships become exploitative and destructive.

Healthy boundaries promote the integration of diverse elements of living systems – each part functions for the benefit of the system as a whole. As a farm becomes too big, the farmer begins to look at each enterprise on the farm in isolation, as a separate profit center that is supposed to stand on its own. The farmer then begins to specialize in those specific enterprises that appear to be more profitable and to eliminate those that appear less profitable – with little regard for the
How Big Should A Small Farm Be?

Specialization allows the farm to be routinized, standardized, and expanded in size. With expansion comes the necessity of acquiring more land, inevitably creating conflicts between larger farmers and their neighbors. With expansion, farms begin to bypass local input suppliers and marketing channels, creating conflicts within the community. As farms become more specialized and larger, they adopt large-scale machinery and industrial farming methods, which pollute the natural environment with noise, dust, chemicals, and animal wastes, creating conflicts not only within the community but also with the larger society.

A farm is too big when its boundaries are no longer healthy, semi-permeable, or selective. A farm is too big when the farmer lives behind a wall of mutual contempt separating the farm and its neighbors because the farm has become a nuisance to the community. A farm is too big when it has become contractually dependent upon others to provide the technology, inputs, or markets the farm must have to survive. A farm is too big when the relationships between the farm and those who depend upon it have become purely economic relationships, with little consideration of how the farm contributes to their social and spiritual well-being.

How do you know if your farm is too big? Your farm may be too big if...

- If the fence rows are either gone or so clean you no longer hear the birds singing.
- If gullies appear on slopes and road ditches are filled with muddy water after a rain.
- If the soil feels like pavement under your feet, or you don’t like walking across it anymore.
- If the farm begins to look more like a sea or desert, rather than a patchwork quilt.
- If your cows no longer have names and your children wouldn’t know them if they did.
- If your animals never feel the sun, don’t have room to walk, or never touch the dirt.
• If your farm no longer smells like a farm but stinks like a sewer or a factory.
• If it’s no longer safe for anyone but an adult to work with your machinery or chemicals.
• If you work harder and harder, but it always seems there is more work to be done.
• If a bigger tractor, combine, or new pickup truck seems like it might solve your problems.
• If your banker or contractor owns more of your farm than you will ever own.
• If the farm is keeping the family apart, or tearing it apart, rather than bringing it together.
• If your children begin to dislike farm life and vow not to return to the farm.
• If you no longer feel good about asking your family to live on a farm.
• If you’re too busy to bother with community affairs, and rarely go into town anymore.
• If you drive right through “your” town to buy things in the city, just to save a few dollars.
• If neighbors complain about dust, noise, or odors from your farm, and you don’t care.
• If caring for the land no longer gives purpose and meaning to your life.
• If continuing the farming tradition feels more like a burden rather than a privilege.
• If you’re too busy to notice changing seasons, to watch the sunset, or to feel the wind blow.
• If farming is no longer exciting, no longer fun, if it’s hard to face a new season.
• If you have forgotten why you wanted to be a farmer in the first place.

*If very many of these things ring true, odds are your farm is too big.*

How big should a small farm be? A farm is a living organism. Each farm has a right size and a size beyond which it begins to lose its health and vitality. A small
farm should be big enough to fulfill its purpose, whether to generate income or support a desirable quality of life, but to do so without destroying the health or vitality of either the farmer or the land. A farm doesn’t have a natural biological process to limit it to a size that’s necessary to fulfill its purpose within the “grand order of things.” Thus, the farmer ultimately must decide how big a farm should be.

[2] John Ikerd is Professor Emeritus, University of Missouri, Columbia, MO – USA. E-mail: JEIkerd@AOL.COM web site: http://www.ssu.missouri.edu/faculty/jikerd
The roots of most American rural communities are in agriculture. When the Europeans first arrived in North America, they found a land of great natural wealth. Of course, the Native Americans were already here and were aware of the natural abundance of the land, but the Europeans saw far greater economic potential. Some of that potential wealth was in minerals and timber, but most of it lay in vast plains and winding valleys of fertile farmland. However, it took people to transform this potential wealth into economic well-being. People had to clear the land and till the soil to bring forth the bounty of food and fiber from the fertile fields. It took people to care for the cattle and sheep that grazed the vast plains. And as these people – these farmers and ranchers – achieved surpluses beyond their own needs, they began to need other people in towns and rural communities with whom they could trade their surpluses for the things they couldn’t produce. They needed blacksmiths, dry goods stores, livery stables, banks, and salons. But they also needed schools, churches, and medical care if they were to move beyond economic survival to achieve a desirable quality of life.

Rural communities – Places without a purpose
Some of the early American communities were built around timber and mining, but most towns were farming or ranching towns. And in places that required more farmers or ranchers to care for the land, more people were needed in town to support those farms and ranches. It’s probably true that distances between many towns were determined by a day’s round trip by horse and wagon. But, the number of people in those towns was determined, in large part, by the nature of agriculture in the surrounding area. For example, lands well suited for vegetables and row
crops could be farmed more intensively – supporting more families per acre or section. Lands suited only for small grains or pasture were farmed less intensively – supporting fewer families per section or township. Of course, town folks also had mouths to feed with locally grown foods – greens, milk, eggs, and bacon. The density of population in most rural places reflected the nature of their agriculture.

At the turn of the 20th century, America still was an agrarian country – about 40 percent of its people were farmers and well over half lived in very rural areas. But then came the second phase of the industrial revolution, and with it the need to collect large numbers of people into cities to “man” the large factories and offices of a growing manufacturing economy. The simultaneous industrialization of agriculture – mechanization, specialization, routinization, standardization – made it possible for fewer farmers to feed more people better – “freeing” farmers and other rural people to work in the new factories springing up in the cities.

The same technologies that pulled rural people toward the cities pushed them off the farms and out of rural communities. These technologies increased production per person by substituting capital and generic technology for labor and individual management skills. As successful new farming technologies were developed, they invariably reduced production costs – per bushel or per pound of production -- but only if each farmer produced more. Thus, the incentive to realize greater profits by reducing costs was inherently an incentive to buy bigger equipment and more commercial inputs in order to farm more land and produce more output. As farmers individually responded to these incentives, production in total invariably expanded, market prices fell, and the promise of continuing profits vanished. The new technologies now were necessary – no longer for profits but now for survival. Those who adopted and expanded too little too late were unable to compete. They were “freed” from their farms to find a job in the city.

Farms were forced to become ever larger, just to survive. And, with a limited population to feed and a limited amount of land to farm, some
farmers had to fail so others could survive by getting larger. In addition, large specialized farms often had to bypass the local community in purchasing inputs and marketing their products in order to remain competitive with other large farms. Their competitors were not only down the road or across the country, but could be halfway around the world. Fewer farmers buying less locally meant less need for farm-related businesses in small towns. Fewer farmers also meant fewer farm families to buy groceries, clothes, and haircuts in small towns. Fewer families also meant fewer people to fill the desks in rural schools, pews in rural churches, and the waiting rooms of rural doctors. Fewer people with a purpose for being in rural areas meant that many rural communities, too, were losing their purpose for being. As farms have grown larger and fewer, many rural communities have been left in decline and decay – places without a purpose.

Today, America is no longer an agrarian nation. Today, less than two percent of Americans identify themselves as “farmers.” More than half of these “farmers” report a “principal occupation” other than farming and farm households earn about 90 percent of their incomes from something other than farming. Somewhere around 25 percent of the people live in non-metropolitan areas – but many, if not most, commute to a city to work. Few people are left in farming communities to move to “town,” and no longer are there social benefits to be gained by moving them. Old manufacturing industries are “downsizing” and “outsourcing” -- laying off workers by the thousands. As consumers we spend on the average a little over a dime out of each dollar for food and the farmer only gets a penny of that dime. The rest goes to pay for commercial inputs and marketing services – packaging, advertising, transportation, etc. Society no longer has anything to gain from further industrialization of agriculture, but yet it continues. And rural communities in farming areas continue to whither and die. Many have truly become places without a purpose.

Sustainable Community Self-Development – an Experiment

The conventional wisdom in economic and community development circles is that rural communities must look to something other than
Rethinking the Role of Agriculture in the Future of Rural Communities

agriculture for survival and future prosperity. Feeling the stress of an industrial society, many small towns have turned to industrial recruitment – trying to become a city rather than a town – as a means of survival. But the only industrial development strategies that many rural communities are offered are prisons, landfills, toxic waste dumps, or factory livestock operations. Once prosperous agricultural communities have become the dumping grounds for the rest of society. Those that succeed in luring “clean” industries, typically end up with companies who are only looking for cheap labor. Such companies invariably move on when they find some place else, in either the U.S. or abroad, where people are even more desperate for work and will work harder for even less money. Others communities have tried to capture natural advantages in climate or landscapes to become destinations for tourists from the cities. Those near the growing industrial centers have “rented out their communities” as bedrooms for those who are willing to commute to the city. But, most rural communities in agricultural areas have not been successful in their efforts to regain prosperity – or even to survive. Most rural communities remain places in search of a purpose.

An Experiment in Sustainable Community Development

In August of 1995, the Missouri, Michigan State, and Nebraska Universities began a five-year collaboration on a project funded by the W. K. Kellogg Foundation. Our objective was to “challenge the conventional wisdom concerning the future of rural communities… to demonstrate the proposition that a fundamental shift in the foundation of economic development from land and capital to knowledge and information, and increased public concern for the natural environment, provides new opportunities for a sustainable agriculture,” which in turn provides new opportunities for sustaining rural community development through agriculture.

We recruited communities in each of the three states who were willing to make a commitment to work with us for the duration of the project. Our commitment was to help them find and develop a foundation for their future through sustainable development of their “geographically fixed”
resources -- including landscapes, climate, clean air, clean water, and forests, but with an emphasis on agricultural land. The basic premise was that for development to be sustained in a particular community, there must be reason for the activity to be carried out in that particular location; there must be purpose for development in that particular place. In addition, since people must carry out the process of development, and since the purpose of development is to enhance the lives of people, there must also be a purpose for people to be in a particular place. Thus, the first principle of our Sustainable Communities project was: “A linking of people, purpose, and place.”

The project was to be carried out by a process of “community self-development.” Our role was to be that of facilitators – not leaders. We would provide information concerning opportunities and alternatives. We would help the people get organized, help them develop a shared vision, and facilitate their collaborative efforts. But it would be up to the people of the communities to decide what they wanted to do and how they wanted to do it. We had funds in the project to facilitate their collaborative activities, and a few dollars to fund demonstration projects of their choosing, but the project provided no funds for investment in actual development projects. The success or failure of the project in any particular community would be in the hands of the people of that community. Thus, our second principle was: “Local organization, local investment, and local control.”

Another basic premise was that everyone in a community should be considered in every decision that affected the community. Our working hypothesis was that one reason for the demise of many rural communities was that community leaders had lost touch with the real wants and needs of their community members. They had become so preoccupied with replacing jobs and rebuilding a tax base that they were sacrificing the quality of life of many for the economic benefit of a few. Many of the new “economic development” strategies for these rural communities were based on little more than exploitation of rural people who were desperate for jobs and exploitation of the natural environment. If the development of
these communities was to be sustainable, all community members needed to be involved, or at least considered, in the decision making process. All members of the community also needed to be able to share in the benefits. Thus, our third principle was: “Shared leadership, shared responsibilities, and shared rewards.”

Our final working principle was based on the concept of sustainable development – that communities must find ways to meet the needs of all in the present while leaving equal or better opportunities for those of the future. Sustainable development must be socially responsible, economically viable, and ecologically sound. Many rural communities have become so preoccupied with raising economic capital that they have allowed the social and ecological capital of their communities to become depleted. Economic development is rooted in social and ecological resources. Thus, economic development cannot be sustainable without sustainable social and ecological development. Our fourth principle was: “Building community while creating wealth and caring for the land.”

If we were to carry out the project effectively, we knew that we couldn’t follow the traditional technology development and transfer model typically used by Land Grant Universities. This project was not to be technology-based, but instead had to be people-based. Our goal was to empower people to be productive by using their innate human abilities to think, not to provide technology that would reduce the need to think. Thus, one of our objectives was: “to develop and demonstrate a new research and extension model which relies on participatory research and information sharing rather than technology development and transfer.”

My role was that of overall project leader for the three-state project and state coordinator for Missouri. I was the “keeper of the purpose and principles” of the project. The other state coordinators and the facilitators were free to interpret the purpose and principles as they saw fit. My responsibility was to make sure that everyone understood what we had in mind when we developed the project proposal and what we had promised Kellogg we would do. When people asked me if I thought something was or was not consistent with our commitments, I would give my opinion. I
was the judge, but not a prosecutor. Our project plan was our “constitution” and I was Chief Justice of the “Supreme Court.” I was ultimately responsible to the Kellogg Foundation for carrying out the project as promised in our agreement.

Sustainable agriculture – a foundation for sustainable rural communities

We believed that the problems of communities in agricultural areas was not so much that they had relied on agriculture and other natural resource development, but that they had relied on unsustainable systems of agriculture and natural resource development. They had relied on an industrial development paradigm or model – specialization, standardization, and centralization of control. The industrial system of agriculture didn’t require as many farmers as did diversified family farms. And thus, it wasn’t as supportive of rural communities as diversified farming, or at least didn’t support as many people in as many rural communities. In addition, the industrialization of agriculture moved more and more of the processes involved in food and fiber production off farms and out of rural communities. The ninety percent of the consumer’s food dollar going to pay for marketing services and commercial inputs has little positive effect on rural economies.

However, by mid-1990s, a new model or paradigm of agriculture clearly was emerging to challenge the industrial model. This new agriculture emerged under the conceptual umbrella of sustainable agriculture. And this new way of farming was potentially much more supportive of rural communities. A sustainable agriculture, like sustainable development, must meet the needs of all in the present, while leaving equal or better opportunities for those of the future. It must be ecologically sound, economically viable, and socially responsible.

The industrial model of agriculture is failing on all three fronts of sustainability. The specialized, standardized, large-scale systems of farming are polluting the environment with pesticides, fertilizers, and manure from confinement animal feeding operations. Industrialization is driving independent family farmers out of business and is replacing them with corporate contractors – who turn out to be little more than tractor
drivers or livestock building supervisors. And industrial agriculture is ripping the social fabric of rural areas by destroying family farms and rural communities. An industrial agriculture quite simply is not sustainable. Sustainable agriculture became a public policy issue during the decade of the 1980s. It was first promoted by organic farmers who went to Washington DC in the early eighties and demanded recognition as a legitimate alternative to the industrial farms that were polluting the environment with pesticides and fertilizers. The movement was joined by farmers concerned with the economic viability of family farms as thousands were being forced out of business during the farm financial crisis of the 1980s. The necessity for a socially responsible agriculture became apparent when rural communities felt the full impact of the agricultural crisis. By the mid-1990s sustainable agriculture was emerging as a viable alternative to industrial agriculture. Although the proportion of farmers currently following the principles of sustainability – including organic, holistic, biodynamic, permaculture, low-input, grass-based, etc. – is small, their numbers were, and still are, growing. This new paradigm for agriculture provided a new paradigm for rural community development. Sustainable farming was more management intensive. It takes more people on the land to maintain the natural fertility and health of the land, and thereby, to reduce reliance on pesticides and fertilizers. It takes more farmers to produce a given quantity of output on diversified farms, which are necessary to produce food without polluting the environment. It takes more people to market direct and to begin to rebuild local food systems, which not only re-link farmers and local people but return more of the food dollar to the farm. Sustainable agriculture reverses the industrialization process by substituting labor and management for land and capital. A sustainable agriculture would support more people on farms and more people in rural communities. In the Sustainable Communities project, we weren’t claiming that rural communities could once again depend entirely on agriculture, only that a sustainable agriculture could provide a solid foundation upon which a sustainable rural economy could be built. In the new post-industrial,
knowledge-based era of the future, people would be seeking out places to live that provide open-spaces, scenic landscapes, clean air and water, and friendly people. Sustainable agriculture would make rural areas ideal residences for those people who, in the new era, would be able to carry out their work from anywhere they choose to live. Sustainable agriculture would be compatible with other forms of economic development that rely on the unique creativity and productivity of the human mind, rather than on exploitation. Sustainable agriculture would provide the link between people, purpose, and place.

Communities as living systems

We knew that to challenge the conventional wisdom – of agriculture, of community development, and of research and extension – we would need an unconventional organization. Our organizational model was a variation of a chaordic organization, a model developed by Dee Hock, the founder of Visa Corporation. A chaordic organization is defined by its purpose and principles of operation. With clearly defined purpose and principles, the organization structure can remain dynamic, evolving to accommodate an ever-changing organizational environment. Each person has a wide degree of latitude of choice among alternative means of carrying out their work, as long as they remain true to organizational principles, and thus, contribute to the overall purpose of the organization. This contrasts with the industrial organization, which builds its purpose into the organization structure, so that if each person in each position carries out their assigned task, the organization will fulfill its purpose. Industrial organizations are changed only through restructuring, whereas, chaordic organizations naturally evolve.

The differences between chaordic and industrial models of organization are analogous to differences between “living and dead” systems. Living systems are organismic in nature, whereas, dead systems are mechanistic. Both living and dead systems have fixed and unchanging “patterns” of organization. For example, the pattern of living organisms is encoded in their DNA, and the pattern of a machine is represented by its blueprint. However, living and dead systems differ with respect to
structure. The structure is the physical embodiment of the pattern of organization. A dead system, a machine or building for example, has an unchanging structure. Once it is built, it maintains the same basic form until it is replaced or remodeled. For a living system, however, the structure is continually changing. The physical structure of living things naturally change and evolve as they are born, mature, reproduce, age, and die – even though their DNA, their pattern, is always the same. The “processes” of living and dead things also differ in one important respect; both living and dead things fulfill their purpose by converting input to output. Living things convert “food” into energy and work and dead things convert “fuel” into energy and work, but both convert input into output. However, for living things, the continual regeneration of the structure is a fundamental part of the process of living, while dead things are incapable or self-regeneration. Thus, regeneration is a part of the process of living with purpose.

In the Sustainable Communities project, our basic purpose was sustainable community development – to help people of these communities find ways to meet the needs of all today while leaving equal or better opportunities for those of the future. Our fundamental principles: resource-based development, self-development, inclusiveness, and economic, ecological, and social balance, provided the conceptual DNA. If people in a community followed these principles, whatever they did would contribute to the purpose of creating a sustainable community. The people of the communities could organize themselves any way they choose, and could carry out whatever activities they chose by any means they chose, as long as they remained true to the purpose and principles.

Some General Observations
The project ended in mid-2000. We experienced both successes and failures during the five-year span of the Sustainable Communities project. On the positive side, I am confident that the lives of many rural people, in all three states, were changed in some very fundamental and positive ways as a consequence of their involvement with the project. We can’t claim much credit for these changes because these people changed their
own lives. But our being there provided encouragement and support for those who were willing and otherwise ready to change. Those who were already inclined toward more sustainable farming systems and more sustainable community development strategies were able to obtain more information on alternatives and were given more encouragement to turn their ideas into action than if we had not been there. For some, information and encouragement were the only critical missing ingredients. Thus, from the standpoint of empowering people who shared the purpose and principles of the project, I feel we were successful. We learned that many people would take positive actions on their own if they are given a bit of encouragement and support.

However, we were far less successful in our efforts to help people “build community.” In stating our objectives, we had used the concept of “learning communities.” We had wanted to bring people together from all segments of communities around a common purpose or vision – farmers and townspeople, leaders and those who had never led, advocates of conventional agriculture and sustainable agriculture, young people and old people, wealthy people and poor people. We wanted to help people find a common vision of hope for the future and to help them learn, evolve, and grow together as a whole community rather than just a collection of individuals that happened to live in the same area. Perhaps we were too idealistic, but we didn’t even come close to achieving this goal.

Our communities were simply too fractured to be brought together by any single initiative, even one that lasted for five years. We were committed to the principle of inclusiveness, which meant that we refused to exclude anyone, explicitly or implicitly. But, people excluded themselves, because we refused to exclude others. In some communities we ended up working with the traditional leadership and existing power structure, because those “outside” of the traditional leadership circle considered this to be a “typical” community development project and choose not to participate. In some communities, we worked primarily with people in agriculture, because the non-farm community perceived this to be an agricultural
project and choose not to participate. In some cases we worked primarily with conventional agriculture groups and in others with sustainable agriculture groups, because the two groups choose not to collaborate with each other. In spite of our doing everything we could do to ensure inclusiveness and in spite of our best efforts to bring people together, the people insisted on dividing themselves into their traditional peer groups. In all honesty, we held firm to our stated purpose and principles in some communities, but in others we did not. In some communities, the single principle of community “self-development” prevailed, and the people gave little regard to linkages of purpose with place, to inclusiveness, or to sustainability. A couple of communities focused on economic development within the conventional agricultural community. Producers pooled their capital and formed “new-age,” closed cooperatives to add value to their traditional agricultural commodities. These communities showed the most impressive, tangible and measurable results, with millions of dollars of local investments. They built soybean and alfalfa processing plants and formed a hay marketing cooperative. But, they did little if anything to strengthen the social fabric of the community or to protect local natural resources from exploitation.

One of these economic development projects included producers from a broad geographic area, reflecting little sense of either community or place. One facilitator worked closely with existing community leaders and the other worked with existing farm leaders. One utilized the traditional technology transfer model of extension, while the other relied very little on extension. Both communities’ projects would have to be considered successful using traditional measures of success in economic development. But neither provided much insight into the basic question of whether rural community development can be sustained through sustainable agriculture. Neither focused on sustainability, either in agriculture or in community development.

In communities where the purpose and principles of the project were upheld, traditional community and agricultural leaders choose not to participate. Contrary to our working hypothesis, we were forced to
conclude that the purpose and principles of sustainability were either not sufficiently understood or widely accepted to allow sustainable community self-development to occur. Apparently, *economic* development is so deeply engrained into the minds of community leaders and conventional farmers that they refuse to accept the basic premises of sustainability. They don’t see any means by which the social and environmental objectives of sustainability can be pursued without sacrificing economic performance. They are locked into short-run thinking, where economic results can be achieved through exploitation of human and environmental resources, rather than thinking about the longer term, in which economic, social, and ecological objectives must be mutually supportive. They apparently don’t believe that caring for each other and being good stewards of the land are as important as are jobs and income in determining their quality of life.

In one community the conventional and sustainable groups were neither able to work together nor was either willing to accept a leadership role in the project. Some potentially productive communication took place and some good things happened in this community, but little was achieved in the way of community building. In one community a group of farmers who were already oriented toward sustainable agriculture eventually came together to form a loosely organized collective marketing group. The group has managed to retain a marketing agent for more than a year after completion of the project and at least has some hope for self-sufficiency. In another community, those initially involved with the project had some history of working together on environmental issues, and thus, were able to make more progress than most others in initiating joint projects that show promise of enhancing the overall sustainability of their communities. But across all communities and all states, the converts from conventional economic development to sustainable community development were few and far between.

One of the biggest disappointments of the project to me was our failure to demonstrate a new model for extension programming. Our new model would have transformed extension agents into facilitators rather than
technical specialists. The role of facilitator was to help people gain access to information rather than to provide the information themselves. A facilitator helps people learn what they want to learn rather than teaching them what they “need to know.” A facilitator doesn’t make things happen, but helps other people make things happen. We had facilitators hired from project funds in all of our communities. These facilitators worked very effectively, but we were not able to get the various University Extension programs to embrace, or even support, the concept of extension agents as community development facilitators.

In Missouri, the Sustainable Communities project was carried out within the extension system – we weren’t given a choice. When I announced that this would be a “different kind” of community development project, I was told that we would either “do it within the existing extension framework, or it wouldn’t be done.” So we relied heavily of county level extension agents in the initial stages of project implementation. Our extension agents were supposed to serve as facilitators and the facilitator we hired through the project was supposed to support the extension agents. Without going into a lot of details, this plan didn’t work. About midway into the project, we were forced to abandon our initial collaborative arrangement with extension to avoid complete failure.

I formed the following conclusions regarding the role of extension – based on my experiences in Missouri. The extension organization is not willing to turn over control of programs to people in local communities. Giving up control means giving up the ability to “create the illusion of success,” which is an essential element in any extension program. The organization will not tolerate being associated with potential failure. Most extension agents are not willing to give up their role as experts – to become a “guide on the side” rather than the “sage of the stage.” Extension has developed close ties with existing community and agricultural leaders in order to maintain funding. Extension agents are not willing to jeopardize those relationships by working with “fringe” groups, such as organic farmers, small farmers, and opponents of factory hog farms. In Missouri, only two of the original seven extension agents stayed with the project until it was
completed. One of these two has since left the Extension Service. These two agents were tremendous assets to the project – they were “exceptionally” good. But in general, Extension “talks the talk” of community self-development, but just isn’t able to “walk the walk.”

If I had it to do all over.

Part of my responsibility, as project leader, was to provide the W.K. Kellogg Foundation with my opinion as to whether they should support similar projects in the future, and if so, what they should do differently.

First, my experience with this project has only served to strengthen my commitment to its fundamental purpose – helping build sustainable rural communities through sustainable agriculture. I remain convinced that the future of rural America is rooted in its people and its natural resources. Thus, the future of rural communities, and of the nation, depends on our finding ways to help rural people develop rural resources by sustainable means.

I also remain committed to the organizational principles of “living systems.” I believe that prevalence of use of the industrial organizational model is a root cause of the degradation of both human and natural resources. We must adopt models appropriate for living systems if we are to manage living systems, including human systems, without degrading and ultimately destroying them. I learned that it is extremely difficult to get people to abandon the industrial paradigm with its hierarchical structure of command and control. Regardless of the difficulty, however, we must learn to organize and to work while being guided by a common commitment to empowering people to pursue the purpose and principles of sustainability.

Admittedly, our experiment with the “living organization” paradigm in Missouri was less than completely successful – primarily because we were unable instill a common commitment among participants to the purpose and principles of the project. However, I remain convinced that a living organization is not only a far more hospitable climate in which to work, but is potentially far more productive than is the more common industrial organization. The people who work in organizations are living
beings and most of the truly productive work being done today relates to biological and social relationships. So, it is just common sense that our organizations should be modeled after living systems. By organizing around principles, the structure of the post-industrial organization can continually change and evolve as needed to continue fulfilling its purpose in a dynamic environment. The post-industrial organization can empower people to use their uniquely human capacity to think and to act on their own. This will be the hallmark of the post-industrial society.

A primary challenge will be to convince those in leadership positions to give up control over the day-to-day operation of the organization. The role of leadership in a living organization is to protect the “genetic code” of the organization and to “encode” it in the hearts and minds of all members of the organization. Members of the organization must be given both the ability and responsibility to be productive and successful. The role of leadership is to empower the membership, not to control the organization or to “make it work.”

The larger the numbers of people the greater will be the difficulty in achieving and maintaining consensus concerning its purpose and principles. Thus, the living systems model may not be well suited to large organizations. The best examples I have seen of large organizations that function according to purpose and principles may be churches. In the case of churches, the basic purpose of a church and the principles of various religions are widely understood among its members – although many churches have become bureaucratic and “industrial” in their administrative functions. Democratic governments also are examples of large “living organizations,” although, there is growing evidence that the American Democracy is suffering from “organizational arthritis.” Universities are natural candidates for large “living organizations,” since the basic purpose and principles should be widely shared among institutions of higher education. However, over the years, universities, like governments, have become increasingly rigid, hierarchical, and bureaucratic in their structure.

Conflict between organizational size and “organizational life”
seems more likely to arise in organizations with narrowly defined purposes – requiring a sentence or more of verbiage to delineate them from the purposes of other organizations. This characterizes most businesses and non-profit organizations. In such organizations, each member of the leadership team and each member of the organization must, by one means or another, come to share a common commitment to the purpose and principles of the organization. The more people involved in the organization, the more difficult it will be to maintain this commitment. However, this apparent limitation may instead be an asset. As we move toward an era that demands living organizational principles in order to achieve success, we may well find that organizations, by necessity, will become smaller and more humane. Regardless of the implication for size, I have become firmly committed to the concept of “living organizations.” I don’t see any way a sustainable community development project could possibly succeed without a “living organizational” structure. Thus, if I had it to do over, I would choose the same type of organizational structure.

However, I would do a lot of other things differently. I am not sure that future failures could be avoided, but at least they wouldn’t be the same as our past failures. First, I would not try to carry out a similar project through the Extension Service, or even through a university. Universities simply lack the flexibility in programming and funding to support sustainable community development programs – or any program of true community self-development. Unfortunately, protection and maintenance of “the institution” has become more important than meeting the real needs of common people. My suggestion to Kellogg was to fund such efforts in the future through existing rural advocacy groups – groups that are already committed to bring about the changes that Kellogg would like to see occur.

Second, I don’t believe that community “self-development” can be constrained by any predetermined purpose or set of principles. The purpose and principles of sustainability were broad, but were not broad enough to allow communities to pursue “their own” hopes and dreams for
the future. Most current economic development strategies, including conventional farming, are not sustainable; unfortunately, most people don’t yet understand this fact, or at least are not willing to admit it. True sustainable community development must arise from within the community – must be community self-development. So we can’t have sustainable community self-development until the principles of sustainability arise naturally from within the community. They can’t be imposed on the community from the outside.

Consequently, I believe that programs in sustainable rural community development should focus on “teaching and preaching” the fundamental principles of sustainable agriculture and sustainable development to people of rural communities. Existing community development programs almost invariably promote community economic development instead. Current community economic development strategies are exploiting rural people and the rural environment, the very resources that must be protected and regenerated for sustainable community development. Those who are truly concerned about the future of rural America, including those working in public institutions, should do everything in their power to stop the economic exploitation of rural communities. We need to help rural people understand that the quality of their lives can be enhanced only through programs that allow them to care about each other and take care of their environment while taking care of themselves. We cannot, in good conscience, help people degrade their own quality of life and destroy the future of their communities.

I still trust rural people to pursue their own best interests. I have no less confidence in the ability of rural people to shape their own destinies today that I did when I drafted the first Sustainable Communities project proposal more than a decade ago. However, I now realize that powerful economic and political interests are working to keep people in rural areas from controlling the development of their resources. People in remote rural areas are prime targets for economic exploitation by corporations seeking cheap labor. And, remote rural areas are prime targets for environmental exploitation by corporations looking for some place to
dump their wastes. These corporations have strong political support at all levels of government, from Washington, DC to the County Court House. Most rural people are being misled into believing that they have no better alternatives than to settle for whatever they are offered, by corporate investors outside their community. Rural people will not be free to choose their destiny until they understand that there are realistic alternatives to the limited options currently being offered by dominant political and corporate interests. Rural people today, quite simply, are not free to choose sustainability.

The Rural Renaissance

However, I am optimistic about the future of rural America. I sincerely believe that human society is in the midst of a great transition – at least as great as the beginning of the “industrial revolution” and probably as great as the beginning of the “age of enlightenment.” Terms such as the “information age” and “the new economy” barely begin to describe the multitude of the changes ahead – many of which have barely emerged. The most common mistake when describing this transition is to refer to the “changes in technologies” rather than to the “changes in thinking” that created the technologies, or the “changes in thinking” that will be made possible by the technologies.

The miracles of the industrial era were the products of changes in ways of thinking that began some 400 years ago. But society is beginning to realize that industrial ways of thinking are not sustainable. Most people don’t yet know what to do about this fundamental problem, so they choose to ignore it. But it won’t go away. Others have already abandoned industrial ways of thinking. These new thinkers are the creators of the new post-industrial era of development.

The question of sustainability is a driving force in the great transition. I have referred to sustainable development and sustainable agriculture, but sustainable forestry, sustainable oceans, sustainable environment, and sustainable living also are common themes. People are concerned about their ethical and moral responsibilities for future generations, but a more powerful driving force is that people are beginning to realize that
sustainability also is about quality of life, right now. We are beginning to realize that quality of life is not something that we can buy at Wal Mart or Disney World with the money we earn from working all day, every day. Quality of life is a product of positive relationships, from caring about other people and sharing with other people, from living with a sense of purpose and meaning, from living in harmony with a “higher order” of things. Certainly, meeting individual needs is an important dimension of quality of life, but so is meeting our interpersonal and spiritual needs. Our quality of life is made better when we balance the social and ecological with the economic dimensions of our lives. Sustainability, ultimately, is about improving the quality of life of people.

This new way of thinking is fundamentally transforming our society. It reflects a holistic, organismic, living systems worldview that is fundamentally different from the reductionist, mechanistic, dead system worldview that has dominated the industrial era. The new way of thinking has its roots in quantum physics and chaos theory rather than mechanical physics and statistics. Truly revolutionary technologies are emerging from these new ways of thinking, and in turn, will support these new ways of thinking. These new ways of thinking will truly revolutionize human society.

The great transformation will fundamentally change America’s farms and rural communities. We will have more farmers, rather than fewer, in the future, and we will have more people, rather than fewer, in rural communities. We are not going back to the past, but forward to a fundamentally different and better way of life in rural areas. The question in my mind is no longer “if,” but “how and when.” In the meantime, we need to do everything in our power to stop the degradation of rural people and rural resources, so we will have as solid a foundation as possible on which to rebuild rural America.

I remain hopeful for the future of rural America – in spite of what seems to be a chronic state of rural crisis. I know more about agriculture than rural communities in general, but I am optimistic about what I see happening. Family farmers are finally beginning to fight back against the giant
agribusiness corporations, and against the agricultural establishment that
supports them. Hog producers voted to eliminate the pork checkoff
program that was using their own money to drive them out of business.
Farmers and rural residents are joining environmental groups to bring
lawsuits against the giant factory farming operations that pollute the rural
environment as they drive family farmers out of business. Farmers are
joining together to demand enforcement of antitrust laws against the giant
corporations and to restore competitiveness to markets. Farmers are
beginning realize that their general farm organizations and commodity
organizations are far more supportive of industrial agriculture than of
family farms. Farm groups are beginning to talk about multi-functionality,
rather than economic efficiency, as a guiding principle for government
farm programs. Farmers are beginning to fight back, and they have a real
chance of winning.

I am optimistic also about the people who attend conferences dealing with
sustainable agriculture, and related issues, all across the continent. The
Land Grant Universities may not be increasing their support for
sustainable agriculture programs, but the grass-roots sustainable
agriculture movement is booming. Several regional “sustainable
agriculture” conferences draw 1,200-1,500 people per year. Conferences
with 400 to 500 people are becoming almost commonplace. And, the
numbers of conferences drawing 100 people or more are too many to
count. Sustainable agriculture is no longer a novelty and the people who
attend these conferences are no longer idealists who attend out of idle
curiosity. Most of the people who attend are farmers, attending because
they want to learn more about what they are already doing or are
seriously seeking a better way to farm. These people are a diverse lot.
They are young and old, male and female, well-educated and
uneducated, well-off and poor, they are a cross-section of the “people” of
rural America – not representative of the existing power structure. These
people are building the future of rural America – with very little help from
their government, their universities, or anyone else. I think these people
deserve a lot more help that they are getting. However, I think they are
going succeed, with or without that help. I have hopes that we are nearing a “tipping point” in the sustainable development movement. A recent book by the same name, the author, Malcolm Gladwell, uses the analogy of a disease in explaining a “tipping point.” He describes it as the point at which an infection that has been lingering among the general population suddenly explodes into a full blown epidemic. He suggests that “epidemics of ideas” reach a tipping point when three conditions are present. First, people who are effective in spreading ideas to others must be “infected” with the idea. Second, people must learn to express the idea is a way that makes sense to a lot of people. And finally, people must be searching for new ideas to replace the old ones.

I think all of these tipping point conditions are imminent, if not already present, in the sustainable development movement. More and more people of influence are accepting sustainability as a fundamental guiding principle for future development. More and more people are beginning to understand that sustainability is not about sacrifice, but is about helping people achieve a higher quality of life -- realizing a higher concept of self-interest. And finally, more and more people are realizing that industrialization is destroying our civil society and natural ecosystem, and that corporatization is destroying our democracy and our national sovereignty. We are in the midst of a great transition that is changing the ways people are willing to think about everything. More and more people are realizing that there is something very wrong in America and they are ready for fundamental change. The great transition creates an environment of change.

Finally, there has never been a time when what we do, or don’t do, could make more difference in the future of rural America. We can continue to defend economic efficiency as the guiding principle for America, and thus, side with the corporate interests that are promoting the exploitation of rural areas. We can sit on the sidelines and observe – somehow rationalizing the exploitation of rural people and places. Or, we can take a stand with the rural people who are fighting back. We can accept our
responsibility of ensuring that people have choices without making the choices for them. We can help spread an epidemic of positive change in rural America. We can help move the country toward the tipping point of explosive change – moving toward a more sustainable agriculture and more sustainable rural American communities.

* Program in Agrarian Studies Colloquium, Yale University, New Haven, CT, January 25, 2002
American farmers, foresters, and natural resource managers face greater challenges today that at any time in the history of the nation. Certainly, this is not the first time that American farmers and foresters have been confronted with low prices for the things they sell and high prices for the things they must buy. Neither is this the first time they have felt over-regulated by government and under-appreciated by society. This is not even the first time thousands of farmers and foresters have faced the possibility of being forced out of business. But, this is the first time that even the survivors have been confronted with the very real prospect of losing control over decisions regarding how their farms, forests, and natural resources are managed.

This is the first time also that Americans have been confronted with the reality of having their agricultural and natural resources controlled by multinational corporations rather than American farmers and foresters. And, this is the first time Americans have had to confront the reality of actually running out of the resources – water, soil, minerals, clean air, etc. – upon which the productivity of our resource economy ultimately depends. And for the first time, Americans are beginning to realize that the very things that have increased our economic standard of living have diminished our overall quality of life.

We are confronted today with challenges that will fundamentally change what it means to be a farmer, forester, or resource manager. Meeting these challenges will require more than a bit of tweaking, fine-tuning, or redirecting. We must fundamentally change our ways of thinking about the basic nature of resources, of the land, and about our relationships with the land, and with each other. As Americans, we must embrace new
models of resource development, based on new paradigms or mental models, which in turn reflect a worldview fundamentally different from the dominant worldview of today.

We cannot rely on observation or experience to guide us as we make decisions in the future. Even our current concept of science will prove inadequate in answering the most critical questions confronting us today. If we are to succeed, we must learn to rely on our uniquely human ability to anticipate things we have never before experienced. We must nurture a concept of quality of life, which transcends our individual, short-run self-interests to include the relational and spiritual aspects of being human. We must be willing to start thinking all over again, from scratch. We must rebuild American society on a foundation of our uniquely human “common sense.”

The problems confronting American society today are symptoms of outdated, and thus dysfunctional, ways of thinking. The dominant ways of thinking today are based on philosophies developed more than four hundred years ago by philosophers such as Rene Descartes, Isaac Newton, and John Locke. They hypothesized that the world worked like a big, complex machine, with many intricate and interconnected parts. They reasoned that everything that happens, every effect, must have a discernable cause. Thus, if we formulate appropriate hypotheses concerning cause and effect relationships, and design appropriate experiments or observations, we can find the cause of every effect, can fit our individual findings together, and eventually, we can comprehend how the world works. The thinkers of this “age of enlightenment” laid the conceptual foundation for today’s dominant notions of “science.” These early scientists rejected anything that could not be “proven” empirically, through observation or experiment, as irrational superstition – as have their followers. If you can’t prove it, it simply is not true.

The industrial era, which began in the late 1700s, was built on a
conceptual foundation laid during the “age of enlightenment.” Adam Smith’s landmark book, *The Wealth of Nations,* most clearly documents industrial ways of thinking that have dominated the “modern” world since its publication in 1776. Smith laid out the blueprint for industrialization with his discussion of specialization, which he called division of labor. He also illustrates the necessity for standardizing these specialized processes so they all fit together, and he writes of the tremendous economies of scale achievable as a consequence. Smith laid the conceptual foundation for later assembly line work in large industrial factories. Conceptually, factories are nothing more than complex machines with both human and mechanical processes and parts. Industrialization is based on mechanistic concepts.

Smith also provided the foundation for modern economic thought, with its emphasis on the “invisible hand” of a free-market, capitalistic economy capable of transforming our pursuit of individual self-interests into the greatest societal good. The “free market economy” was a mechanism or machine that could be created to serve the good of society. Once set into motion, it would function pretty much on its own. Thus, we need only concern ourselves with doing our part, and best of all, our part was simply to look out for ourselves. Economics, though a social science, is based on mechanistic concepts.

Science, industrialization, and capitalistic free-market economics have produced great benefits for human society, undoubtedly exceeding even the wildest optimism of their creators. Over time, the human experience has been transformed from a constant fight for survival against hunger and disease, from drudgery of a day-to-day existence and expectations of early death, to the long life of relative ease and comfort we expect today. No one would choose to go back to the world of even a hundred years ago, and certainly not back to the beginnings of industrialization or science. The history of America has been one of human progress. But, we are now beginning to realize that this progress was brought with grave
We have acknowledged and proclaimed the rewards of “modern society,” but we have ignored and denied many of its unintended consequences. We applied the principles of scientific, industrial capitalism first to those endeavors where the rewards were the greatest and the risks were least, but now, those same principles are being applied everywhere, to all aspects of our society. The accumulating negative consequences should tell us, there are situations, times, and places in which our conventional ways of thinking just don’t fit. In particular, as we have continued to pursue old ways of thinking in developing natural resources, the benefits have dwindled and the costs have escalated, leaving agriculture, forestry, and the whole natural resource sector of our economy in peril.

The challenges confronting farmers, foresters, and natural resource managers today reflect the unintended consequences of our outdated ways of thinking about the world and our place within it. If we are to meet these challenges we must understand and acknowledge the limitations and shortcomings of contemporary ways of thinking. We must challenge the scientific method as the only legitimate means of understanding nature. We must challenge the industrial model as the only legitimate means of developing resources. And we must challenge the free market economy as the only legitimate means of managing resource use. We must begin by learning to use our common sense.

Our common sense should tell us that the economic crises in American agriculture and natural resources today are natural consequences of an unbridled industrial, “free-market” economy. Over the past century, we have industrialized agriculture and forestry. We have adopted highly specialized systems of production in order to increase productive efficiency. We have standardized processes and products, in order to routinize, mechanize, and achieve both operational and economic efficiency. Specialization and standardization, in turn, have allowed us to
consolidate ownership and control of agriculture and natural resource management into ever-larger enterprises. And, we have achieved economic efficiency with large-scale, industrial systems of production and distribution, just as Adam Smith suggested. We have made farms and forests work like factories without roofs and have made fields, feedlots, and tracts of trees function as biological assembly lines.

We have allowed the “free markets” to determine who gets to be farmers and foresters; and with industrial consolidation of control, there has been room for fewer and fewer of either. Each new, cost-saving technology made it possible for each farmer or forester to manage more land, more capital, and more labor – producing more crops, more livestock, more trees. The resulting increases in production inevitably led to falling market prices for the commodities produced, quickly erasing the profits that had motivated innovators and early adopters. Eventually, producers were forced to adopt the new technologies, not to make profits, but to survive. Those who couldn’t survive the resulting depression of prices and profits, were “freed from their economic hardships” to find better employment elsewhere.

Industrial technologies allowed the productive capacity of individual producers to increase far faster than any increase in demand for food or other natural resource products. Thus, some farmers and foresters had to fail so that others might expand, and thus, might fully realize the benefits of new cost saving technologies and achieve still greater economics of scale. Failure was not necessarily a matter of poor management or inefficiency. Instead, many failed because of bad advice, bad weather, bad luck, or unfortunate timing. Some simply had to fail, for one reason or another, so others might succeed. Losses persisted until enough were forced out to allow prices to rise again. American farmers and foresters have experienced these periodic crises for at least the past hundred years. Crisis is not new, but instead, is a chronic system of life in a free-market, industrial economy.
However, the current crisis in agriculture and forestry is different from those of the past in at least two important respects. First, individually owned-enterprises are no longer capable of competing in markets for basic commodities – wheat, apples, cattle, hogs, chickens, lumber, plywood, etc. Today, the economies of size in basic commodity production exceed the financial capacity of all but a select few individual investors. Increasingly, natural resource based industries are controlled by a handful of giant, publicly owned corporations. These corporations are fundamentally different from the individual proprietorships and family corporations of the past.

Family corporations reflect the social and ethical values of the family, but most large publicly owned corporations have no sense of humanity. Most are owned in large part by pension funds and mutual funds, where the actual stockholders are not even aware of which companies they own, and thus, accept no social or moral responsibility for the actions of such companies. Institutional investors own stock to make money, through dividends or appreciation in value, and for no other reason. The corporate managers may be just as human as any other individual, but they have no choice other than to maximize profits and growth for the benefit of their stockholders.

Today, the only way individuals farmers and foresters can gain access to the technology, capital, management know-how, and markets needed to compete in today’s commodity markets is through comprehensive contracts with such giant corporations. Under comprehensive contracts, the corporation, not the producer or landowner, makes all of the major decisions concerning how the commodities will be produced and how the land will be used. The growing prevalence of contract production makes the current crisis different. The current crisis could well bring the end of independent decision making in the agricultural and natural resource economy.
Another distinctive characteristic of the current natural resource crisis is globalization. If the U.S. is successful in establishing a global free-market, in removing all national economic boundaries among nations, food and natural resource products will be produced wherever in the world they can produced at the lowest dollar and cent costs. Increasingly, that will be somewhere other than in the U.S. As we have already begun to see, our land and labor costs are simply too high to compete with many other countries of the world in natural resource based industries. We have better employment opportunities for our labor and growing residential demands for land, which may keep the U.S. at a competitive disadvantage in most global commodity markets into the foreseeable future.

Increasingly the corporations that control agricultural and natural resource management decisions are multinational in scope. They operate around the world and have stockholders in many countries of the world. They are not human, so they have no families, no communities, and no sense of national loyalty. They will apply their technology, management, and capital wherever they expect to reap the highest economic return. In agriculture and forestry, the highest economic returns will not likely be in America. The sole loyalty of the corporation is to its stockholders, and its sole responsibility to its stockholders is to make money and grow. In a global, free-market economy, multinational corporations will be free to use the resources of the world any way they choose to maximize profits and growth.

The current economic crisis in agriculture and natural resources truly threatens our national security. A country that cannot feed itself is no more secure than a country that cannot defend itself. Perhaps agriculture and forestry will not leave America, at least not completely, but we could easily become as dependent on others countries for our food and forest products as we are today for our oil. Perhaps we can keep food imports flowing, but at what cost in our military budget, and at what cost in human
Perhaps it’s time to stop and ask if the economic benefits of global free markets are worth the growing costs to our society – to people, to families, to communities, to America. “Free market” economics will continue driving us toward global corporatization. If we are to choose a different future, we must rely not on economic logic and reason, but instead, on our common sense.

Industrialization and corporatization not only threatens our economic future, but also threatens our natural environment. In the early 1960s, before Rachel Carson wrote her landmark book, “Silent Spring,” most people had no concept of the meaning of the word “environment.” Year after year, since then, we have learned more about the negative environmental consequences of using the corporate, industrial model of natural resource development. We have seen the consequences in agriculture and forestry in the form of increased soil erosion, declining soil health and productivity, chemical contamination of streams and groundwater, loss of biological diversity, scarcity of water, and an increasingly fragile natural ecosystem. We know now that industrial systems of farming and forestry fundamentally alter the natural environment. Many argue about whether or not such changes have significant implications for the ability of humanity to continue to feed itself or to survive on earth in the future. But, there is little doubt that we are doing things to the earth that are fundamentally different from anything humans have ever done before.

The growing number of environmental regulations now confronting farming and forestry are a reflection of public concern for the natural environment. They are concerned not only about the safety of water, air, and food today, but also, about our ecological legacy. They are concerned about the natural ecosystem, including resource conservation and biological diversity, and are concerned about our legacy for future
generations. Lacking any other means of protecting nature from economic exploitation, they rely on government regulations. Thus, farmers and foresters can expect to confront increasing regulations, so long as regulation appears to be the only reasonable means for protecting the natural ecosystem from economic exploitation. Increasing regulations will provide additional incentives for corporations to abandon America.

Some believe that continuing advances in technology and human ingenuity will more than offset the decline in natural productivity and we can continue indefinitely to produce more with less help from nature. Others believe that we are no less dependent on nature today than when we were hunters and gatherers, and that the future survival and health of humanity depends on the continuing health of our natural ecosystems. In truth, our current approach to science is incapable of answering, or even appropriately addressing, such questions. Nature, quite simply, is too complex, interdependent, and dynamic to accommodate our current mechanistic approach to science. We will realize the ecological consequences of our actions long before we have enough information to make science-based decisions. If we are to ensure ecological integrity, we must learn to rely on our common sense.

American society also is being impacted by our industrial approach to economic development. Robert Putnam, a Harvard University political scientist, in his recent book, Bowling Alone, documents changes in the social connectedness of Americans over the past century. He reviews data on a multitude of social indicators from voting on political issues, to membership in organizations, to writing letters to editors, to developing friendships, to joining bowling leagues, to spending time with family, to inviting neighbors for dinner. Virtually all of these indicators depict an American society that has become increasingly disconnected and less socially involved since the 1950s, interestingly, reversing a trend of increasing connectedness during the first half of the century.
Putnam also documents a strong correlation between our growing disconnectedness and our overall physical and mental well-being. For example, incidence of mental depression among those of the past two generations of Americans, the most socially disconnected, has increased roughly “tenfold.” It might be tempting to attribute this rise to a greater willingness to acknowledge depression; however, between 1950 and 1995, the rate of suicide among American adolescents more than “quadrupled” and suicides among young adults nearly “tripled.” In addition, the incidence of “malaise” – headaches, indigestion, and sleeplessness – show patterns similar to the more serious mental illnesses. Between the late 1950s and late 1990s, each new generation has indicated in surveys that they are “unhappier” than the previous generation. As each generation has become increasingly disconnected, the nation as a whole has become increasingly mentally ill and physically miserable.

So how does this relate to corporate industrialism? Specialization, standardization, and consolidation of control obviously alter the nature of human relationships. With specialization, people relate to each other impersonally – through markets or formal contracts, according to specific rules and regulations. With standardization of processes and procedures, human imagination and creativity are stifled, putting greater emphasis on a win-lose type of competition. Consolidation puts authority and control over “the many” in the hands of “the few,” thus contributing to a sense of dependency and distrust. Even Adam Smith talked of the potential for deskilling and dehumanizing workers through the process of division labor. So it seems logical that industrialization might also have led to increasing disconnectedness within society.

However, the American economy was experiencing rapid industrialization during the first half of the twentieth-century, when American society was becoming increasingly “connected.” In fact, there is evidence that industrialization may have actually helped bring Americans together.
Workers organized themselves into labor unions, formed political organizations, participated in local and national politics, and by a whole host of means, sought collectively to offset the growing economic and political power and abuse of large industrial organizations. However, the last half of the twentieth-century brought increasing corporatization of the American economy – the final stage of industrialization.

Until the mid-1900s, the vast majority of business enterprises were either individually owned proprietorships or family corporations. Mom and pop grocery stores were still the norm, as were individually owned and operated restaurants, hardware stores, dry goods stores, etc. Business owners, managers, and workers were all members of the same communities. Most factories were still locally owned and operated by families with deep roots in the communities in which they were located. It was not until after World War II, in the 1950s and 1960s, that giant, non-family corporations began to dominate all aspects of the American economy. The chain stores displaced the mom and pop grocery store, franchised fast food chains displaced independent restaurants, building supply chains replaced local lumberyards and hardware stores, and now, “super centers” are displacing just about everything else. Our growing disconnectedness has coincided with this period of growing corporatization.

Growing social disconnectedness in farming and forestry has been reflected in the demise of family farms and forestry enterprises, decline and decay of rural communities in natural resource dependent areas, and in exploitation of rural people by outside investors. The struggle for survival in an industrial economy has destroyed the integrity of relationships among rural people, leaving them vulnerable to exploitation by anyone who promises to create jobs or to restore the dwindling local tax base. Without positive relationships, communities have no means of rediscovering a vital economic purpose, and thus, have no means of achieving community self-development from within. They are left helpless
to defend themselves from outside investors who are searching for cheap labor or for someplace to “dump something” that no one else wants in “their backyard.” Without a sense of connectedness, there is no sense of community in rural areas.

Putnam attributes our growing disconnectedness to such developments as increasing time spent at work, increasing money pressures, more two-wage-earner households, increasing commuting time and distance, and increased time spent watching television. But perhaps most significant, he observed that each new generation that has reached adulthood since the 1960s has been significantly less connected than was the previous generation. So disconnectedness is becoming a part of American culture – something passed from generation to generation. In reality, we will never know for sure what is causing our social disintegration. Society quite simply is too complex, interdependent, and dynamic to discover its truths through a mechanistic approach to science. If we are to restore human relationships and rebuild our social capital, we must learn to use our common sense.

Our common sense should tell us that something in the process of industrialization, not necessarily industrialization, per se, is the root cause of our growing social disconnectedness. While industrialization places no value on personal relationships, nothing inherent in the basic concepts of industrialization necessarily destroys our ability to relate to each other. People, by nature, tend to specialize, develop standard routines, and voluntarily accept the leadership of others, without necessarily threatening their personal relationships. Likewise, the process of industrialization, not industrialization per se, threatens the natural environment. Living organisms have specialized functions, many natural processes are predictable or standard, and nature is filled with examples of social hierarchy or centralized control. In a sense, specialization, standardization, and centralization are basic aspects of nature, including human nature.
However, diversity, individuality, and independence also are fundamental aspects of nature, including human nature. Problems arise because the process of industrialization has no natural limits. Industrial specialization continues, even after it has exceeded its natural ecological and cultural boundaries. And, when specialization begins to destroy ecological and cultural diversity, it begins, inherently, to create problems. Industrial standardization continues even after it begins to distort and blur the boundaries that define individual people and places. And, when standardization begins to destroy the unique values of individual differences, its cost, inherently, begins to rise. Industrial consolidation continues even after it begins to destroy the boundaries of personal security, as the poor and weak become dependent upon the rich and powerful. And, when consolidation of control begins to destroy personal independence and freedom of choice, its threats to society inherently grow.

Our common sense should tell us that we have to learn to live within the boundaries of nature, including human nature. We can reap the benefits of specialization, but only so long as we specialize within the boundaries defining diversity within nature. We must fit the things we grow and the ways we manage our farms and forests to the ecological diversity of nature – to the soils, climates, topography, and geography of unique places. We can reap the benefits of standardization, but only so long as we standardize within the boundaries that define individual people, cultures, and places. We must fit the things we grow and the ways we manage to the individual abilities, ambitions, and aspirations of the farmers and foresters who ultimately must take care of the land and help sustain viable communities. We must fit what we do to the uniqueness of the cultures and places within which we live. We can realize the benefits of consolidation of control, but only so long as we allow people to maintain their independence – their freedom and ability to find another job, join another group, or choose another life. We can realize the benefits of
specialization, standardization, and consolidation, but only if we are willing to make conscious, purposeful choices to respect the boundaries of nature, including human nature.

Thankfully, a new paradigm for resource development is emerging, which recognizes and respects the natural ecological and social boundaries necessary to give form, substance, quality, and sustainability to life. The new paradigm is emerging under the conceptual umbrella of “sustainable development.” Sustainable development came into broad, public consciousness through the first major international conference on environmental issues sponsored by the United Nations in Stockholm, Sweden in 1972. Sustainable development was defined there as, “development that is capable of meeting the needs of the present generation while leaving opportunities for future generations to meet their needs as well.” Sustainable agriculture and sustainable forestry are but two of the many social movements being driven by efforts to develop more sustainable systems of resource development.

Sustainable farms and forests must be capable of meeting the needs of the present, while leaving equal or better opportunities for those of the future. In order to achieve sustainability, our food and fiber systems must be ecologically sound, economically viable, and socially responsible. The ecological, economic, and social requirements of sustainability cannot, and need not, be proven empirically; they are matters of common sense. First, any system of resource development that destroys the integrity of its resource base – the health and productivity of the soil, water, air, etc. – eventually will lose its ability to produce, and thus, is not sustainable. It’s just common sense. Second, economics is the means by which we decide who gets to develop the resources and how they are developed. If a development strategy is not economically viable, it is not economically sustainable, no matter how ecologically sound it may be. It’s just common sense. Finally, the fundamental purpose of resource development is to meet the needs of society. Thus, any system of resource development...
that does not meet the expectations of society, as producers as well as consumers, will not be supported by society, and thus, is not sustainable. Again, it’s just plain common sense. Any system of sustainable development must be ecologically sound, economically viable, and socially responsible. A system lacking in any one of the three, quite simply, is not sustainable. It’s just common sense.

Our common sense tells us there are boundaries which define people, families, communities, and nature, and which must be respected and honored in a sustainable society. Our common sense tells us there are boundaries which give form and substance to all physical matter, to plants, animals, earth, water, and which must be respected and maintained to sustain life on earth. If we are to sustain a desirable quality of human life on earth, we must develop systems of sustainable agriculture and natural resource development – systems that respect the boundaries of nature. To do so, we must challenge the conventional wisdom that there are no limits to growth, that new technologies will fix every problem, and that humankind must dominate and subdue the earth and fill its every nook and cranny. We must challenge such conventional wisdom with our common sense; there are inviolate laws of nature, which we cannot change or repeal, and thus, to which we must conform in our relationships with nature and with each other.

Conventional wisdom reflects beliefs, based on experience and observation, which are passed from one generation to the next, or more common recently, passed down from “experts” to ordinary people. We are told that something is true, in general, by someone in a position of respect or authority. We observe that it seems to be true in some specific situation, and thus, we conclude that it must be true. Such things become conventional wisdom. In times past, parents, clergy, political leaders, or other authority figures, were the carriers of most conventional wisdom. More recently, however, if something has been “proven” by science, it is believed and accepted as truth, often without personal testing. Science
has replaced personal experience as the source of most conventional wisdom.

Common sense is something that we “know” to be true, intuitively and inherently, without having to observe it, experience it, or prove it. As humans, we all have access to a common sense of the things we actually need to lead lives of quality and harmony. We all share a common sense of what’s good and bad, of what’s right and wrong. We know many such things without being told, taught, or convinced.

The founding fathers of America relied on their common sense in drafting the Declaration of Independence. They wrote, “We hold these Truths to be self-evident, that all Men are created equal, that they are endowed by their Creator with certain unalienable Rights, that among these are Life, Liberty, and the Pursuit of Happiness.” They didn’t feel a need to prove their assertions, these things were held to be “self-evident:” – they were common sense. The Golden Rule is common sense. We know that it is right and good that we should “do unto others as we would have them do unto us.” The Golden Rule has been a part of every enduring religion and most major philosophies throughout recorded history. No one has ever felt compelled to prove it; it’s just common sense.

Often times we are misled in our beliefs, when we experience things that we don’t understand, when we are told things that we “want” to believe, or when we accept someone else’s opinions instead of thinking for ourselves. In such cases, we discard our common sense in favor of conventional wisdom. Even the Founding Fathers allowed conventional wisdom of the times, such the acceptability of slavery, to take priority over their common sense. When conventional wisdom makes sense, we should believe it. But, when it doesn’t, we should reject it. We always have access to our common sense, if we choose to use it. The conventional wisdom of American society today is threatening the sustainability of our society. To meet the challenges that confront us, we
must return to our common sense.

We must reject the conventional wisdom of industrialization. Farms and forests are not factories. Plants, animals, and people are not machines that can be assembled into some sort of biological assembly line. The niches within nature tend to be diverse, distinct, and small, and thus, the potential for specialization, standardization, and centralization is limited. Agriculture, forestry, and other “living systems” were industrialized last, because they are among the least well suited of all enterprises for the industrial model. Thus, the benefits have been fewer and the ecological and social costs have been greater, as the boundaries of nature were quickly breached. Industrialization neither respects nor even recognizes the natural boundaries, which define the ecological niches within nature. Industrialization neither respects nor even recognizes the social boundaries, which define individuals, families, communities, and nations. As people, we must learn to recognize and respect the boundaries of nature and of society and must purposefully restrain the processes of industrialization. We must challenge the conventional wisdom of industrialization, with common sense.

Corporations are not people; they recognize no ethical or moral constraints to growth and power. Most publicly held corporations today far exceed the size needed to achieve true economic efficiency. Corporate consolidation today takes place for one basic reason: to increase market power – the power to exploit their customers and suppliers. Our only means of controlling corporate growth is through the collective power of people, through government. The government has largely abandoned its role in maintaining economically competitive markets, as the corporations have used their economic power to gain control of the political process. Corporations are granted charters by the public to function for public benefit, not for public exploitation. If we are to prevent corporate exploitation of both nature and society, we must be willing to challenge the conventional wisdom of corporatization, with
We must reject the conventional wisdom of “free-market” economics. Contemporary free-market economics recognizes no social or ecological boundaries. It recognizes no limits to growth – neither to human wants nor to resource use. Economics, as an academic discipline, provides the optimum means of “using things up.” There is nothing in contemporary economic theory concerning conserving, regenerating, or replenishing either natural or human resources to ensure the long run sustainability of human society. All constraints to economic exploitation must come either from sources external to the economic system – either in the form of legal limits imposed by society or physical limits imposed by nature. And, strong economic incentives exist to remove or avoid both types of limits. Economies are created by people for the benefit of people, not for the exploitation of people. However, if we are to prevent the economic exploitation of nature and society, we must be willing to challenge conventional economic wisdom, with common sense.

We must reject the conventional wisdom of the mechanistic approach to science. Contemporary science is appropriate for the study of dead things – such as physical, mechanical, and chemical processes – not living things. A living thing cannot be taken apart into pieces and reassembled without destroying its life and its essence. A machine is not self-making – it can’t regenerate, restore, or reproduce. Farms and forests are living systems; they are not sophisticated machines. Farmers and foresters are living people; they are not computerized robots. Contemporary science may reveal many mysteries of the human body, even of the brain, but it tells us nothing of the mysteries of the human “heart,” of love, or the human soul. To understand human relationships or human ethics or morality, we must rely on our common sense.

We need not reject the concept of science as a means of knowing and understanding. But we must reject the proposition that there is only “one
way” of knowing or understanding. Thomas Huxley, a noted English botanist, once wrote, “All truth, in the long run, is only common sense clarified.” Albert Einstein wrote, “The whole of science is nothing more than a refinement of everyday thinking.” We must learn to use science to “clarify and refine” our common sense, but not to replace it. If we are to prevent humanity from destroying itself, we must be willing to challenge the conventional wisdom of science with a new science, based on common sense.

Our common sense tells us there is something fundamentally wrong in today’s society – including in agriculture, forestry, and natural resource development. We are told we shouldn’t be concerned about the current financial situation; the current crisis is nothing more than a normal economic adjustment, and that the free-market ultimately works for the good of all. We are told we shouldn’t be concerned about the environment, that we have no proof we are damaging the natural ecosystem, and after all, we can always find a technological fix for any ecological problem. We are told we shouldn’t be concerned about what is happening to rural families and communities, rural people are just becoming more like urban people, and America is just becoming a more independent society. But, our common sense tells us that something is fundamentally wrong.

Our common sense tells us that we will not necessarily be better off in some occupation other than agriculture or forestry, no matter how much more money we might make. Our common sense tells that we can’t continue to take from nature without giving something back to nature; no matter how smart we think we are. Our common sense tells us that positive relationships with other people, in families and communities, make our lives better, no matter how independent we may become.

Our common sense tells us that we must develop farming, forestry, and natural resource management systems that meet the needs of the present
while leaving equal or better opportunities for the future. Our common sense tells us that our agricultural and resource development systems must be ecologically sound, economically viable, and socially responsible, if they are to be sustainable over time. Our common sense tells that the corporate, industrial model is not sustainable, and that we need a fundamentally different approach to the management of all natural resources.

Our common sense also tells us that we can and must find ways to live and work that nurture the personal, interpersonal, and spiritual aspects of our lives. We know that we must accept responsibility for ourselves, that our individual well-being is important to our quality of life. But we know also, caring for other people is not a sacrifice, but instead, that compassion for others adds to the quality of our own life. And, we know that taking care of the land is not a sacrifice, but instead, stewardship of the earth helps give purpose and meaning to our life. We know the quality of our life is enhanced when we make conscious, purposeful decisions to care for the earth and for each other.

Our common sense tells us, that if these things are true for personal life, they are true also for our professional life, and for our political and social life. Our common sense tells us we are whole people, and the same principles hold true for all aspects of our lives – individual, relational, and spiritual. If we are to make a positive difference in the future of agriculture and forestry in America, we must return to our common sense.

[2] John Ikerd is Professor Emeritus, University of Missouri, Columbia, MO – USA. E-mail: JEIkerd@AOL.COM web site: http://www.ssu.missouri.edu/faculty/jikerd
To globalize means to make worldwide in scope or application. We live in a
global ecosystem; in this, we have no choice. Increasingly, all nations of the
world share a global culture, a consequence of past choices. And, the economy
has become increasingly global as well. However, within the global ecosystem
are boundaries, which give form and structure to natural systems. Within the
global culture are boundaries, which define different human values and
perspectives of reality. And within the global economy are boundaries, which
allow nations to reflect the differences in their natural ecosystems and social
cultures in the structure and functioning of their economies.
The World Trade Organization (WTO) appears committed to removing all
“barriers” to international trade, to achieve “free trade,” and thus, to removing all
“economic boundaries” among nations. Once the economic boundaries are
removed, cultural boundaries will become further blurred, and ecological
boundaries will be left open to economic exploitation. Cultural and ecological
diversity are considered obstacles to economic progress. A truly global economy
will allow greater geographic specialization, greater standardization of processes
and products, and thus, will allow global corporations to achieve even greater
economies of scale.
In a global agricultural economy, small farms will be replaced by large farms,
which in turn will be controlled by giant multinational corporations. Small
farmers quite simply will not be able to compete in a “free market” global
economy. Many small farmers of the world rely on horticultural crops for their
viability. Thus, the implications of globalization may be even more dramatic for
horticulture than for most other agricultural sectors. But even more important, ecological and cultural boundaries are essential to the long run sustainability of agriculture. Thus, if all economic boundaries are removed, human life on earth, at least as we know it, will not be sustainable.

Over the past decade, globalization has become a major public issue. Most of the recent controversy has centered on the World Trade Organization (WTO). The WTO was established in 1994, with authority to oversee international trade, administer free trade agreements, and settle trade disputes among member nations, replacing the General Agreement on Tariff and Trade (GATT). However under the WTO, authority was greatly expanded to cover trade in services as well as merchandise – including protection of intellectual property rights. And, intellectual property rights have been interpreted to include the genetic code of living organisms. Also, the WTO has far greater authority over trade in agricultural commodities than had existed under the GATT. The implicit, if not explicit, objective in forming the WTO was to reduce and eventually remove all restraints to trade, in order to achieve a single “global free market.”

“Globalization,” as a concept, is far broader in meaning than is the concept of a “global free market.” To “globalize,” according to Webster’s dictionary, means “to make worldwide in scope or application.” The objective of the WTO is to create a single geographic market that is worldwide in scope, with a single set of trading rules that are worldwide in application. However, we cannot change the global economy without simultaneously affecting global ecology and global society. This is the crux of the current WTO controversy. What are the implications of a “global free market,” not just for the world economy, but also for the world community and for the world itself?

We live in a global ecosystem, regardless of whether we like it or not. We have no choice; such is the nature of “nature.” The atmosphere is global. Whatever we put in the air in one place eventually may find its way to any other place on the globe. Weather is global. The warming or cooling of the oceans in one part of the world affects the weather in another, which in turn affects the temperature of oceans elsewhere on the globe. All the elements of the biosphere are interrelated and interconnected, including its human elements. We are all members of the global community of nature. We have no choice in this matter.
Increasingly, we also live in a global “social” community. Global communications – print media, radio, television, and the Internet – have erased technical communications barriers among nations, resulting in the spread of common cultural values around the globe. Global travel has become faster, easier, and less expensive, resulting in greater person-to-person sharing of social and cultural values among nations. Consequently, the distinctiveness of national cultures has diminished. We seem to be moving toward universal membership in a common global culture.

However, in matters of society and culture we have the right and the responsibility to choose. We have the right to maintain whatever aspects of our unique local or national cultures and communities that we choose to keep. And we have the responsibility to protect this right against the economic or political forces pushing us toward a single global culture or social community.

We also seem to be moving toward a single global economy. International trade has increased dramatically over the past few decades, first under the various GATT agreements and now under the WTO. All of the national economies of the world are interconnected through their dependence upon each other for trade. Problems anywhere in the world economy, with Japan and Argentina being recent examples, create economic problems for nations all around the globe. However, the global economy is made up of numerous distinct markets – including national markets and various multinational trade groups, such as those defined by the North American Free Trade Agreement (NAFTA) and the European Union (EU). However, the implicit purpose of the WTO is to remove all restraints on trade among nations and among trade groups, and thus, to create a single global market.

In the matter of a single global market, we also have a right and a responsibility to choose. Every nation has the right to maintain those aspects of its local and national economies that it deems necessary to protect its resources and its people from exploitation. In a truly “global free market,” the social and political boundaries that now protect nations from such economic exploitation would no longer exist. Again, to the crux of the WTO controversy, we must ask, “what are the implications of removing the economic boundaries among nations, thus creating a single global market?”

Perhaps the best way to begin addressing this question is to examine the
boundaries that currently restrain globalization and to ask why those boundaries are there in the first place. The boundaries that exist in nature, the ecological boundaries, were put there by natural processes. Such physical features as oceans, mountains, and even rivers and ridges, separate one physical bioregion from another. Why do such boundaries exist within nature? Perhaps, because nature is inherently diverse and boundaries are nature’s way of defining its diversity. Boundaries separate and define the form or structure of those things that support life: sunlight, air, water, and soil. Boundaries also define the physical structure of all living things: bacteria, fungi, plants, animals, and humans. We know also that biological diversity is necessary for life; diversity that distinguishes cells, organs, and living organisms from each other; diversity that gives resistance, resilience, and the regeneration ability to living communities. Without diversity, without boundaries, nature could not sustain life, including human life.

Cultural and political boundaries are those things that define distinct “communities” of people – including cities, states, and nations. We established such boundaries to facilitate relationships among people within boundaries and to differentiate between relationships among people within a given “community” and their relationships with people in other “communities.” Within cultural boundaries, relationships were nurtured to enhance social connectedness and personal security. Boundaries “between” communities maintain some sense of identify, and thus, maintain diversity among different groups or collections of people. Diversity among communities maintains choices and opportunity for those of the current generation and for those of generations to follow. Historically, whenever one human culture or society has become dominate, but has then failed, alternative cultures and societies has always been available to restore health and growth, and thus, to provide resilience, and long run security for human progress. Without cultural diversity, there would have been nothing to replace the long line of failed societies of the past.

In earlier times, cultural and political boundaries tended to coincide with natural boundaries – oceans, mountains, rivers, and ridges. However during the industrial era, economic and political considerations have taken priority over natural boundaries in defining our social relationships. Wars have resulted in
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The global economy has been expanding at an unprecedented rate, with major social, cultural, and economic changes that are redrawning national boundaries, town and city boundaries, and economic boundaries. This is occurring along lines that have little relationship to either topography or culture. Towns and cities have expanded their boundaries with little regard for the best long run use of the land they have covered with highways, buildings, and parking lots. And with the trend toward a single “global community,” the remaining social and cultural boundaries that still define different groups of people, with diverse social, ethical, and moral values, are being largely ignored.

With some notable exceptions, economic boundaries, over at least the past century, have been the same as national political boundaries. Historically, each nation has had its own currency, and has maintained economic relationships among those “within” nations as separate and distinct from economic relationships “among” nations. The British Empire of the early 1900s, which once included a fifth of the globe, might have been considered a single economic unit. More recently, the North American Free Trade Agreement and the European Union represent attempts to encompass several nations within a single economic boundary. But, most economic communities are still defined by the boundaries of single nations.

The basic purpose of economic boundaries is to promote “free trade” within the boundaries of communities and to carry out “selective trade” among those communities that are separated by economic boundaries. Economic diversity, as defined by economic boundaries, is necessary for division of labor and specialization. If all national economies were to lose their distinctiveness, becoming as one, all potential gains from trade among nations would disappear. Historically, economic diversity among nations also has been considered a necessity to ensure choice and opportunity – to ensure health, growth, resilience, and long run security of the global economy. Humanity has not been willing to put all of its “economic eggs in one basket.”

So, why have leaders of the major economic powers of the world decided now to put all their “economic eggs” in the “WTO basket?” The most logical answer seems to be that world leaders are now motivated more by short run economic consideration than by longer run concerns for human culture or for the natural environment. In this respect, other nations quite likely are being misled by the “economic culture” of the U.S., which now dominates the global economy. The
tremendous growth of the U.S. economy over the past century is widely attributed to our “competitive, free market” economy. Because of this growth, a new “culture of economics” now holds sway among many of the most economically powerful nations of the world. Within this culture, economic boundaries are viewed as obstacles to trade, as limiting the ability of investors to maximize economic efficiency. “Free trade” among all nations would result in a more efficient global economy, they say, thus benefiting all people of the world. Current barriers to trade, they say, usually are nothing more than artificial, political restraints designed to protect specific individuals and industries within nations from economic competition with more efficient producers in other nations. Thus, the WTO should work to remove such barriers, allowing the most efficient producers in the world to produce the world’s goods and services, resulting in the lowest possible cost of goods and services to consumers everywhere – so they claim.

Such claims are based on economic theories of trade that historically have made “free trade” something of a “sacred tenet” of economics. This is true particularly among the more conservative of economists, whose views are now in vogue. Contemporary “free trade theory” has its foundation in the early 1800s, primarily in the writing of British economist, David Ricardo. Ricardo showed that when two individuals choose to trade, each is better off after the trade than before. People have different tastes and preferences, and thus, each person values the same things somewhat differently. So, if I value something you now own more highly than I value something I own, and you value the thing that I own more highly than you value the thing you own, we will both gain by trading. I will get something that I value more than the thing I now own and so will you.

The same concept can be used to show the potential gains from trade associated with economic specialization. For example, one farmer may be a more efficient producer of one crop, e.g. tomatoes, and another farmer may be a more efficient producer of another, e.g. green peas. If so, one farmer can then specialize in green peas and the other in tomatoes. The better tomato producer can then trade tomatoes for peas and the green pea producer can trade peas for tomatoes, and they both will be better off than if they each tried to produce both peas and tomatoes.
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Even if one farmer is a better producer of both peas and tomatoes, the other farmer will have a “comparative advantage” in producing one or the other. Let’s say the first farmer could produce either 4 tons of green peas or 80 tons of tomatoes on a hectare of land and a given amount of labor, and capital. Assume a second farmer could only produce 3.3 tons of green peas or 60 tons of tomatoes on a hectare of land using the same amount of labor and capital – not as much of either as the first farmer.

If the first farmer decided to produce only peas, he or she would have to forego 20 tons of tomatoes for each ton of peas produced (80/4=20). However, if the second farmer decided to produce peas, he or she would only have to forego 18 tons of tomatoes for each ton of peas (60/3.3=18). In economic terms, this means that the second farmer has a “comparative advantage” in producing peas, because his or her “opportunity cost” of producing peas is less. Using the same logic, the first farmer has a lower “opportunity cost” of producing tomatoes (0.050 tons of peas per ton of tomatoes (4/80), compared with .055 tons of peas per ton of tomatoes (3.3/60)). The “opportunity costs” for both crops are lower if the second farmer specializes in producing peas and the first farmer specializes in producing tomatoes.

Although the arithmetic gets messy, if the second farmer specializes in peas and the first in tomatoes, and they trade their surpluses to each other, both will be better off than if each produces some peas and some tomatoes. Of course the real world is much more complex than this simple “two producer, two commodity” example, but this simple one-on-one trade situation is still at the heart of contemporary economic trade theory.

So, if both traders gain from specialization and trade, what’s wrong with “free trade?” The problems arise because “free trade” between two independent individuals, in the context of the early 1800s, does not accurately reflect the reality of trade among nations in the early 2000s.

First, trade is truly free only if both partners are “free not to trade.” Participants in “free trade” must have an “interdependent” relationship. Interdependence implies that people relate to each other “by choice,” not “by necessity.” If one trading partner is dependent on another, the dependent partner may have no choice but to do whatever is necessary to maintain the relationship.
“Interdependent” relationships can only be formed between two otherwise independent entities. When both are independent, neither is compelled to either form or maintain the relationship. Under such circumstances, trading relationships are formed only if they are beneficial to both and continue only so long as they remain beneficial to both.

Trading under conditions of coercion, under explicit or implied threats of retribution, is not free trade. The school kid that “trades lunches” with the bully, under threat of bodily harm, is not participating in free trade. Neither is a weak nation that trades with a strong nation, under the threat of denial of military protection from some global tyrant. Nor is it “free trade” if one nation is dependent on the other for its economic wellbeing, as in cases where one nation has built up large debts to another. Poor nations are made dependent on rich nations by their lack of economic wealth, economic infrastructure, and technological advantage, regardless of their inherent worth to humanity. In many cases, rich nations are able to exploit the workers and resources of poor nations through trade, because the poor see no other way to avoid physical deprivation or starvation of their people. Trade when one party feels compelled to trade is not “free trade.” Coerced trade is not “free trade.”

Second, “free trade” assumes “informed trade.” Both parties must understand the ultimate consequences of their actions. If a car dealer trades cars with a customer, knowing his car is a gas-guzzler, needs lots of repairs, and is unsafe to drive, and trades the car without informing the customer, this is not a “free trade.” When a developed nation encourages a lesser-developed nation to produce for export markets, knowing that such production will lead to exploitation of their natural and human resources, and does not inform them of the consequences, this is not free trade. The “leaders” of the lesser-developed nations may reap benefits from such trades, often including bribes or payoffs from the outside exploiters, but the resources of the lesser-developed nation will be exploited rather than developed. The people will be left with fewer opportunities for developing their country than they had before. The exploiters know the consequences but the exploited do not. Uninformed trade is not “free trade.”

Third, “free trade,” in economic theory, implies that the decision is made by an
individual, not a collection of people or a nation. Individuals are whole people, presumably absent of unresolved internal conflicts regarding the relative values of items to be traded. A person trades only if they decide trading is good for them as a whole. Nations cannot think with one mind or speak with one voice. Nations, as large collections of individuals, may make and carry out trade agreements to which a substantial portion of the nation’s population is opposed, both before and after trade takes place. The economic rational for such agreements is that if the economic benefits to those who favor trade more than offset the economic costs to those who oppose it, the nation as a whole will benefit from the trade.

Economics is incapable of dealing with social consequences of trade, such as equity or justice. In economics, a nation is said to gain from trade if those who benefit from trade “could” compensate those who lose and still have something left over. Of course, the gainers are under no legal obligation to compensate the losers, and rarely, if ever, do so. And in economics, it doesn’t matter that the rich are made richer and the poor are made poorer. In economics, it doesn’t really matter how many people are made “relatively” worse or better off by trade, as long as trade results in greater total wealth and growth of the overall economy. Free trade doesn’t address issues of social equity or justice.

Finally, the foundational principles of economic trade theory are rooted in a “barter economy” – people “trade” things rather than buy or sell things. In an international currency economy, comparative advantages in trade can be distorted by fluctuations in currency exchange rates that have nothing to do with relative productivity. Such fluctuations can cause the exports from one nation to become more or less costly to importers from another nation for reasons totally unrelated to changes in production efficiency. Under such conditions, “free markets” do not result in efficient resource use. Trade theory assumes differences in monetary prices reflect differences in real value.

In classic trade theory, also, each trading partner uses their individual resources, land, labor, capital, technology, etc. to do whatever they do best – to realize their comparative advantage. No consideration is given to the possibility that one nation might instead transfer some of their resources, such as capital and production technology, to another nation where they might generate even greater profits. Mobility of capital and technology, hallmarks of today’s global economy,
The Globalization of Agriculture eliminates the “comparative advantage” of higher cost nations, forcing them to import from lower cost nations, devaluing both land and labor in the higher cost nation to globally competitive levels. The classical economic concepts of comparative advantage did not anticipate international mobility of capital and technology.

Because of all these inconsistencies between economic theory and economic reality, the theory of economic “free trade” does not reflect the reality of international ”free trade” today. Perhaps more important, opposition and open defiance of the WTO, from countries around the globe, indicates that any further expansion of trade, being forced upon unwilling people by the WTO, almost certainly will “not” be “free trade,” but “coerced trade.”

So what are the implications of market globalization for international agriculture, and specifically, for the sustainability of small horticultural farms? First, the implications will be different in different parts of the world, because of the wide diversity in current size and ownership structure of horticultural production units in different countries. Obviously, large differences exist between agriculture in the “developed” and “developing” countries of the world. However, significant differences also exist within these two communities of nations.

The European Union (EU) and the United States provide a convenient example of contrasts within developed economies. Horticultural production in Eastern Europe is carried out in predominantly family-based enterprises (Avermaete, 1997). Historically, fruit and vegetable farms were small, family operations, located close to the cities, and focused on producing for local consumption. Over time, however, some of the more specialized operations expanded in size, as lower transportation costs allowed them to compete in more-distant markets. In Europe today, small-scale family operations still co-exist with these larger specialized operations, with each focusing on different markets.

Approximately 1.8 million farms in the EU produced fruit and vegetables in the early 1990s. Many of these obviously were small family enterprises oriented toward home consumption, as they averaged only 1.3 ha. in size overall. Some 100,000 of these were classified as commercial operations specializing in production of vegetables, averaging 4.2 ha. in size, and 350,000 were commercial
operations specializing in production of fruit, averaging 7.9 ha. in size.

Horticulture in the United States has experienced the same basic trends as in the EU – toward geographic specialization and large-scale production. However, operations in the US tend to be larger than in Europe. The US 1992 Census of Agriculture reported 29,605 farms producing vegetable and melons, 99,514 farms producing fruit and nuts, and 39,712 producing various other horticultural crops. The average size of US horticultural farms was 21 ha. for fruit and nut farms and 50 ha. for vegetable and melon farms – far larger than in the EU.

However, for both the US and EU, about 25 percent of the largest horticultural producers account for about 75 percent of total fruit and vegetable production. Over the past decade, both the average size of farms and percentages of production accounted for by the larger commercial operations undoubtedly have increased significantly in both the US and EU.

Comparable data are not available for many of the developing countries. However over the past decade, the fastest growing fruit and vegetable regions of the world have been Asia (particularly China) and South America (particularly, Brazil and Chile). Asia now accounts for more than 60 percent of worldwide vegetable output, and China alone accounts for about 25 percent of world production of apples (Segre, 1998). With the exception of a few large corporate operations that serve export markets, available data indicate the vast majority of production units in Asia and South America are smaller, family operations serving local markets.

In general, regardless of the region of the world or the segment of agriculture considered, the vast majority of all farms are still small farms, with many still serving local markets. However, the vast majority of total agricultural output is accounted for by a small proportion of larger, specialized commercial operations, oriented toward serving global markets. And increasingly, these large, export-oriented agricultural operations are controlled, if not owned outright, by giant multinational corporations.

As diversified family farmers have been replaced by large, specialized production units, independent food processors and wholesalers have been displaced by giant food processing and distribution firms. These large food
processing and distribution operations more recently have combined, through various types of alliances and joint ventures, into five or six even-larger “global food chain clusters.” As the four or five dominate global food retailers link up with existing “global food chain clusters,” they increasingly will control all phases of the global food system from “conception to consumption,” including agricultural production (Heffernan, 1999, Hendrickson, 2001).

The two dominant trends in agriculture today, globalization and corporate consolidation, are not just coincidental, but almost certainly are intentional. Trade negotiators for the more industrialized nations, the US in particular, are the driving force within the WTO demanding ultimate removal of all social and ecological barriers to trade. The support of multinational agribusiness corporations is the primary motivating force behind these negotiators. With all political constraints to trade removed, the multinational corporations would be free to treat the world as a single production area and single market, and thus to maximize profits globally.

The world economy envisioned under the WTO presumably would operate much as a national economy. “International commerce” would resemble “interstate commerce,” and no individual member nation would be allowed to have laws interfering with such commerce. Under the WTO, nothing could be arbitrarily excluded from “international commerce.” The WTO would decide what nations can and cannot exclude from the world marketplace. And, no seller or buyer would be allowed to offer different prices or conditions of trade to different nations, for any reasons.

Under such rules of trade, a nation could not subsidize its agriculture by any means that might be trade distorting; that is, it couldn’t subsidize producers of one commodity more than it subsidizes producers of another. A nation could not establish environmental, health, or safety standards for its production processes that were more restrictive than those specified by the WTO. A nation could not close its borders to WTO approved “cultural exports” from other nations – movies, television programs, clothes, and magazines – no matter how repulsive they may be to some residents of that nation. A nation could not refuse to allow its natural resources, such as minerals, oil, or even water, to be sold to another nation. And, the WTO would stand ready to enforce merchandise patents and
intellectual property rights globally, regardless of whether the people of the world agree that all things, such as genetic life forms, should be patented. These are but some of the many potential consequences of the WTO vision of a single global economy.

In essence, removal of national economic boundaries would open the world to “corporate colonization.” Historically, a “colony” has been defined as a geographic territory, acquired by conquest or settlement by a people or government previously alien to that territory (Encarta, 1998). In general, a colonial relationship is created when one entity extends its sovereignty and imposes control over another people or territory. In the case of “corporate colonization,” it is the corporation, rather than a people or government that extends its sovereignty and imposes its control over the economies of nations. Nations lose control over their individual economies as their economic boundaries are removed, allowing the multinational corporations, previously alien to their countries, to expand across political boundaries at will.

The potential for economic colonization is inherent, so long as the world is composed of nations at radically different stages of economic and technological development. Those in the more developed economies will always be tempted to dominate those in the less developed economies. The emergence of multinational corporations, lacking a strong affiliation to any nation, makes those in the less developed areas or all nations vulnerable to global corporate domination. Such disparities in power, however, only make colonization possible – not necessary or inevitable. The powerful are not always able to expand and dominate the weak, as long as the weak have the political means to resist. Once the economic boundaries are removed, however, there will be no political means to resist.

As with political colonialism, there are strong arguments both for and against economic colonialism. Clearly, multinational corporations can bring numerous economic benefits to people in less developed economies, including greater access to investment capital, more employment opportunities, and higher personal incomes. A stronger economy also provides opportunities for governments to spend more for public transportation, health care, education, national defense, police protection, and other social welfare programs.
However, reliance on outside corporate investors for capital and technologies brings with it significant social and ecological risks. As with political colonization, life-styles are disrupted, cultures are destroyed, and entire communities, nations, and races of people may be economically subjugated by the corporations. A nation’s natural resources – minerals, petroleum, forests, biological diversity, soils – may be exploited to maximize corporate profits, because there is no long term corporate commitment to any particular people, place, or culture. Decades after political colonization has ended, many so-called Third World countries still harbor a deep resentment, sometimes hatred, toward their former “colonial masters,” in spite of the numerous economic, health, technological, and educational benefits they received. There certainly is no reason to believe that an after-the-fact assessment of benefits and costs will be any less condemning of the corporate colonization process.

Under contemporary international standards of human rights, political colonialism is no longer considered excusable – no matter what the potential economic or social benefits. Colonialism conflicts directly with inherent rights of national sovereignty and self-determination. The 19th-century empire builders, however, believed they had a moral responsibility to rule the “backward peoples” of the world, in order to bring them the fruits of Western civilization (Encarta, 1998). Many in the more developed nations today believe they have a moral responsibility to develop the “less developed economies” of the world, in order to bring them Western prosperity. The industrial nations have tried, without much success, to impose their industrial economic model on the rest of the world through various government- and foundation-funded international economic development programs.

From an international policy perspective, economic colonization by multinational corporations is but another means of developing the “less-developed economies” of the world. The next stage of development, for most less-developed countries, is the transition out of agriculture and into manufacturing. This transition cannot take place until agriculture is industrialized, making it possible for the agricultural sector to produce more food with fewer farmers, thus freeing farmers to work in the factories and offices of the new industrial economies. Agricultural globalization will make it
possible for the agribusiness corporations to industrialize the agriculture of these lesser-developed economies. Thus, agricultural globalization is seen as a necessary prerequisite to global economic development. Before addressing the implications of agricultural globalization on sustainable horticultural farms, we must address the sustainability of agriculture in general. First, any form of sustainable development, including sustainable agriculture, must meet the needs of the present while leaving equal or better opportunities for the future. To meet this standard of sustainability, a system of production and distribution must be ecologically sound, economically viable, and socially responsible. Lacking any one of these three aspects, a system quite simply is not sustainable over the long run. Globalization is a strategy designed for short-run economic exploitation, not for long run societal sustainability.

A sustainable food system, to be ecologically sound, must work in harmony with nature – not attempt to dominate or conquer nature. Nature is inherently diverse. Diversity in nature is necessary to support life within nature. “Boundaries” in nature define the diversity of landscapes, life forms, and resources needed to support healthy, natural, sustainable production processes. Fence rows, streams, and ridges define unique agroecosystems within which nature can sustain different types of human enterprises. Economic globalization ultimately will result in removal of fence rows, diversion of streams, and leveling of ridges, to facilitate standardization of functions and homogenization of production processes. The natural boundaries needed for sustainability will be removed to achieve greater economic efficiency. Economic globalization ultimately will destroy ecological sustainability.

A sustainable food system, in being socially responsible, must function in harmony with human “communities,” including towns, cities, and nations. Humanity is inherently diverse. Diversity among people is necessary for “interdependent” relationships – relationships of choice among unique, independent individuals. Although we have our humanity in common, each person is unique, and we need unique human “communities” within which to express our uniqueness. Social and cultural boundaries define those “communities” – towns, states, and nations. Globalization will remove those boundaries and will homogenize global culture and society. The natural
boundaries needed to sustain social responsibility will be removed to achieve greater economic efficiency. Economic globalization ultimately will destroy social sustainability.

A sustainable food system, to be economically viable, must facilitate harmonious relationships among people and between people and their natural environment. The inherent diversity of nature and of humanity must be reflected in diversity of the economy. Although potential gains from specialization are real, such gains are based on the premise that people and resources are inherently diverse, with unique abilities to contribute to the economy. Competitive capitalism is based on the premise that individual entrepreneurs make individual decisions and accept individual responsibility for their actions. If globalization is allowed to destroy the boundaries that define the diversity of nature and people, then it will destroy both the efficiency and sustainability of the economy. Economic globalization ultimately will destroy even economic sustainability.

In a global agricultural economy, large farms will continue to displace smaller farm in the global marketplace. Increasingly, the larger farms will be controlled by giant multinational corporations. Many small farms depend on sales of internationally traded commodities to provide cash farm income, in developed as well as less-developed countries. The most important aspect of their farming operation may be its non-cash contributions to their quality of life. In less-developed countries, the major non-cash contribution of farms may be food, clothing, and shelter, while in other countries it may be a healthy environment, privacy and security, and an independent life-style. In both cases, however, the economic viability of the farm may depend on cash income from sales of internationally trade commodities. Under globalization and corporate colonialism, small independent family farms quite simply will not have access to markets for internationally traded commodities. Essentially all such commodities will be produced under comprehensive contracts offered by corporations linked to one of the “global food clusters.” Only the larger farming operations will be able to secure such contracts, and in many countries, such operations may be corporately owned and operated.

Commercial horticultural markets will become geographically specialized globally. In those areas of the world with an economic comparative advantage in
horticulture, the larger farming operations will be consolidated and absorbed into one of the “global food clusters” – through contract or outright ownership. In those areas lacking a comparative advantage in horticulture, the commercial market infrastructure for horticultural crops will be dismantled due to lack of use. Thus, small family horticultural operations will be denied access to markets for internationally traded commodities in both cases. Small farmers worldwide rely on horticultural crops not only for their in-home own use but also for cash income, and thus, for their economic viability. Thus, globalization has important implications not only for the economic viability of small-scale horticulture but for the sustainability of small family farms everywhere.

The implications of market globalization and corporate colonialism are no more acceptable than were the implications of earlier attempts at cultural globalization and political colonialism. But with such powerful economic and political forces promoting globalization, how can we ordinary people expect to stop it. First, we can help people realize that the undeniable existence of a global ecosystem, a global society, and a global economy does not justify market globalization – i.e., the removal of all economic boundaries among nations. Natural boundaries are necessary to ensure ecological integrity. Cultural boundaries are necessary to ensure social responsibility. And economic boundaries are necessary to ensure long run economic viability. Without boundaries, the world will tend toward entropy – toward a world without form, without structure, without order, and without life.

Every nation has both a right and a responsibility to protect its people and its resources from exploitation, just as every person has a right and responsibility to protect their person and property from exploitation. Globalization would deny these most fundamental of human rights to the “communities” of people that constitute the nations of the world. People need to have healthy relationships with each other and with the earth, but healthy relationships are relationships of choice, not relationships of coercion. Global society needs a world forum, such as the WTO might be – not to remove boundaries, but to ensure that every person of every nation is protected from economic exploitation. We must reclaim our rights to individual and national sovereignty.

Other things we can do to fight globalization are more tangible and practical –
and many of these things are particularly relevant to horticultural producers and marketers. We can all help develop more sustainable, local alternatives, which will reduce our reliance on multinational corporations. For example, millions of farmers and consumers all around the world are already joining forces to develop more sustainable, local food systems. These people come together regularly within their local communities at farmers markets, CSAs, community gardens, and at other venues where farmers and consumers meet around food. The central focus of many, if not most, of these alternative food systems is horticultural crops – vegetables, fruits, flowers, etc. The sustainability of small family horticultural farms in the future will depend on the evolution of these alternative niche markets of today. As these markets evolve, small horticultural farms of the future may well become still greater in number, far more important to human nutrition and health, and even more profitable for small farmers.

Perhaps one of the most common of misperceptions today is that niche markets make up only a small part of total markets and that niche marketing will always be marginal to the marketing mainstream. In reality, all consumer markets are niche markets, because all individual consumers have different tastes and preferences. It’s a fundamental principle of economics, the utility or economic value of anything depends of individuality – on “who” has it and “who” wants it, and not just on what it is, where it is, and when it’s available.

The industrial food system has focused on minimizing the cost of changing form, place, and time – on efficiency of processing, transportation, packaging, and storage – through systems mass production and distribution. In attempting to minimize costs, food production and distribution systems have become highly specialized, standardized, and centralized, and people have been treated as if we all had much the same tastes and preferences. Industrial systems are inherently inefficient in doing a lot of different things for a lot of different individuals. As we move into the post-industrial era of economic development, however, the focus is shifting from minimizing costs to maximizing individual consumer satisfaction. Industrial foods have emphasized superficial product differentiation and “mass-produced convenience” – packaging, preparation, and home delivery – to make industrial foods more acceptable to individual consumers. Ultimately, however, the bulk of the food market will go to those who give individual
consumers the foods that they actually want – choices of food with flavor, freshness, nutrition, and integrity – not just food that is quick, convenient, and cheap. Small family horticultural farms that are focused on niche markets are on the frontier of the new post-industrial food system. Thus, successful small farmers of the future must give an even higher priority to local markets in developing more sustainable farming systems. They must realize they simply will not be able to sustain their farming operation by competing with the multinational food corporations in the emerging global economy. They must focus on those quality attributes of products that the multinational corporations cannot match with the industrial system of production and distribution – such as nutrition, freshness, flavor, and food safety.

The perceived safety of industrial systems of production and distribution is an illusion created by the complexity of government rules and regulations that have been promulgated to alleviate food consumer’s concerns. In reality, these rules and regulations are necessary only because of the separation of consumers from producers in the industrial food systems and because of the risks inherent in systems of mass production and distribution of food. When farmers and their customers relate to each other personally, customers have a personal knowledge of how their food is produced and handled and farmers know their products must be safe and wholesome or they will have no customers. When producers and customers are separated by thousands of miles and multiple layers of food marketing firms, there is no relationship of trust, and consumers must rely on complex rules and regulations, which are virtually impossibly to enforce with consistency. In addition, if a small farmer marketing locally mishandles food, a few customers suffer the immediate consequences, but the farmer will likely be forced out of business. When a large, corporate food processor mishandles food products, thousands of people suffer the consequences, and at most, the food processor will settle a few lawsuits, shift production to another processing plant, if necessary, and continues with business as usual.

Equally important to food quality and safety, small farmers must focus on their personal integrity, dependability, and commitment, on developing personal relationships with their customers – something that corporations simply cannot do. Again, corporate producers attempt to create the illusion of personal
integrity, through such strategies as unconditional guarantees, “rain checks” on advertised specials, identifying products with specific producers, and even inviting farmers into their stores. However, receiving a refund or returning to a store to receive a special price is not a substitute for receiving the right product at the right price in the first place. A picture of a farmer is not a substitute for knowing the farmer who produced your food; and most consumers know a farmer in a supermarket probably is a promotion gimmick backed with very little locally grown product. Corporations are not people, and thus, can’t have personal relationships with their customers.

Public researchers and educators must shift their efforts from development of industrial, commercial technology, including biotechnology, to helping farmers develop more sustainable, localized, systems of production and marketing. The multinational corporations have both the profit motive and the financial means of developing whatever commercial, industrial technologies may be needed for the future benefit of society. Publicly funded research and education should be focused on doing those things of benefit to society that the private sector of the economy will not do. The private economy offers no economic incentive for ecological integrity and social responsibility, or even long run economic viability. Sustainability is a responsibility that must be met through the public sector – including public research and education. Nowhere is such public research more likely to yield greater societal benefit than in production and marketing of horticultural crops to sustain small family farms in both developed and developing countries of the world.

Supporting local food systems doesn’t mean that we have to give up those things that can’t be produced locally. Trading when we are “free not to trade” can be beneficial to all concerned. We, all people of all nations, simply need to attempt to produce, sell, and buy locally to the extent necessary to sustain our local and regional food systems. The sustainability of global food production depends upon the food security of all nations. A nation that cannot feed its people in a time of crisis is no more secure than is a nation that cannot defend itself in a time of crisis. Those nations that cannot achieve internal food security need to form food alliances with other nations that are as secure as their defense alliances with other nations. Nations and regions can and should continue trading with other
nations and regions to help ensure the sustainability of agriculture everywhere on
the globe. But, relationships among regions and nations must be
“interdependent,” rather than “dependent,” if the global food system is to be
sustainable. We must maintain boundaries in order to maintain our identity, our
integrity, and our ability to act interdependently.

It would be easy to be skeptical about the possibility of success in developing
sustainable local food systems – such systems currently make up such a small
part of the huge global food system. Committed farmers, consumers, researchers,
and educators may seem too few and too weak to confront the giant global food
corporations. However, the trend toward a global food system, occurring over the
past several decades, took place one farmer, one customer, one scientist, one
person, at a time. One-by-one, as scientists changed the focus of their work, as
farmers changed what they produced and where they sold it, as consumers
changed what they ate and where they bought it, a food system that had been
local became global. Again, one-by-one, we can and must make the changes
needed, as scientists, as producers, and as consumers, to create a sustainable food
system. Can we prove that a sustainable food system is possible? Maybe not.

But growing and compelling evidence suggest that the current industrial food
systems – with it’s large, specialized, corporate controlled production operations
– is neither ecologically sound nor socially responsible, and thus, is neither
economically viable nor sustainable over the long run. Why shouldn’t publicly
funded agricultural scientists be leading the way by at least attempting to prove
that, in spite of agricultural globalization, small family horticultural farms can be,
and must be, sustained?

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Sustainable Agriculture: A Question of Social Justice

John Ikerd

John Ikerd is Professor Emeritus of Agricultural Economics, University of Missouri, Columbia, MO. Dr. Ikerd spent 30 years on the faculties of North Carolina State University, Oklahoma State University, University of Georgia, and University of Missouri before retiring in early 2000. Since retiring, he spends most of his time writing and speaking on issues related to Sustainable Agriculture (www.ssu.missouri.edu/faculty/jikerd).

What does “sustainable agriculture” mean to you? If your answer is like most, you probably will begin by talking about sustainability in relation to the environment – protecting the natural ecosystem and conserving non-renewable resources. And, you will be right. If our food and farming systems are to be sustainable over time, we must maintain the health and productivity of land and must conserve water, energy, and the other natural resources upon which agricultural productivity ultimately depends. An agriculture that is not ecologically sound, quite simply, is not sustainable.

The next thing most likely to come to mind is economic sustainability – if it’s not profitable, it’s not sustainable. Again, you will be right, or at least partly right. In a capitalistic economy, the markets determine who gets to use land and other resources – and how they will be used. Sustainable farms need not maximize profits, and farms need not generate a profit every year. But, a farming system that is not economically viable is not sustainable, no matter how ecologically sound it may be.

Almost everyone agrees; our food and farming systems must be ecologically sound and economically viable if they are to be sustainable over time. Even giant agribusiness corporations, such as Monsanto and Du Pont, have sustainable agriculture programs that address environmental and economic concerns. However, there is far less agreement concerning the third essential aspect of sustainability – the question of social justice. Any system of food and farming
that fails to meet the needs of a society, will not be sustained by that society, no matter how ecologically benign or profitable it may appear to be. A society has physical and material needs, however, one of the most basic needs of any society is a sense of social equity or justice. Any food and farming system that is not socially just does not meet this basic need, and thus, is not sustainable.

A sustainable economy must meet the material needs of people by means that are perceived to be equitable and just by the society that supports it. Human society is a subsystem of the larger natural ecosystem and the economy, in turn, is a subsystem of society. While some level of individual economic or material well-being is a prerequisite for a sustainable society, a society is more that a collection of individuals; it includes also the relationships among those individuals. The sustainability of a society perhaps depends even more upon strong relationships among its members than upon strong individual members.

Adam Smith, the father of contemporary economics, in his landmark book, *Wealth of Nations*, wrote: “No Society can surely be flourishing and happy, of which the far greater part of the members are poor and miserable.” Distrust and dissention can arise among the rich as well as the poor – both groups being capable of dysfunctional relationships. However, distrust and dissention are inevitable consequences of substantial and persistent economic disparity among members within a society. Economic disparity inevitably creates a sense of social injustice, and an unjust society is neither stable nor sustainable. Distrust and dissention ultimately lead to civil unrest, which disrupts the economy and ultimately leads to exploitation and destruction of the natural ecosystem. Eastern Europe and Sub-Sahara Africa provide two prime examples of the widespread ecological destruction that results from persistent social injustice.

A market economy will not ensure social justice. A market economy provides for people only in relation to their willingness and ability to pay, not in relation to their basic needs. The abilities of people to earn money and to pay for food, clothing, and shelter do not necessarily match their needs. All people have a basic right to sufficient food, clothing, and shelter to ensure survival and normal
physical and mental growth and development, although we are just beginning to accept this fact in America. Our market economy will not ensure those rights. Inevitably, equity and justice must be ensured through conscious, purposeful actions by the members of society – by our individual acts of human compassion and by our public acts, through government, to ensure the general welfare. Both are necessary and neither absolves our responsibility for the other. A society that does not accept this responsibility for social justice is not sustainable.

Equity and justice do not require that everyone have access to the same quantity, quality, and variety of food, clothing or shelter, or that food, clothing, and shelter be equally convenient or effortless for all. Equity and justice are matters of ensuring equal access to *specific* things to which all have equal rights – not equal access to *all* things. A right to safe, nutritious food, for example, does not imply a right to prime rib and artichoke hearts nor to packaged or pre-prepared foods. However, food and farming systems that do not accept responsibility of ensuring that all have *adequate* food, clothing, and shelter are not sustainable.

Each of us must accept our ethical and moral responsibility to help ensure the sustainability of human life on earth. We can do this, in part, by supporting farmers who are committed to protecting the natural environment – helping to make ecologically sound food and fiber systems economically viable. But, we must also accept our responsibility to help build food and farming systems that are socially just. Social justice includes employment equity for farmers, farm workers, and others employed in the system. But, social justice also demands that all people have adequate food, clothing, and shelter. Sustainability is a question of environmental integrity and economic viability, but sustainability is also a question of social justice.
On September 11, 2001, the United States was subjected to a terrorist attack of a magnitude unprecedented in its history. Since then, we have been a nation “at war,” with the terrorists who committed the acts, with terrorists in general, and with the countries of the world that support them. The national debate undoubtedly will continue, as in a democracy it should, concerning the appropriateness of our political and military response to this crisis. However, there can be no doubt that this crisis rekindled an uncommon sense of nationalism, of community and solidarity among Americans.

The outpouring of prayers, expressions of condolence, and financial support for the families of those who suffered directly from the attacks in New York and Washington DC has been phenomenal. While we may question the motives of some in seeking publicity in return for their contributions, millions of others have given anonymously and generously with no concern for recognition or rewards. As a people, we seemed to have been waiting for something that would give us “permission” to be compassionate, to be generous, and to be kind to each other. We seemed to have been waiting for a chance to temper our narrow, individualistic self-interests and to express our more basic nature as caring, sharing people.

This recent expression of national unity and common commitment is noteworthy because it so untypical of U.S. society. The United States has become a nation of disconnected people. We deal with each other only indirectly – through markets, through agents, or through lawyers and courts. Our relationships are defined by transactions, contracts, and laws rather than by common interests, commitment, and trust. We are
committed to competition, not cooperation. Our disagreements are addressed by arguing, threatening, and litigating rather than through honest discussion of our differences. We believe truth is revealed through arguing, not reasoning, in the courts. Truly personal relationships, based on believing, trusting, caring, and sharing, are labeled as naïve or idealistic. We seem to be a nation that has lost any sense of personal connectedness.

The U.S. economy may be the envy of the rest of the world, but we live in an increasingly dysfunctional society – a society that few would choose without the strong economic incentive to do so. The health of any society is reflected in the quality of relationships among its people – within families, communities, and society in general. And as our society has become increasingly disconnected, our relationships have become increasingly unhealthy and dysfunctional – our society has become ill.

In the book, Bowling Alone, Robert Putnam provides measure after measure indicating the extent to which Americans have become socially disconnected over the past fifty years, most measures of social connectedness dropping by 30-50 percent. He says that we remain interested and critical spectators of the public scene, but we don’t play. We remain affiliated with various civic associations, but we don’t show up. We vote less often, we attend public meetings less often, and when we do, we are disappointed to find that few of our neighbors have joined us. We are less generous with our time and money, we are less likely to give strangers the benefit of the doubt, and they return the favor. Since 1970, the numbers of lawyers per person in the U.S. has more than doubled. We now spend 40 percent more for police and security guards and 150 percent more for lawyers and judges than would have been expected based on growth in population and the economy since 1970. As Americans have become disconnected, we have become a sick society.

Social illness is not merely a convenient analogy in this case. Putnam
Healthy Farms Healthy Communities

points out that the rate of mental depression among the past two
generations in America has increased roughly “tenfold” – these being the
generations most socially disconnected. It might be tempting to attribute
this rise to a greater willingness to acknowledge depression; however,
between 1950 and 1995, the rate of suicide among American adolescents
more than “quadrupled” and among young adults nearly “tripled.” Suicide
and clinical depression, fortunately, are not all that common among the
general population. However, incidents of “malaise” – headaches,
indigestion, and sleeplessness – are far more common, and show
patterns similar to the more serious mental illnesses. Between the late
1970s and late 1990s, surveys have shown that each new generation has
reported higher levels of “malaise” than the previous generation and each
new generation has indicated that, on average, they are “unhappier” than
the previous generation. As each generation has become increasingly
disconnected, the nation as a whole has become increasingly mentally ill
and physically miserable.

Nowhere in America is our economic and social disconnectedness more
evident than in our systems of food and farming. Most consumers,
particularly younger consumers, have no sense of where their food
actually comes from or who produces it. Even those who know that
farmers grow crops and livestock, and that others process and package
these crops and delivers food to grocery stores and restaurants, still have
little sense of what’s actually involved in this process.

Few people even stop to consider that soil is essential to all of life,
including human life – as essential as air, water, or sunlight. Pure air and
water alone cannot support life. All of life is rooted in the earth. Farming
is the means by which we bring life from the soil. Farming, in the minds of
many, conjures up some image from the past of a decent, hard working
family living in rural isolation and trying to coax a living from the land. To
others, farming is just another manufacturing process that turns raw
materials into finished products. But, there is no sense of connectedness
between the people who eat and farmers who tend the soil to bring forth their food.

What does it matter if people don’t understand where their food comes from? People don’t understand where their automobiles come from, or their clothes, their houses, their movies, or much of anything else comes from, and no one seems to be complaining about their lack of knowledge of such things. However, all disconnections among people matter, even if no one complains. The seeds of dissention are sown in the gaps of understanding and appreciation that exist among people. Conflict, frustration, anger, depression, and many other miseries in life are but symptoms of our disconnectedness. People may not have associated the symptoms with the cause, but the cause still matters. And, it matters even more that we consumers understand our connections with farmers.

Many farmers feel a great sense of frustration that people don’t understand how life in general is connected to life in the soil and the life of people who till the soil. They feel that they are virtually forced to destroy the natural productivity of the soil, to degrade the natural environment, and to destroy the social fabric of their communities, because the only thing consumers are concerned about is the price of food in the grocery store. Many farmers feel that they are being forced to value the economic bottom-line above virtually all else, above their neighbors and communities, and sometimes even above their families, because the only thing consumers care about is “cheap food.” Farmers want to be good neighbors and good stewards of the land, but the competitive pressures of a consumer-driven, market economy won’t let them. Instead, they are slowly destroying the land, destroying the quality of rural life, and ultimately will destroy the ability of the earth to support human life, all because consumers don’t understand their connectedness with the land and with the people who farm it.

The health of a farm, like the health of a community or society, depends
on healthy relationships. The productivity of a farm depends on the quality of physical relationships – among the various elements of the agroecosystem, including the farmer. The foundation for a productive farm is a healthy, naturally fertile soil. And, the fertility of soil depends not only on its mineral and chemical composition but also upon the millions of organisms that live in the soil, in a symbiotic relationship with the roots of plants. The productivity of farms clearly depends on the health and natural vigor of plants and animals, which in turn depend on soil, water, air, and sunlight – and upon the biological diversity of their natural environment. Healthy soils feed healthy plants and healthy plants feed healthy animals – including we humans who eat both plants and animals.

The profitability of a farm depends on the quality of social relationships – between farmers and their customers and between farmers and their suppliers. A profitable farming operation must have good markets – someone somewhere must be willing and able to pay for things that farmers offer for sale. A profitable farming operation also must have some control over its costs of production. No selling price is high enough if input suppliers simply raise their prices and absorb the farmer’s profits. The economic viability of a farm clearly depends on relationships between farmers and their suppliers and their customers. As these relationships have become more indirect and impersonal, farming has become less economically viable.

The quality of life on a farm certainly is affected by farm income, but clearly depends at least as much on quality of personal relationships among those who live and work on farms and between farm families and their communities. Historically, family farms have involved the whole family in important farming decisions, as well as depended on all members of the family for labor. Historically, farm families have been more isolated by geography than have non-farm families, and thus, have relied more on each other for social, recreational, and emotional relationships. Likewise, many farming communities have remained
isolated from the economic mainstream, making the interdependence between farm families and the social and political life of rural communities more clear. The quality of rural life clearly depends of the quality of personal relationships.

The same types of personal interdependence exist throughout society, but in farming, they are easier to see and to understand. Healthy farms, healthy communities, and healthy societies are all dependent on the same things – healthy relationships among people and between people and the earth. The sickness of American agriculture, American communities, and American society are symptoms of the same root cause – social disconnectedness and dysfunctional relationships. Consequently, the remedies for an unhealthy community, society, or farm are essentially the same.

However, the nature of the problems and solutions are more easily seen and understood in farming than in communities or society in general. Thus, farming provides a useful metaphor for living. And more important, farming that reconnects people in healthy relationships with the earth and with each other – that is, sustainable farming – provides a useful metaphor for healthy, connected sustainable communities necessary for a sustainable society.

The dysfunctional relationships within American agriculture today are symptoms of agricultural industrialization – specialization, standardization, and consolidation of control. Commercial fertilizers and pesticides allowed farmers to become more productive by specializing and moving away from diversified interconnected farming systems. But, unwise use of commercial fertilizers and pesticides has degraded the health and natural productivity of the soil, increasing costs and threatening future productivity. Specialization also weakened personal relationships, both among farmers and between farmers and other in their communities. Farmers who had shared work, and who had bought and sold locally,
became increasingly “independent” of each other and of their neighbors.

Standardization and mechanization of farming practices made farming more manageable and controllable – making it both possible and necessary for each farmer to farm more land and to invest more capital in farming. In order to achieve economies of scale, to be competitive, farms had to be larger – meaning that some farms had to fail so that others could gain control of their land. And, as farms grew larger and farm families fewer, local businesses suffered, local schools were lost to consolidation, church pews were left empty, and rural communities withered and died. Relationships among people and between people and the land were sacrificed for the sake of physical and economic efficiency.

The industrialization of agriculture, which first led to fewer and larger farms, is allowing a handful of multinational corporations to consolidate control of American agriculture. These corporations are disconnected, and increasingly dysfunctional, economic enterprises. Ownership is separated from management, and to a great extent, is separated from responsibility for management decisions, once a corporation “goes public” – i.e. offers its stock to the highest bidder. Once ownership, management, and responsibility become disconnected, the corporation becomes incapable of responding to any motive other than profit and growth. Such corporations are not people, and thus, have no sense of connectedness to family, community, or nation. And under multinational corporate control, American agriculture might well be moved to other countries that have lower land and labor costs and fewer environmental regulations, and thus, greater promise of immediate profits. The sustainability of agriculture in America is very much in doubt – ecologically, socially, and economically.

Large-scale confinement animal feeding operations (CAFOs) epitomize the industrialization of American agriculture. With these giant animal factories – producing poultry, eggs, hogs, milk, etc. – the economic,
ecological, and social impacts of industrialization on rural communities are quite clear. These corporately controlled animal factories move to economically depressed rural areas where people are desperate for jobs. They provide a few low-paying jobs in the community – the high-paying jobs are invariably located somewhere else – but they displace far more family farmers who were producing those same commodities elsewhere. They may enhance the local tax base but they increase demands on local public services far more than they add to local government coffers. In addition, CAFOs inherently pollute the natural environment, with noxious odors in the air and animal waste in streams and groundwater, raising legitimate concerns for human health and for the health of natural ecosystems.

Rural communities are split by continual feuding, with those who benefit from new jobs and increased tax revenues on one side and displaced family farmers and local residents who bear the costs of polluted air and water on the other. The community loses its ability to govern itself effectively, and the corporation fills the leadership vacuum. The corporations continually threaten to move their operations elsewhere where environmental regulations are less bothersome and local people are less hostile. And, when the corporation finds somewhere else, either at home or abroad, where people will work even harder for less pay, they move on and leave the community with the mess to clean up and with relationships to mend. In these large-scale, animal factories, the connections between the industrial agriculture and its threats to ecological, social, and economic sustainability are both clear and compelling.

Those same relationships exist between industrialization and the health of communities and society in general. Industrialization has degraded the health of the natural environment – not just in rural areas, but also throughout global ecosystem. Industrialization has degraded the health of human relationships – not just in rural communities, but also in
communities throughout human society. Industrialization has separated people from the earth and from each other. Industrialization has separated ownership, management, and responsibility, and has transformed democratic capitalism into “corporatism.” As we have become increasingly disconnected, our relationships have become dysfunctional, and as a human society, we have grown increasingly ill.

Alex De Tocqueville, in his historic book, Democracy in America, stated that widespread participation of people, as individuals, in political affairs at local, state, and federal levels was a major strength of the American democracy. Tocqueville warned, however, of the tendency toward excessive wealth and power in the “manufacturing” sector – today’s “corporate” sector. He thought the American society ultimately might well evolve toward a “manufacturing” aristocracy.

Adam Smith, in his historic book, Wealth of Nations, suggests that individuals must make their own decisions and accept personal responsibility if capitalism is to work effectively. Smith wrote, ”the pretense that corporations are necessary for the better governing of a trade, is without any foundation.” He also saw little legitimate use for “joint stock companies,” and saw potential mischief in anything that allowed individuals to act collectively in the marketplace.

The fears of both Tocqueville and Smith were well founded. As industrialization has effectively dissuaded people from personal participation in economics and politics, it has allowed both economic and political power to be consolidated in the hands of a new “upper class” of corporate aristocrats. Industrialization has fundamentally transformed both the American economy and the American democracy.

However, there is still time to restore both our democracy and our economy. The keys to building a healthier, sustainable society are no different in nature from the keys to building healthier farms. And
thankfully, farmers all across America and around the world are already finding ways to restore the health to farming. They may call themselves organic, biodynamic, alternative, holistic, natural, ecological, practical, or just plain farmers. However, these new ways of farming all fit under the “conceptual umbrella” of sustainable agriculture. A recent publication of the USDA Sustainable Agriculture Research and Education program highlights fifty such farmers from across the United States. There are thousands more, each with a unique and different story, but each sharing a common vision for a brighter future for agriculture. These farmers are creating a new more healthy and sustainable agriculture, and in so doing, are creating a new metaphor for new healthy, sustainable human communities.

These new farmers face many frustrations and hardships along with the joys of success. They are trying to learn how to do what no one yet knows how to do, and they are doing it with little help from anyone other than each other. These farmers are on a new frontier, and life on any new frontier quite typically is difficult. But more and more of these new farmers are finding ways to succeed.

The numbers of farmers at conferences like this one are growing every year. At least three regional “sustainable agriculture” conferences draw from 1200 to 1500 people each year, those drawing 400-500 people are not rare, and the number drawing 100-300 people have become quite common. But perhaps more important, the groups seem to be growing in energy, enthusiasm, and optimism each year. They are very diverse groups, with respect to age, gender, education, income, and ethnicity. But, they are pursuing a more desirable quality of life, by building farms that are more ecologically sound and socially responsible, and economically viable.

They are rediscovering the fundamental roots of agriculture; they are reconnecting to the land and to each other, and in the process, are
redefining farming. They are finding ways to capitalize on the weaknesses of the industrial paradigm that has dominated agriculture for the past century. They are successfully bucking the trend toward larger farms, which has meant fewer farms, fewer farm families, and fewer farm communities. They are finding ways to make a better living on smaller farms, making room for more, rather than fewer, farms and farmers. They are creating an agriculture that depends more on knowledge and understanding of nature, including human nature, and less on capital and access to technology. This new breed of farmers is creating new opportunities for anyone who has a willingness to work hard, a commitment to continual learning, and a love of the land and people. As they reconnect with the land and with each other, they are creating a new kind of farming for a more sustainable future.

While there are no “blueprints” for the New American Farm, some basic characteristics are emerging. First, these farmers see themselves as stewards of the earth. They are committed to caring for the land and protecting the natural environment. They work with nature rather than try to control or conquer nature. They fit the farm to their land and climate rather than try to bend nature to fit the way they might prefer to farm. Their farming operations tend to be more diversified than are conventional farms – because nature is diverse. Diversity may mean a variety of crop and animal enterprises, crop rotations and cover crops, or managed livestock grazing systems, depending on the type of farm. By managing diversity, these new farmers are able to reduce their dependence on pesticides, fertilizers, and other commercial inputs that squeeze farm profits and threaten the environment. Their farms are more economically viable, as well as more ecologically sound, because they farm in harmony with nature.

Second, these new farmers build relationships. They tend to have more direct contact with their customers than do conventional farmers. Most either market their products direct to customers or market through agents
who represent them with their customers. They realize that as consumers each of us value things differently because we have different needs and different tastes and preferences. They produce the things that their customers value most, rather than try to convince their customers to buy whatever they produce. They are not trying to take advantage of their customers to make quick profits; they are trying to create long-term relationships. They market to people who care where their food comes from and how it is produced – locally grown, organic, natural, humanely raised, hormone and antibiotic free, etc. – and, they receive premium prices by producing what their customers value most. Their farms are more profitable as well as more ecologically sound and socially responsible.

These new farmers challenge the stereotype of the farmer as a fiercely independent competitor. They freely share information and encouragement. They form partnerships and cooperatives to buy equipment, to process and market their products, to do together those things that they can’t do as well alone. They are not trying to drive each other out of business; they are trying to help each other succeed. They refuse to exploit each other for short run gain; they are trying to build long-term relationships. They buy locally and market locally. They bring people together in positive, productive relationships that contribute to their economic, ecological, and social well being.

Finally, to these new farmers, farming is as much a way of life as a way to make a living. They are “quality of life” farmers. To them, the farm is a good place to live – a healthy environment, a good place to raise a family, and a good way to be a part of a caring community. Many of these farms create economic benefits worth tens of thousands of dollars, in addition to any reported net farm income. Their “quality of life” objectives are at least as important as the economic objectives in carrying out their farming operations. Their farming operations reflect the things they like to do, the things they believe in, and the things they have a passion for, as much as
the things that might yield profits. However, for many, their products are better and their costs are less because, by following their passion, they end up doing what they do best. Most of these new farmers are able to earn a decent income, but more important, they have a higher quality of life because they are living a life that they love.

These new farmers are creating a more sustainable American agriculture. A sustainable agriculture must be capable of meeting the needs of the present, while leaving equal or better opportunities for people of the future. And to be sustainable, agriculture must be ecologically sound, economically viable, and socially responsible – it must maintain healthy relationships among people and between people and the earth, across generations. The new American farm is based on healthy relationships.

The three dimensions of sustainability are not a matter of formal definition or legal precedent, but are a matter of common sense. If the land loses its ability to produce, the farm is not sustainable. If the farmer goes broke, the farm is not sustainable. And if a system of farming fails to support society, it will not be supported by society, and thus, is not sustainable. All are necessary but none is sufficient. A farming system that is lacking in ecological integrity, economic viability, or social responsibility, quite simply is not sustainable.

Some farmers mistakenly feel that farming sustainably must be a sacrifice – since sustainable farmers must be concerned about the land and about other people, as well as themselves. However, sustainable farmers pursue their self-interests, as is in the nature of humans. But, they pursue a broader, a higher, and a more enlightened concept of self-interest. This more enlightened self-interest recognizes that we have broader self-interests that are shared with others, and we have higher self-interests that give purpose and meaning to life, in addition to our narrow, individual self-interests. These personal, interpersonal, and spiritual dimensions of our lives are but different layers of our “self.” Thus, our economic self is
inseparable from our social and moral selves. We must pursue our self-interest through harmony and balance among the three layers of self.

When enlightened, we explicitly recognize the value of our relationships with other people. We realize that the quality of our life is better when we not only care for ourselves, but also care for the well being of others – regardless of whether we may get anything in return. Relationships help give our lives context. When enlightened, we explicitly recognize the value of our relationships with the earth. We recognize explicitly that the quality of our life is better when we conserve and protect the natural ecosystem for the benefit of future generations – regardless of whether we may get anything in return. Stewardship helps give purpose and meaning to our lives.

Economic viability is about meeting the needs of our tangible self, social responsibility is about meeting the needs of our emotional self, and ecological integrity is about meeting the needs of our spiritual self. Quality of life arises from harmony and balance among all economic, social, and ecological dimensions of self.

*Enlightened self-interest* is not some “new age,” radical concept. De Tocqueville wrote that early Americans believed strongly “that men ought to sacrifice themselves for their fellow-creatures… that such sacrifices are as necessary to him who imposes them upon himself as to him for whose sake they are made.” Tocqueville believed that “self-interests rightly understood,” i.e. enlightened self-interest, reflected the fact that people benefit from fulfilling their proper role in the larger society in ways that could never be linked directly to one’s narrowly-defined, individual self-interest. He believed that a culture of “enlightened self-interest” was necessary to constrain our greed, and to sustain the American democracy. Sustainable living is not a sacrifice; it is a uniquely human privilege.
The new American farm is metaphor for a new American society. And, sustainable farming is a metaphor for sustainable living. To create healthy sustainable communities, we must reconnect with each other and reconnect with the earth.

First, people must be made aware of the fact that many of the maladies of today’s society are direct consequences of our social disconnectedness. We must come to recognize that we are not simply a collection of independent individuals that happen to share the same geographic space. Instead, we are interdependent individuals, who perhaps can survive for a while on our own, but whose quality of life is inseparable from the quality of life of others. We are all interconnected parts of the same whole – whether we recognize it or not. Our own individual health and well-being is interdependent with the health of the various “communities” of people of which we are members. Just as sustainable farmers have learned that they have to reconnect with their customers, with each other, and with their neighbors to succeed, we must understand that our success ultimately depends upon our reconnecting with other people.

Second, we must recognize that restoring “communities of interest” will not be sufficient; we must also restore communities of interest that also are “communities of place.” We must reconnect with each other around a renewed interest in the earth. We cannot rely on government, special interest groups, or corporations to protect and restore the health of the natural environment. These are all “corporate” organizations, in the sense that those who are making the decisions are no longer “connected” with those they claim to represent. We must reconnect with each other personally, around issues of place.

We must take a personal interest in protecting the watersheds in which we live, and connect with others who share that interest. We must take a personal interest in protecting the quality of air and water in the
communities, towns, or cities where we live, and connect with others who shared those interests. We must take a personal interest in maintaining wild and open spaces, diversity of living species, and the overall integrity of nature ecosystems, as members of the community of people who live on the earth. As we reconnect with each other, locally and personally, we will regain control of our government, our organizations, and of our economic enterprises. We can restore health to our economy and our democracy, but we have to become personally reconnected.

We can begin taking some very practical steps toward restoring communities of place by reconnecting with others who are committed to building more sustainable, local food systems. We can reconnect with others at farmers markets, through community supported agriculture organizations, or by other means of buying or selling foods locally at every opportunity. As eaters, we can get to know our farmers personally, and as farmers, we can get to know our customers personally. Together, we can inform others of the ecological and social consequences of the industrialization and corporatization of American agriculture, and can seize every opportunity to encourage the development of a more community-oriented, sustainable food system. The metaphor and reality of sustainability can be brought together in communities of interest, built around issues of sustainable local food systems.

Finally, in very simple and practical terms, the link between healthy farms, healthy communities, and our sustainable future is love. Healthy farms, healthy communities, and healthy people ultimately depend on the same things: faith, hope, and love. And, the greatest of these is love.

We must live with faith. Our faith in other people gives the incentive to connect with other people and to help build healthy communities. Our faith in the ultimate bounty of nature gives us the confidence to rely on working in harmony with nature as a means of sustaining humanity. And, our faith in a “higher order,” in God, gives purpose and meaning to our
concerns for each other and to our stewardship of the earth. Healthy people are people of faith.

We also must be people of hope. Hope is not the expectation that something good is destined to happen, or even that the odds favor something good, but rather, that something good is possible. It is this “possibility” of something good that gives us the courage to challenge the status quo, to try new things, and to change – in hopes of achieving something better. The value of hope is not necessarily in getting the thing hoped for, but instead, is in having hope. Healthy people are hopeful people and hopefully people form healthy communities.

But, the most important link between health and sustainability is love. No one expresses the very practical connection better than does Wendell Berry – although, he doesn’t specifically use the word love. In his book of essays, What Are People For? he writes, "if agriculture is to remain productive, it must preserve the land and the fertility and ecological health of the land; the land, that is, must be used well. A further requirement, therefore, is that if the land is to be used well, the people who use it must know it well, must be highly motivated to use it well, must know how to use it well, must have time to use it well, and must be able to afford to use it well.” If human life on earth is to be sustainable, we must have people taking care of the land who love the land.

Applying that same sense of love to communities, “if our communities are to remain viable, they must preserve the health and productivity of people, their physical, emotional, and spiritual well-being; people, that is, must be treated well. A further requirement is that if people are to treat each other well, they must know each other well, must be motivated to treat each other well, must have time to treat each other well, and must be able to afford to treat each other well. If human society is to be sustainable, we must have communities of people who love each other.
Healthy farms, healthy communities, a healthy society, and our sustainable future, ultimately, they all depend on the same things: faith, hope, and love. But the greatest of these is love – love of the earth, love of each other, and love of God. Our link to a sustainable future, to the earth, to each other, and to God, is love.

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[2] John Ikerd is Professor Emeritus, University of Missouri, Columbia, MO – USA. E-mail: JElkerd@AOL.COM web site: http://www.ssu.missouri.edu/faculty/jikerd
American agriculture is in crisis. For more than five years now, prices for nearly all agricultural commodities – including corn, soybeans, wheat, hogs, and cattle – have persisted at levels well below break-even for most farmers. Congress has responded to the crisis by providing annual “emergency” supplemental government payments to farmers. Year-after-year low prices have persisted and year-after-year American farmers have relied on additional “emergency” payments to keep their farms afloat financially. These “emergency” payments, ranging from $5-$9 billion each year, have done nothing to address the roots of the crisis. For most farmers, government payments simply helped them scrape together enough cash to farm another year. Yet, when the time came for Congress to write a new Farm Bill, they did little more than formalize the failed farm policies of the past five years.

On May 13, President Bush signed the new Farm Bill, “The Farm Security and Rural Investment Act of 2002.” At the signing ceremony, the President said, “The farm bill will strengthen the farm economy… will promote farmer independence, and preserve the farm way of life for generations. It helps America's farmers, and therefore it helps America.” These same kinds of claims have been made for every U.S. Farm Bill since the 1930s. Yet, the farm economy has continually floundered and American agriculture has limped from one crisis to the next. And now, independent family farmers are becoming a rarity. It’s difficult to believe this particular Farm Bill will do any of the things promised. It most certainly will provide for neither “farm security” nor “food security” and it will do nothing to improve the lives of people in rural America. Past Farm Bills have done nothing to make family farms and rural communities more secure, and in this respect, this Farm Bill is no different.

The pervious Farm Bill, called Freedom to Farm, was supposed to provide a
transition period that ultimately would “get the government out of agriculture.” American farmers would be allowed to compete freely in a new “global” agricultural economy. Freedom to Farm removed most previous restrictions on production of agricultural commodities – farmers were free to plant as much as they wanted of virtually any crop they wanted to grow. Government payments were continued as a “one-time incentive” for farmers to give up their reliance on government programs. Payments were based on “historical production levels” and were to be phased out over the life of the bill. Growth in agricultural exports was to bring new prosperity to American farmers, making government price and income supports unnecessary.

However, “Freedom to Farm” became known as “Freedom to Fail.” U.S. farmers found that they simply couldn’t survive at market prices offered by the new “global economy.” The U.S. share of world exports dropped year after year, for commodity after commodity – in spite of USDA’s persistent forecasts that “farm exports are expected to improve next year.” U.S. farmers found that they couldn’t compete with agricultural producers in South America, Australia, China, and other places where costs of land and labor are a fraction of costs in the U.S. Faltering economies in the Pacific Rim and a strong U.S. Dollar contributed to trade problems, but the root causes of the crisis go far deeper and are more permanent. Very few places are left in the U.S. where prices of farmland are not affected by their potential residential use. As more people flee the suburbs for a better quality of life, the cost of U.S. farmland will continue to rise, regardless of what happens in agriculture. Relatively good paying non-farm job opportunities in the U.S. also will keep farm labor costs well above those in “lesser developed” countries of the world well into the future.

Traditional advantages for American farmers through greater access to capital and technology no longer exist. In the new global economy, capital can and does move freely and quickly around the world, to wherever it can earn the greatest return on investment. Multinational agribusiness firms now control much of the new technology, biotechnology being a case in point, and apply these technologies wherever in the world they expect to earn the highest return.
Increasingly capital and agricultural technologies earn their greatest returns somewhere other than in America.

America may still have the most knowledgeable farmers in the world, but knowledge – at least farmers’ knowledge – is becoming less important in agriculture. Many of the new technologies have taken the unique “farming skills” out of agricultural production – e.g., Round-up Ready soybeans and factory livestock feeding operations – making it possible for virtually “anyone” to become a “good contract producer.” When “farming” can be done “by recipe,” it doesn’t require much real “knowledge” of farming, and it can be done by virtually anyone anywhere in the world.

American farmers are no longer competitive in world markets. Without the annual government “bailouts” under “Freedom to Farm,” hundreds of thousands of additional American farmers would have failed. We would have been in the midst of a farm financial crisis at least as great as during the 1980s, when farm foreclosures and suicides were commonplace on the evening news. Today, American farmers are among the most heavily subsidized of any farmers anywhere in the world. But, government payments have done nothing to address the real problems of American agriculture. And the new Farm Bill, with its promise of around $20 billion per year in government payments to farmers, will do nothing more than continue costly subsidies with no hope for real solutions.

The Farm Security and Rural Investment Act does little more than formalize the process by which farmers are provided annual “emergency” commodity-based payments – a process initiated by Congress in 1997 and continued to the present. Modest changes made in commodity programs, such as a virtual removal of all limitations of size of payments, are likely to make the situation worse, not better, for family farms and rural communities. Ten percent of agricultural producers, including many large corporate operations, have been receiving more than two-thirds of all commodity payments. Fewer large operations will get an even larger share under the new farm bill. A provision allowing farmers to adjust their “historic base acres” upward, may spur even greater excess production under the
new Farm Bill.

The new Farm Bill does include some rays of hope in new programs, but they are difficult to see through the darkness of failed programs from the past. The new Conservation Security Program (CSP) promises to provide payments to farmers who agree to be good stewards of the land and the natural environment. Eligibility for the program is not limited to producers of traditional program commodities who are currently using questionable conservation practices. Most importantly, the CSP is an “entitlement program,” meaning no legislative limit to the number of farmers who can enroll. However, the “devil may be in the details.” In this case, just “how much” incentive will be given to farmers to participate? The new bill also gives increased recognition of the legitimacy of “organic farming.” But, programs supporting organics and other approaches to sustainable agriculture still will receive less than one percent of public funding for research and education.

For every victory, it seems there were two defeats. Changes in the Environmental Quality Improvement Program (EQUIP) now promise huge government payments to corporate confinement animal feeding operations, subsidizing almost certain continued destruction of the rural environment. And, a number of Senate proposals that would have helped to restore competition to agricultural markets were defeated either on the Senate floor or in the Conference Committee. Agribusiness corporations were left with a “free reign” to force farmers into signing comprehensive production contracts, as their only means of maintaining access to markets.

The new Farm Bill was not designed to meet the needs of farmers, but instead, to meet the needs of the Agricultural Establishment. The Agricultural Establishment is comprised of corporate agribusiness, the commodity organizations, USDA, and the Land Grant Universities. The general farm organizations, particularly the Farm Bureau, also tend to support the Agricultural Establishment, rather than representing the bulk of their farmer members. Congress tends to respond to the demands of the Agricultural Establishment –
considering it to be representative of American agriculture – regardless of the consequences for family farms and rural communities.

All of the “dominate players” in the agricultural policy process have vested interests in maintaining high levels of production. Profits of agribusiness corporations depend on margin and volume, not farm-level price. Surplus production means a higher demand for marketing services, resulting in wider margins on a larger volume of sales. Thus, surplus production depresses farm prices more than retail food prices, and generates more profits for processors, distributors, and retailers. Surplus production also means more sales of seed, fertilizer, pesticides, etc., and more profits for input suppliers, even if farmers are losing money.

Commodity organizations want to keep production levels high because most are funded by check-off programs that assess producers a given amount per head, per cwt. or per bushel of production. Those that aren’t, still put the status of “their commodity” ahead of the profitability of “their farmers,” because most of “their farmers” produce several different commodities. Agricultural specialists in USDA and in the Land Grant Universities tend to share a similar mentality. They want to maintain the importance of a particular commodity, in which they specialize, and the importance of the agricultural sector of the national economy. “Increased importance” tends to translate into “increased production.” With a limited domestic demand, increased production translates into high levels of agricultural exports, which are possible only if commodity prices are “competitive” – meaning low. If corporate control of agriculture is necessary to keep U.S. producers competitive, then family farms and rural communities will somehow have to accommodate the corporatization of agriculture, so they say.

Not surprisingly, the same forces that have shaped U.S. farm policy have shaped U.S. agricultural trade policy. The Agricultural Establishment encouraged U.S. farmers to support the North American Free Trade Agreement (NAFTA), with the promise of free access to growing markets of agricultural products in Mexico and Canada. The Agricultural Establishment told U.S. farmers that agriculture should
be brought under the General Agreement on Tariff and Trade (GATT), with the promise of greater access to growing markets worldwide. The NAFTA became law on January 1, 1994 and the World Trade Organization (WTO), with greatly expanded authority over agricultural trade, replaced the GATT on January 1, 1995. Most American farmers embraced these new trade agreements, along with “Freedom to Farm” bill of 1996, because the Agricultural Establishment convinced them that “global free trade” was their key to prosperity.

So far, corporate agribusiness has been the only major benefactor of the new global agricultural economy. Agribusiness has prospered while American farmers have been made unwilling “wards of the government.” The only industry more profitable than food processing and distribution during the decade of the 1990s was pharmaceuticals. The farm commodity organizations and the Farm Bureau have come under increasing criticism from the rank and file of their farmer members, as their true allegiances have become more widely known. The USDA and the Land Grant Universities have become viewed with increasing skepticism by many farmers because of their close financial and professional alliances with corporate agribusiness. American farmers are beginning to understand that the “future of farming” and the “future of the agricultural industry” are two distinctively different concepts.

Increasingly, the Agricultural Establishment is becoming dominated by the agribusiness corporations, which increasingly are multinational in scope of operation and ownership. Not surprisingly then, Americans increasingly are losing control of American agriculture. Increasingly, decisions concerning what to produce, how much to produce, where to produce, how to produce, and who will produce, are being made, not by American citizens, but by a handful of multinational corporations. The people who own the land and do the work may still be Americans, but the decisions are being made by someone else, somewhere else. For the most part, contractual arrangements dictate the important decisions, leaving “producers” as little more than landlords, tractor drivers, or hog house janitors, but certainly not with the traditional role of “farmer.”
The agribusiness corporations dictating the terms of these contracts are legal entities but they are not people. They have no families, no friends, no communities, and increasingly, no national citizenship. The people who work for these corporations are real people – citizens with families, friends, and communities. But, once corporate ownership is separated from management, as in the case of most publicly held corporations, the people within corporations have no choice but to serve the economic needs of the corporation for profits and growth. Many investors, who have their savings in mutual funds and pension funds, for example, don’t even know how many shares of which companies they own. The only reason such people invest in corporate stock is to increase the value of their savings – to make money. The multinational agribusiness corporations who will control American agriculture have stockholders scattered throughout the world, and thus, have no citizenship. If it’s more profitable to produce food somewhere other than in the U.S., ultimately, that is where it will be produced.

Before the corporations abandon America agriculture, however, they will have turned much of rural America into a “third-world” wasteland. Industrial poultry and hog production – with large-scale confinement animal feeding operations – provides a prime example of the legacy of corporate agriculture. These operations consistently pollute the rural environment with odors and waste, yield minimum returns at best for laborers and investors, and drive family farming operations out of business. Polluted streams and groundwater, abandoned waste lagoons, eroded and depleted topsoil, depleted aquifers, rural crime, a de-skilled workforce, and decaying rural communities; these will be the legacies of the corporatization of American agriculture. As rural residents come to understand and react to these threats, the corporations eventually will find it easier and cheaper to produce food and fiber elsewhere in the world. And with a global, “free market” economy, there will be nothing to keep them from moving their agricultural operations elsewhere.

Economists argue we need not be concerned about becoming dependent upon the
rest of the world for our food. We will be even better fed at a lower cost, they say. But in times of crisis, a nation that can’t feed itself is no more secure than is a nation that can’t defend itself. Perhaps we won’t abandon agriculture completely, but we could easily become as dependent on the rest of the world for our food as we are today for our oil. Perhaps, we can keep our food imports flowing, but how large a military force will we need, how many “small wars” will we need to fight, how many terrorist attacks will we endure, and how many people will be killed? The cost of this approach to food security is simply too high.

Ultimately, the food security of America depends on the viability of its independently operated, family farms. To sustain the productivity of the land, we must have people on the land who know the land and know how to take care of that land, and who are committed to caring of the land. We must have people on the land who love the land. Large corporate producers have no commitment to any particular piece of land – most don’t even own most of the land they farm. They can’t really “know the land” because they are trying to farm too much of it to “know any of it” very well. Many don’t know how to take care of the land – they depend on a prescribed regiment of commercial inputs for their productivity, not on a healthy soil. They can’t really afford to love the land because they must stay focused on the “bottom line” – they have to stay competitive. American food security depends on having more, smaller, independent family farmers. A farmer can only truly love so much land.

Thankfully, a new type of agriculture is emerging to address the current crisis in American agriculture. Groups of creative, innovative, entrepreneurial farmers all across the country are seizing the opportunities inherent within the necessity for change – they are creating the New American Farm. These new farmers may claim the label of organic, low-input, alternative, biodynamic, holistic, permaculture, ecofarmers, practical farmers, or just plain farmers. But they are all pursuing the same basic purpose by the same set of principles. These New American Farmers are creating new systems of farming that take care of the land, that help build strong communities, while providing a good quality of life for
their families. They are discovering ways of farming that are ecologically sound, economically viable, socially responsible, and thus, will be sustainable over time.

To sustain the productivity of the land, farmers who love the land must have the time to take care of the land and must be able to afford to take care of the land. Thus, independently operated family farms also must be economically viable. By redirecting farm policy toward ensuring the economic viability of these smaller, independently operated, family farms, we can go a long way toward ensuring our long run food security.

Much of the current public support for agricultural programs stems from the belief that today’s programs somehow help smaller independent family farmers. There is very little truth to support this belief. Government payments may have helped farmers put in another crop during times of economic stress but they have done nothing to secure the economic future of family farms. In reality, U.S. farm programs have become little more than welfare programs for wealthy landowners and agribusiness corporations. It’s absurd to argue that current farm policies ensure either farm or food security, while those policies subsidize the corporate industrial systems of production that are forcing farmers to become contract producers and are placing our food security at risk. Fortunately, more and more people are becoming aware that current farm programs are not working for the good of farmers, consumers, or the public in general. This growing public awareness creates an opportunity for change.

Congress must somehow find the courage to focus agricultural programs of the future on using “public funds,” to produce “public benefits” – not on subsidizing wealthy landowners and corporate investors. The Agricultural Establishment does not represent the interests of family farmers, rural residents, or the public in general. For the most part, societal benefits of agriculture, such as food security, accrue to “the public” – to people in general. The ecological benefits of agriculture, such as protection of water quality, accrue to “the public” – not to specific individuals or corporations. The creation of “public benefits” must become the focus of “public farm programs.”
The private economy provides food and fiber for those who are able to pay the cost. And, the prospect of profits provides adequate incentives for investments in the private food and fiber economy. But, private markets will not provide adequate incentives for investments needed to ensure the social and ecological benefits from agriculture. Thus, we must make those investments collectively, through government. If the potential ecological and social benefits of agriculture are to be realized, they must be encouraged through public, rather than private, investment – through government programs.

This is not a radical concept. For several years, the Europeans have argued that agriculture is “multifunctional” – that it performs social and ecological functions, in addition to its private economic functions. This has been their consistent position in world trade negotiations. Many Europeans understand the consequences of “food insecurity” – they remember World War II. The Europeans have argued that each nation should be allowed to maintain government programs necessary to ensure long run food security. They have a deeper appreciation of the “public benefits” of having larger numbers of farmers on smaller farms – to take care of the land and to support rural communities. They have argued that removal of trade restraints on “private markets” should not preclude governments from ensuring continued “public benefits” from agriculture. It is not radical to claim that governments have both the right and responsibility to protect their people and their natural resources from economic exploitation.

The cornerstone of a new American farm policy should be long run agricultural sustainability. A sustainable agriculture is an agriculture capable of meeting the needs of the present while leaving equal or better opportunities for the future. A sustainable agriculture must be ecologically sound, economically viable, and socially responsible. An ecologically sound agriculture provides clear benefits to the “public,” both now and in the future, beyond the economic benefits to farmers. A socially responsible agriculture provides clear benefits to the “public,” both rural and urban, beyond the economic benefits to farmers. An
economically secure agricultural sector provides clear benefits to the “public,” in terms of food security, beyond the economic benefits to farmers.

A government farm program based on long run sustainability would be fundamentally different from the Farm Security and Rural Investment Act of 2002. First, with respect to ecological integrity, government farm programs eventually must recognize that no one has the “right” to degrade the natural environment. Thus, all farmers should be required to meet environmental standards that conserve the soil, protect the quality of water and air, and in general, ensure the integrity of the natural resource base. The rights of “private property” have never included a right to destroy the productivity of the land or to degrade the natural environment. New ecological programs, such as the Conservation Security Program payments, should be limited to rewarding farmers who “rebuild” soil fertility, “restore” water quality, and “enhance” the natural environment.

A socially responsible agriculture must provide farmers and ranchers, as people, with opportunities to lead productive, successful lives. This doesn’t mean that everyone who chooses to farm has a right to do so, regardless of their ability or willingness to apply themselves to the occupation. However, those who choose to farm, and are willing to farm sustainably should be given an opportunity to do so. To support such opportunities, government benefits should be limited to individually owned and operated farms and to family farms. And, the benefits should be paid only to “real” people, not to corporations. The objective should be to provide self-employment opportunities for farmers and others in rural areas, not to subsidize the landowners and corporations that threaten our food security. The overall goal of the new American farm policy should be to keep enough independent family farmers on the land, farmers who are committed to farming and ranching sustainably, to ensure the long run food security of the nation.

The first question likely to arise is; how would the government pay for such a program? The answer, with the same dollars used to support current farm programs, although the total cost could be considerably less. And in contrast to
existing farm programs, a sustainability-based farm program could be designed to be self-liquidating over time. The second question might be; how would the government administer such a program? The answer: as simply as possible.

Willard Cochrane, long-time agricultural policy expert, has proposed that each “family farm” be awarded an annual payment of $20,000 per farm. Dr. Cochrane’s proposal might be amended to provide for a $20,000 “tax credit” to go to each “family farm that is demonstrating progress toward sustainability.” Farmers who are approved for the “tax credit” would also have an alternative farm “tax rate” – possibly, 50 percent of total net farm income. Thus, as net farm income increases, the advantage of the alternative “tax rate” and “tax credit” would diminish. At a net farm income of $40,000, for example, the taxes owed (50% of $40,000) would completely offset the $20,000 tax credit. At some higher level of income, probably between $60,000 and $80,000, it would be advantageous for the farmer to give up the special “farm tax credit,” and be taxed as any other business. At this point, however, the sustainable farming operation would be sufficiently profitable to ensure its sustainability without any further government support.

Farmers would be free to farm as many acres and to produce as much as they choose, but the tax credit would be limited to $20,000 for each full-time, independent farmer. No one would dictate who should produce how much of what products. Those decisions would be made by farmers, not by the government, and not by the multinational corporations. Farmers who chose not to participate in the long-run food security program would not be required to have a sustainability transition plan but would not be allowed to exploit their land or to degrade the natural environment. No one, either American or foreign, has the “right” to exploit either the land or the people for short run economic gain.

Such a program could be called a “Farm Tax Program” rather than a “Farm Bill.” The Farm Tax Program would provide farmers with many of the employment security benefits available to other public workers – minimum wages, unemployment benefits, and workers compensation. The farmer would have the
assurance of the “tax credit” to tide them over in years of crop failures, depressed prices, times of ill health or other economic set backs on their way to achieving sustainability. Over time, farmers would be required to show progress toward sustainability to remain eligible for the “tax credit.” If, after some specified number of years, they fail to achieve economic sustainability, they could be helped to find employment elsewhere, freeing up their farm for a beginning farmer, who would then be eligible for the Farm Tax Program.”

The principles guiding U.S. agricultural trade policies should be simple and straightforward. A truly effective World Trade Organization would empower every nation the right, and the responsibility, of protecting its natural resources and its people from economic exploitation. People within nations should be allowed to decide the conditions under which they choose to trade and choose not to trade, without threats or coercion.

The natural ecosystem is global, not national, thus all nations have a responsibility to ensure that the environment is protected for the benefit of all people of the world. Increasingly, all nations share in a global culture, but global culture need not, and should not, erase all cultural differences among people. And, no nation has the right to impose the values of their culture upon other cultures of the world. The economy is increasingly global in nature, and there is much to be gained from trade among nations. But, the removal of all national economic boundaries would inevitably lead to economic exploitation of the weak and the poor by the strong and the wealthy and to economic exploitation of the natural environment. The only truly “free trade,” is trade among people who are truly “free not to trade.” U.S. trade policy should respect rights of all nations “not to trade,” thereby promoting world trade when it is truly beneficial to all.

Other government programs, including publicly funded research and education, could be redirected to support sustainable farming – to provide true public benefits rather than support private/public partnerships. State and federal programs could also be targeted to developing the physical and informational infrastructure needed to support local, niche markets needed for “sustainable-
sized” farms – connecting local consumers with local farmers. Federal, state, and local governments could be required to purchase agricultural products from local farmers supported by this program to enhance their chances for success. Government stocks of grains and other storable commodities could be held in farmer-owned facilities to keep them in the local community, as well as enhance farm income. The justification for local purchases would be to provide maximum total “public benefits,” rather than minimizing the cost of one public program at the expense of another.

Skeptics in the Agricultural Establishment question whether we can afford to abandon public support of large-scale, corporate agriculture in favor of sustainability. Surely, food costs will go higher, they claim, and consumers will revolt. However, such contentions are not supported by facts. Americans spend a little more ten-percent of their disposable income for food – a dime of each dollar. Equally important, less than a penny of each dime they spend goes to the farmer who produces the food – eight cents goes for packaging, transportation, advertising and other marketing services, and more than a penny goes for purchased inputs. If farmers received nothing, food prices could only be ten percent lower at retail, and if the farmers received twice as much, food prices would need only be ten percent higher. Americans can afford a sustainable agriculture. But more important, with greater corporate control and market power, food prices in the future are far more likely to be higher with a corporate agriculture than with a sustainable family farm agriculture.

As long run food security programs are implemented, the productivity and economic viability of independent family farms will rise, and the costs of government farm programs will fall. As ecologically sound and socially responsible farms become more productive and profitable, without government assistance, a sustainable agriculture will have permanently displaced the unsustainable industrial system that was based on industrial exploitation of people and of nature. As industrial agriculture runs out of resources, places, and people to exploit, it will be surpassed in productivity and profitability by new sustainable systems of farming. Over the long run, a sustainable agriculture will feed more
people better at a lower cost. And farmers, once rewarded with the quality of life of sustainable farming, will not revert to the pursuit of narrow, individual economic self-interest – as long as government fulfills its responsibilities to maintain competitive markets and to eliminate corporate welfare.

Today, American agriculture is in crisis. The crisis will not be resolved by the new Farm Bill or by new U.S. trade policies. American agriculture cannot compete, and shouldn’t even try to compete, in the current “race to the bottom” – to see which country can produce the “cheapest” agricultural commodities, to create corporate profits through exploitation of land and people. Crisis, however, creates opportunity for change. There is a growing awareness that current agricultural and trade policies quite simply are not working.

Government programs of the future should focus on using “public funds” to create “public benefits” – not to subsidize wealthy landowners and corporate investors. Global “free markets” may provide food and fiber for those who are willing and able to pay – at least during times of tranquility. But, ”free markets” will not ensure long run national food security. Long run food security depends on having an agriculture that is ecologically sound and socially responsible, as well as economically viable. American food security depends on agricultural sustainability. Agricultural sustainability depends on having people on the land who love the land and are committed to taking care of the land – for the benefit of their families, their communities, and their country, both today and in the future. American food security depends on having government programs and trade policies that ensure the economic viability of more, smaller, independent, family farms. Now is the time to begin working toward such policies – before it is too late.

[1] Presented at “Grain Place” Farm Tour and Seminar, Aurora, Nebraska, July 27, 2002
[2] John Ikerd is Professor Emeritus, University of Missouri, Columbia, MO – USA. E-mail: JElkerd@AOL.COM
   Web site: http://www.ssu.missouri.edu/faculty/jikerd

[4] For 50 real life examples, see “The New American Farmer – Profiles in Agricultural Innovation,” the SARE Program, USDA, Washington DC. ($10 US – call: 802-656-0484 or e-mail: sanpubs@uvm.edu, also available free on line at http://www.sare.org/newfarmer)
Why Farming is Important in America

John Ikerd

I believe that to live and work on a good farm is pleasant as well as challenging; for I know the joys and discomforts of farm life and hold an inborn fondness for those associations, which even in the hours of discouragement, I cannot deny.

When I was a member of the Future Farmers of America, the FFA Creed began with the words: *I believe in the future of farming with a faith born not of words but of deeds.* I believed those words then and believe them now, however, I do not believe in the future of agriculture as we know it today, or have known it, for at least the last 40 years. I believe we are living through “the end of agriculture, as we remember it, in America,” which is the title for the presentation to follow mine on the program today. However, I suspect the following speaker and I may have very different visions for the “the future of farming in America.”

With some parts of the FFA Creed, I do not agree. I don’t believe, for example, that the “achievements won by the present and past generations of farmers” hold much “promise of better days through better ways” – at least not the achievements of American agriculture over the past several decades. One era is dying and another is being born. If there is to be a future of farming in America, it will be with a new kind of farming – one very different from the American farms of the past fifty years.

Since the end of World War II, American agriculture has been dominated by the process of industrialization. The process actually began in the early 1900s, with the introduction of agricultural mechanization. However, most farms of the 1930s and early 1940s were not all that different from farms at the turn of the century. Horses were still the dominate source of farm power, livestock manure and crop rotations were still the recommended
means of maintaining soil fertility and controlling pests, and thus, small, diversified family farms were still the norm. However, wartime technologies heralded a new era in agriculture. In the late 1940s, factories that had made tanks for the war started turning out tractors for farms. Factories that had designed gun power started turning out cheap nitrogen fertilizers instead. And technologies developed for chemical warfare were redirected to the development of agriculture pesticides. With these new “tools,” agriculture could finally be industrialized – a farm could be made to run like a factory.

Ever since the end World War II, we have been promoting the industrialization of American agriculture – specialization, standardization, and consolidation of control. For the past fifty years, farmers have been encouraged to specialize – first to specialize in livestock or crops, then in specific livestock species or crops, and finally in a specific phase of livestock or crop production. Farm policies and agricultural technologies were designed to encourage specialization for the sake of greater economic efficiency. Increased mechanization, along with more sophisticated use of commercial fertilizers and pesticides, made the agricultural production process more controllable. Crops were irrigated and animals were brought indoors, into confinement, to remove the uncertainty of weather. Production processes could now be standardized, making field and feedlots work like “biological assembly lines.” Finally, through specialization and standardization, agricultural production was simplified, routinized, and mechanized so that land previously supporting many small farms could now be consolidated into larger and larger farming operations.

The final stage of industrialization is consolidation of control – in order to achieve the economic efficiencies from large-scale, specialized production. Over the past several decades, we have seen industrial consolidation in terms of ever-fewer farmers and ever-larger farms. Today, we see the final phase of agricultural consolidation, the corporate takeover of agricultural production – in some cases through outright ownership, but
in most cases through contract production. The basic arguments in favor of corporate agriculture is the claim that individual farmers simply are no longer large enough to gain access to the technologies, capital, and marketing systems needed to compete in an increasingly global agricultural economy.

If there is to be a future for farming in America, it must be in a new and different kind of American farm. America simply can’t depend on corporate farming – even if contract farming were made an acceptable way of life, which rarely is the case today. As costs of land and labor in the U.S. continue to rise, as they almost certainly will, multinational corporations will simply move their farming operations to other countries. Strong residential demand for land and good off-farm employment opportunities ultimately will destroy the ability of America to compete in the race “to the bottom” – the race among countries to produce food at the lowest dollar and cent cost. It there is to be a future for farming in America we must create a “new American farm.”

My colleagues in Agricultural Economics tell us there is no cause for concern, even if America gets out of the business of producing food, Americans will still have plenty of food – and at an even lower cost. We will simply import our food from other countries of the world where it can be produced more efficiently because of lower costs for land and labor. In America, land will be worth more for residential development, and workers will have many better job opportunities, than in farming. The end of agriculture in America, quite simply, will reflect the workings of a “free market” economy. Ultimately, we will all be better off without a lot of farms in America – so they say.

So why should Americans question the continued industrialization and globalization of agriculture? The answer: because it no longer produces more benefits than costs. The economic benefits may still exceed the economic costs for investors, but the same is not true for society in general. The dwindling benefits of increased economic efficiency no
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longer go to consumers, or to individual farmers, but to corporate investors – in terms of corporate profits and growth. And, the growing environmental and social costs of industrialization are not borne by corporate investors, but by society as a whole.

The only societal justifications for agricultural industrialization were to make food cheaper for consumers and to “free people from the drudgery of farming” so they could take better jobs in factories and offices. As farming became more efficient, agricultural production increased, prices of farm commodities declined, and consumer food prices fell, or at least increased slower than the prices of most other things. As farms grew larger, America could feed more people better with fewer people on the farm, freeing farmers to work in the factories and offices of a growing industrial economy. The industrial strategy was a big success. It did what it was designed to do. But, now the job is done.

Today, society certainly has nothing to gain from forcing more families off their farms. We have no good paying factory and office jobs begging for good workers. We have exported most of those jobs to other countries. Today, displaced farmers are far more likely to end up with a minimum wage job in some local fast food joint than in some high-paying, high-tech job in the city.

Today, American consumers, on average, spend only about a dime from each dollar of disposable income for food. From this dime, the American farmer gets less than a penny – the rest goes to pay for purchased inputs and for marketing services. In fact, we pay more to those who package and advertise our food than to the farmers who produce it. Consequently, we simply cannot make food much cheaper by making agriculture more “efficient.” If the farmer got nothing for his or her effort and investment, food could be no more than ten percent cheaper in the supermarket. With increasing corporate control of the global food system, it seems far more likely that further industrialization will lead to higher, not lower, food prices.
As benefits of industrialization have declined, the social and ecological costs have grown. Today, the very technologies that support our large-scale, specialized system of farming, the systems through which we have achieved economies of scale, are now the primary sources of growing public concerns. Commercial fertilizers and pesticides -- essential elements in a specialized, industrialized agriculture -- have become a primary source of growing concerns for environmental degradation and food safety. Giant confinement animal feeding factories now foul the air and water of many rural communities. The widespread release of genetically modified organisms (GMOs) into the environment now threatens the genetic integrity of the entire natural ecosystem, of which we humans are a part. Industrialization has transformed agriculture, created for the fundamental purpose of converting solar energy to human-useful form, into a mechanized agriculture that now uses more non-renewable fossil energy than it captures in solar energy from the sun.

Industrial agriculture, inherently, is management extensive. It allows fewer farmers to farm more land by using more capital and less management per acre farmed or per unit of production. As farms have grown larger and more specialized, agriculturally dependent rural communities have withered and died. Larger farms meant fewer farms and fewer farm families to support local schools, churches, public institutions, and retail businesses. In addition, larger farms tend to bypass local communities in purchasing production inputs and in marketing their products. It takes people, not just production, to sustain local communities. The fundamental purpose of agricultural industrialization, after all, was to make it possible for fewer farmers to produce more.

Concerns that are more recent include food quality, food safety, and food security. Americans once believed, as a matter of faith, that they had the highest quality, safest, most secure food supply in the world. The industry’s preoccupation with manufacturing foods that “taste good,” i.e. that are fortified with fats and sugar, and that “look good,” i.e. are artificially shaped, colored, or ripened, has left little room for concern about nutrition
and health. Widespread use of agri-chemicals, hormones, antibiotics, and artificial food additives has heightened concerns for food safety. And now, multinational corporate control of the global food supply threatens the food security of every nation, including America.

American farmers are beginning to realize that the current crisis in agriculture is not just another period of chronic oversupply, designed to squeeze a few thousand more farmers out of agriculture. Independent farmers cannot survive this crisis simply by getting bigger faster than their neighbors. We may not see thousands of farmers go bankrupt during the current crisis. Instead, we may emerge quietly from the current crisis with the surviving farmers as contract farmers – with American agriculture under corporate control. They simply will not be able to market their products without comprehensive production contracts, no matter how efficient they may be. Many farmers are beginning to realize that this is the end of the independent producer of agricultural commodities in America.

No one set about intentionally to destroy the ecological integrity, social responsibility, and now, the economic viability of American agriculture. We simply lost sight of the fact that the fundamental purpose of agriculture is not just to produce cheap food, but to meet the needs of people – as consumers, as producers, as members of communities, and as a human society. In our preoccupation with increasing economic efficiency to bring down the cost of food, we neglected to monitor what was happening to the overall quality of life of people. In our preoccupation with increasing production today, we neglected to monitor the agricultural legacy we were leaving for people of the future.

We simply let our faith in “free market” economics blind us to the social, ecological, and ethical consequences of our pursuit of individual, short run self-interests. We believed that our pursuit of individual self-interests would benefit society in general. We believed that Adam Smith’s invisible hand of the “free market” economy would somehow transform our
individual greed into societal good. We believed the economists. The economists’ defense of the industrialization and corporatization of American agriculture are based on the widely respected theories of “competitive capitalism.” However, the corporate consolidation of economic power has fundamentally transformed our current economic system, bringing in doubt, if not outright invalidating, the fundamental principles that must support its defense.

Contemporary economics is based on the observations of a British economist, Adam Smith, in his landmark book, The Wealth of Nations, published in 1776. From Smith’s observations, economists developed the fundamental assumptions, which underlie all “free market” economic thinking even today. These basic assumptions must hold in order for Smith’s *invisible hand* of competition to transform individual greed into the greater good for society in general.

Markets must be economically competitive – meaning numbers of buyers and sellers so large that no single buyer or seller can have any noticeable effect on the overall market. In such markets, excess profits are quickly competed away, and the benefits of more efficient production thus are passed on to consumers. It must be easy for new sellers to enter markets that are profitable and easy for sellers to get out of unprofitable markets, so that producers are able to respond to consumers’ changing wants and needs with changes in production. Consumers must have clear and accurate information concerning whether the things they buy will actually meet their wants and needs. And finally, the consumer must be sovereign – their tastes and preferences must reflect their basic values, untainted by persuasive outside influences. These characteristics were generally consistent with European society of the late 1700s, when Smith wrote his book. They remained sufficiently descriptive of the American economy to be useful until well into the twentieth century.

Today, however, none of these assumptions is valid – not even for agriculture, which was the last vestige of competitive capitalism in
Why Farming is Important in America

America. Today agricultural markets are dominated by a handful of large agribusiness corporations, certainly at every level other than the farm level, and increasingly even at the farm level. In addition, it is not easy to get into or out of any aspect of agriculture, and with rising capital requirements and now genetic patenting; it is becoming quite difficult even to get into or out of farming. Consumers don’t get accurate, unbiased information concerning the products they buy, but instead get disinformation by design, disguised as advertising. Finally, consumers are no longer sovereigns. The food industry spends billions of dollars on advertising designed specifically to bend and shape consumers tastes and preferences to accommodate mass production and mass distribution, which enables corporate control of agriculture. There is no logical reason to believe that the corporate agriculture of today is evolving to meet the needs or wants of consumers. Such a system could produce lots of “cheap stuff,” but there is no assurance that it would be producing the “right stuff.”

In fact, we no longer have capitalism in America; we have “corporatism.” Capitalism is based on private ownership of property by “individuals.” But, most “private property” in the U.S. today is owned by corporations, not individuals. With capitalism, the ethics and morality of the people must serve as effective constraints to the pursuit of individual self-interest. Corporations are not people, and thus, have no ethics or morals. Once ownership is separated from management, through public stock offerings, the only things a corporation values are profit and growth. The people who work for corporations may be fine, upstanding, moral people in their personal lives. But, if the want to keep their jobs, they must serve the economic interests of their stockholders. They must make profits and the corporation must grow. Real people have hopes and dreams for the future. People have hearts and souls. Corporations have neither. In order for capitalism to work for the good of society, for the good of people, individual people must make the economic decisions, not corporations.

Adam Smith’s invisible hand of competitive capitalism has been mangled
in the machinery of industrial corporatism, and is no longer capable of transforming self-interest into societal good. The American economy is moving away from market coordination toward a corporate version of “central planning.” The problems of the centrally planned economies of Eastern Europe were not merely a lack of sophistication in management and coordination. Central planning, by government or corporation, is simply a fundamentally “wrong-headed” way to try to allocate resources within an economy. The end of competitive capitalism in America agriculture means the end of the American farm, as we have known it. Multinational control of the global food system is simply a “wrong-headed” way to try to ensure the well-being of people.

Thankfully, a new kind of American farming is emerging to meet the challenges of corporate industrialization. This new kind of farming is not being developed by USDA, by the Land Grant Universities, or the major farm organizations. The agricultural establishment seems willing to bet the future of humanity on biotechnology – the latest tool of corporate industrialization. The new American farm is being created by farmers. Literally thousands of “new farmers,” all across the continent, are creating new and better ways to farm. These new ways of farming “promise better days through better ways” even though the “struggles of our former years” have fallen far short of their early promise.

These new farmers may call themselves organic, biodynamic, holistic, ecological, natural, practical, or just plain family farmers, but they are all farming by the basic principles of a “sustainable agriculture.” At least three regional “sustainable agriculture” conferences in the U.S. regularly draw from 1200 to 1500 farmers each year. Several more conferences draw from 300-500 per year, and the number with 100-200 in attendance is too many to count. But perhaps more important, their numbers, their enthusiasm, and their optimism for the future seems to be growing each year. These farmers are on the frontier of a new and different kind of agriculture. Certainly, they face struggles and hardships and there are failures along the way. Life is rarely easy on any new frontier. But, a
A growing number are finding ways to succeed.

Many of these farmers may not identify themselves with the name “sustainable agriculture,” but their farming methods are, none the less, more sustainable than are the industrial methods that they all reject. They are creating farming systems that are more resistant, resilient, regenerative, and renewable, and thus, are sustainable over time. They are trying to make a good living from the land, but leave the land as good as they found it. They are meeting the needs of themselves and of society in the present, while leaving equal or better opportunities for those of the future.

Sustainable agriculture is not a sacrifice, as some would like us to believe. These new American farmers pursue a more enlightened self-interest. They are not trying to maximize profit, but instead are seeking sufficient profit for a desirable quality of life. They recognize the importance of family and community, as well as income, in determining their overall well-being. They accept the responsibilities of stewardship, not as constraints to their selfishness, but instead, as opportunities to lead successful lives. Certainly, they need an income, to ensure their physical well-being. But, they recognize that we humans are a social species; we need relationships with other people for our emotional well-being. They recognize that we are a moral species; we need to live with purpose and meaning, in harmony with some “higher order of things,” for our spiritual well-being. They are creating farming systems that are ecologically sound and socially responsible, as well as economically viable, in pursuit of a more enlightened concept of quality of life.

This is not a new or radical concept. In his early 1800s classic book, Democracy in America, Alex De Tocqueville examined the foundations of democracy. He believed that survival of the American Democracy was critically dependent on deeply rooted religious beliefs, which constrained early Americans in their pursuit of self-interests. He reasoned that if these strong religious beliefs were ever to erode, they would have to be replaced
with a strong sense “that man serves himself in serving his fellow-creatures, and that his private interest is to do good.” He wrote of early Americans who believed strongly “that men ought to sacrifice themselves for their fellow-creatures… but, that such sacrifices are as necessary to him who imposes them upon himself as to him for whose sake they are made.” Tocqueville believed that “self-interests rightly understood,” an enlightened self-interest, would reflect the fact that people benefit from fulfilling their proper role in the larger society in ways that could never be linked directly to one’s narrowly-defined, individual economic self-interest. The new American farmers epitomize Tocqueville’s concept of “self-interests rightly understood.”

While there are no “blueprints” for the New American Farm, some basic characteristics are emerging. First, these farmers see themselves as stewards of the earth. They are committed to caring for the land and protecting the natural environment. They work with nature rather than try to control or conquer nature. They fit the farm to their land and climate rather than try to bend nature to fit the way they might prefer to farm. Their farming operations tend to be more diversified than are conventional farms – because nature is diverse. Diversity may mean a variety of crop and animal enterprises, crop rotations and cover crops, or managed livestock grazing systems, depending on the type of farm. By managing diversity, these new farmers are able to reduce their dependence on pesticides, fertilizers, and other commercial inputs that squeeze farm profits and threaten the environment. Their farms are more economically viable, as well as more ecologically sound, because they farm in harmony with nature.

Second, these new farmers build relationships. They tend to have more direct contact with their customers than do conventional farmers. Most either market their products direct to customers or market through agents who represent them with their customers. They realize that as consumers each of us value things differently because we have different needs and
different tastes and preferences. They produce the things that their customers value most, rather than try to convince their customers to buy whatever they produce. They are not trying to take advantage of their customers to make quick profits; they are trying to create long-term relationships. They market to people who care where their food comes from and how it is produced – locally grown, organic, natural, humanely raised, hormone and antibiotic free, etc. – and, they receive premium prices by producing what their customers value. Their farms are more profitable as well as more ecologically sound and socially responsible.

These new farmers challenge the stereotype of the farmer as a fiercely independent competitor. They freely share information and encouragement. They form partnerships and cooperatives to buy equipment, to process and market their products, to do together the things that they can’t do as well alone. They are not trying to drive each other out of business; they are trying to help each other succeed. They refuse to exploit each other for short run gain; they are trying to build long-term relationships. They buy locally and market locally. They bring people together in positive, productive relationships that contribute to their economic, ecological, and social well-being.

Finally, to these new farmers, farming is as much a way of life as a way to make a living. They are “quality of life” farmers. To them, the farm is a good place to live – a healthy environment, a good place to raise a family, and a good way to be a part of a caring community. Many of these farms create economic benefits worth tens of thousands of dollars, in addition to any reported net farm income. For full-time farming families, the farm must return a net cash income. But for many, one or more members of the farm family works off the farm to earn the cash income needed to buy those things that can’t be produced on the farms. So even if the farm just breaks even, it still may be making a major contribution to a highly desirable quality of life for the family.

For these farmers, their “quality of life” objectives are at least as important
as the economic objectives in carrying out their farming operations. Their farming operations reflect the things they like to do, the things they believe in, and the things they have a passion for, as much as the things that might yield profits. However, for many, their products are better and their costs are less because by following their passion they end up doing what they do best. Most new farmers are able to earn a decent income, but more important, they have a higher quality of life because they are living a life that they love.

Why is this new way of farming important to America? Why should it matter to the rest of us, to the public, whether these new farmers fail or succeed? Of course, we all have to eat, and being ensured of adequate food and fiber is no small concern. But, agriculture is “multifunctional” – farming performs many functions in addition to producing food and fiber. Some of the functions of agriculture are legitimate private market functions, such as providing food for those who are willing and able to pay the costs of production. But, there are adequate profit incentives to ensure that those who are willing and able to pay will be well fed, at least during the lifetimes of most of us here today. So why then should we be concerned about the future of farming?

The answer? Farming generates benefits for society in general, for which private market incentives are absent or inadequate. These functions are quite accurately labeled as “public” functions. Many “private” ventures result in “public” benefits, however, there are many functions of benefit to the public that private markets won’t provide, or won’t provide adequately to meet the needs of society in general. Even the most competitive of markets can’t perform purely “public” functions.

The government is the legitimate mean by which we, collectively, provide “public” goods and services. For example, most of us willingly pay taxes so the government can provide for national defense, public education, interstate transportation, and many other services for which private incentives are inadequate to meet the needs of the nation. If we don’t do
these things together, through government, the nation will be a less
desirable place to live, for all of us.

In general, “public goods and services” include those things to which we,
as a nation, have agreed that all people should have “equal access,”
regardless of their ability to pay. Markets won’t provide things to people
“equally,” but instead only in relation to our individual willingness and
ability to pay. In fact, we are not all equally capable or economically
productive, and thus, we are not all equally able to pay. Farming performs
many of those legitimate “public” functions – functions that benefit us all,
but for which we are not all able to pay.

Everyone has an equal right to enough food to survive, to grow, to mature,
and to become a productive member of society. A corporately controlled,
industrial agriculture will not provide adequate food for all – only for those
who are willing and able to pay. Food equity is a legitimate public benefit
that a sustainable agriculture can provide.

Everyone has an equal right to safe, healthful, nutritious food. The food
we eat should nourish us, not make us sick, disrupt our immune systems,
addict us, or fill our bodies with empty calories. A corporately controlled,
industrial agriculture will not ensure the integrity of our food supply – it will
continue to exploit consumers as it strives for ever-greater profits and
growth. Food integrity is a legitimate public benefit that a sustainable
agriculture can provide.

Everyone has an equal right to a secure food supply. No nation, including
America, should be subject to political manipulation, coercion, or blackmail
by any other nation because of their inability to provide for the food,
clothing, and shelter needs of their people. With an industrial, global
agriculture, controlled by multinational corporations, no nation, including
America, will have food security. The current corporate struggle to gain
control of the global food system is about profits and growth, not about
meeting the needs of people. Food security is a legitimate public benefit
that a sustainable agriculture can provide.

Everyone, including those of future generations, has a right to a clean, productive natural environment. Every nation has a responsibility to protect its environment, and its people, from degradation and exploitation. A corporately controlled, industrial agriculture will continue to exploit our natural resources and environment. Self-interest economics is about finding the optimum way to "use things up," not about conserving, regenerating, or sustaining. Ecological integrity is a legitimate public benefit that a sustainable agriculture can provide.

Maintaining a culture of stewardship is a legitimate public function, if we are to have a sustainable agriculture and a sustainable human society. As Wendell Berry, the Kentucky farmer, writer, and philosopher, wrote, "if agriculture is to remain productive, it must preserve the land and the fertility and ecological health of the land; the land, that is, must be used well. A further requirement, therefore, is that if the land is to be used well, the people who use it must know it well, must be highly motivated to use it well, must know how to use it well, must have time to use it well, and must be able to afford to use it well." A corporately controlled, industrial agriculture will not keep people on the land who love the land. A sustainable agriculture can and will.

Building a new, more sustainable agriculture is a legitimate "public" function. The new American farmers will likely succeed, ultimately, with or without the help of government. However, the $20 billion or so the government now spends each year on farm programs promoting agricultural industrialization could be far better spent to support the transition to a more sustainable agriculture.

This is not a radical idea. The Europeans currently support the concept of a "multifunctional" agriculture in their international trade negotiations. They argue that government has a responsibility to ensure that a nation’s agriculture can continue to provide public, as well as private, benefits to
the citizens of all nations. They support free trade, only so long as it does not result in exploitation of the land or the people. They support a “sustainable free market.”

Willard Cochrane, a nationally respected University of Minnesota economist, with national public policy experience extending back to the Kennedy era, has proposed a National Sustainable Farm Program as a replacement for the current commodity-based government subsidies. Farming is important to America, and it is important to us all that our farms remain sustainable. Government programs were used to support the industrialization of agriculture, and we can now redirect those government programs to ensure that our agriculture will be sustainable. There are important public benefits to be derived from a more sustainable agriculture, and thus, it is legitimate to use public dollars to support the transition.

Finally, why is farming important to Americans – personally, individually? The answer: because a sustainable agriculture is a metaphor for sustainable living. The consequences and alternatives for corporate industrialization and sustainability are the same for society in general as for agriculture. But, our overall economy and society in general are extremely complex systems and the relationships are not quite so clear.

All of life depends on a healthy natural environment – water, air, sunlight, soil, and diversity of living species – not just for agriculture but also for all life, including human life. Industrial systems of economic development degrade the ability of the natural environment to support life in general, just as they degrade the natural productivity of farms. Industrial systems threaten human health and quality of life, just as they degrade the health and quality of the natural ecosystems of farms. The linkages between cause and effect are just easier to see in agriculture.

Human civilizations depend upon healthy human relationships. Industrial systems, in facilitating specialization, separate people from each other. Complex systems of markets separate buyers from sellers, consumers
from producers, and corporate investors from managers. Relationships become defined by laws, rules, regulations, and contracts. Profits and growth take precedent over personal relationships and social responsibility. Exploitation of workers, consumers, and taxpayers becomes routine business practice. The degradation of American society is no different in concept from the demise of our family farms and the ecological, economic and social decay of our rural communities. The linkages between cause and effect are just easier to see in agriculture.

The quality of human life depends on our living lives of purpose and meaning. Purpose and meaning must come from somewhere beyond – from our connectedness with “some higher order of things.” This “higher order” or “higher power” is the ultimate source of ethics and morality. If we are to be an ethical and moral society, we must learn to live in harmony with the fundamental laws of nature, including human nature. A sustainable agriculture is built on an ethical foundation of friendship and stewardship – a more enlightened concept of self-interest. A sustainable democracy, as Tocqueville warned, must be built on a similar foundation of “self-interest, rightly understood.”

Thus, the new American farmers, who are finding ways to farm more sustainably, are creating a metaphor of a more sustainable human society. As a society, we must stop exploiting our natural environment. We must look again to the timeless principle of diversity in finding new means of sustaining human progress, economically and socially, while maintaining the health and integrity of our natural environment – not just in agriculture but all across society. As a society, we must stop exploiting each other. We must focus on providing people with the things they need and truly value rather than coercing and bribing people to buy ever more “cheap stuff” – not just in agriculture but all across society. We must not allow our pursuit of short-run, economic self-interest to diminish our overall quality of life – neither in agriculture nor elsewhere in society. We must seek and find balance and harmony among the economic, ecological, and social – to find balance and harmony among the personal, interpersonal,
and spiritual dimensions of our lives.

Returning to the FFA Creed, “I believe in the future of farming in America, with a faith born not of words but of deeds.” But, I believe the deeds that hold promise for the future of farming are the day-to-day deeds of the thousands of “new American farmers.” I believe that this new kind of agriculture “can and will hold true to the best traditions of our national life.” And, I believe that “we” – you and I – “can exert an influence in our homes and communities, which will stand solid for our parts in that inspiring task.”

I believe that we can, and must, help create a new kind of agriculture that will sustain a high “quality of life” for farmers and society, both for this generation and for all generations to come. That’s why farming is important to America.

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[2] John Ikerd is Professor Emeritus, University of Missouri, Columbia, MO – USA. E-mail: JElkerd@AOL.COM web site: http://www.ssu.missouri.edu/faculty/jikerd

[3] For 50 real life examples, see “The New American Farmer – Profiles in Agricultural Innovation,” the SARE Program, USDA, Washington DC. ($10 US – call: 802-656-0484 or e-mail: sanpubs@uvm.edu, also available free on line at http://www.sare.org/newfarmer)
Globalization has become a major public issue over the past decade. Most of the recent controversy has centered on the World Trade Organization (WTO). The WTO was established in 1994, replacing the General Agreement on Tariff and Trade (GATT), has authority to oversee international trade, administer free trade agreements, and settle trade disputes among member nations. However with the WTO, authority was greatly expanded to cover trade in services as well as merchandise – including protection of intellectual property rights associated with such things as artistic recordings, computer programs, and patented genetic materials. Also, the WTO has far greater authority over trade in agricultural commodities than had existed under the GATT. The implicit, if not explicit, objective in forming the WTO was to reduce, and eventually remove, all obstacles to trade, in order to achieve a “global free market.”

Globalization, in concept, is far broader in meaning than is “global free market.” To “globalize,” according to Webster’s dictionary, means “to make worldwide in scope or application.” The objective of the WTO is “to make the economy worldwide in scope.” However, we cannot globalize the economy without simultaneously affecting global ecology and global society. This is the crux of the current the WTO controversy. What are the real benefits and costs of economic globalization, not just for the world economy, but also for the world community and for the world itself?

We live in a global ecosystem, the biosphere, regardless of whether we like it or not. We have no choice; such is the nature of “nature.” The atmosphere is global. Whatever we put in the air in one place eventually may find its way to any other place on the globe. Weather is global. The warming or cooling of the oceans in one part of the world affects the
weather in another, which in turn affects the temperature of oceans elsewhere on the globe. Thus, the oceans also are not just international, but global. All the elements of the biosphere are interrelated and interconnected, including its human elements. We are all members of the global community of nature. We have no choice in this matter.

Increasingly, we are all living in a global “social” community. Global communications – print media, radio, television, and the Internet – have erased national communications boundaries, resulting in the spread of common cultural values around the globe. Global travel has become faster, easier, and less expensive, resulting in greater person-to-person sharing of social and cultural values among nations. Consequently, the distinctiveness of national cultures has diminished. We seem to be moving toward universal membership in a common global culture.

However, in matters of culture we have the right and the responsibility to choose. We have the right to maintain whatever aspects of our unique local or national cultures that we choose. And we have the responsibility to protect this right against the economic or political forces pushing us toward a single global culture.

We also seem to be moving toward a single global economy. International trade has increased dramatically over the past few decades, first under the various GATT agreements and now under the WTO. All of the national economies of the world are interconnected now through their dependence upon each other for trade. Problems anywhere in the world economic community, with Japan and Argentina being recent examples, create economic problems for nations all around the globe. The implicit purpose of the WTO is to remove all barriers to trade and to create a single global economy.

In this matter, we also have a right and a responsibility to choose. Every nation has the right to maintain those aspects of its local and national
economies that are necessary to protect its resources and its people from exploitation. In a truly global economy, the social and political boundaries that now constrain such economic exploitation would no longer exist. Every nation has a responsibility to maintain such boundaries as may be necessary to protect its people and its resources from economic exploitation. Again, to the crux of the WTO controversy, what are the benefits and costs of removing the economic boundaries among nations, thus creating a single global economy?

Perhaps the best way to begin addressing this question is to ask what current boundaries to globalization currently exist and why those boundaries are there in the first place? The boundaries that exist in nature, the ecological boundaries, were put there by natural processes. Such physical features as oceans, mountains, and even rivers and ridges, separate one physical bioregion from another. Why are these boundaries in nature? Perhaps because nature is inherently diverse, the boundaries are nature’s way of defining its diversity. Boundaries define the form or structure of those things that support life: sunlight, air, water, and soil. Boundaries define the structure of living things: bacteria, fungi, plants, animals, and humans. We know also that diversity is necessary for resistance, resilience, and regeneration. Without diversity, without boundaries, nature could not support life, including human life.

Cultural and political boundaries are those that define “communities” of people – including cities, states, and nations. We established such boundaries to facilitate relationships among people within those boundaries and to differentiate relationships among people within a given “community” from their relationships with people in other “communities.” Within boundaries, relationships were nurtured to enhance social connectedness and personal security. The purpose for boundaries “between” communities was to maintain some sense of identify, and thus, diversity among different groups or communities of people. Historically, people have valued such diversity as a means of maintaining choices and
opportunity – deemed necessary for health, growth, resilience, and long run security of human society.

In earlier times, cultural and political boundaries tended to coincide with natural boundaries – oceans, mountains, rivers, and ridges. However during the industrial era, there was a growing tendency to ignore the guidance of nature, allowing economic and political considerations to take priority over nature in defining the bounds of our personal relationships. Wars have drawn the boundaries of countries along lines that have little relationship to either topography or culture. Towns and cities have expanded their boundaries with little regard for the best long run use of the land they have covered with buildings and concrete. And with the trend toward a “global community,” the remaining social and cultural boundaries that once defining groups with diverse social, ethical, and moral values are being largely ignored.

With some notable exceptions, economic boundaries, at least over the past century, have been the same as national political boundaries. Historically, each nation has had its own currency, and economic relationships between those within nations have been distinctively different from economic relationships among nations. The British Empire of the early 1900s, which once included a fifth of the globe, might have been considered a single economic unit. More recently, the North American Free Trade Agreement (NAFTA) and the European Community (EC) represent attempts to bring several nations within a single economic boundary. But, most economic communities have been defined as single nations.

The purpose of economic boundaries is to promote “free trade” within the boundaries and carry out “selective trade” among those groups separated by boundaries. Historically, economic diversity among nations has been considered a necessary means of ensuring choice and opportunity – necessary for health, growth, resilience, and long run security of the
The Real Costs of Globalization

global economy. Humanity was not willing to put all of its “economic eggs in one basket.”

So, why have leaders of the major economic powers of the world decided now to put all their “economic eggs” in the “WTO basket?” The most logical answer seems to be that world leaders are now motivated more by short run economic consideration than by longer run concerns for human culture or the natural environment. In this respect, other nations quite likely are being misled by the “economic culture” of the U.S., which now dominates the global economy. The tremendous growth of the U.S. economy over the past century is widely attributed to our “competitive, free market” economy. Admittedly, this new “culture of economics” now also holds sway among many in the most economically powerful nations of the world.

Within this culture, economic boundaries are viewed as obstacles to trade, which limit the ability of investors to maximize economic efficiency. “Free trade” among all nations would result in a more efficient global economy, they say, thus benefiting all people of the world. Current barriers to trade, they say, are nothing more than artificial, political constraints designed to protect specific individuals and industries within nations from economic competition from more efficient producers in other nations. The WTO should work to remove such barriers, allowing the most efficient producers in the world to produce the world’s goods and services, resulting in the lowest cost to consumers everywhere – so they claim.

Such claims are based on economic theories of trade that historically have made “free trade” something of a “sacred tenet” of economics – particularly among the more conservative of economists, whose views have been in vogue for a while. Contemporary economic “free trade theory” has its foundation in the writings of British economist, David Ricardo, in the early 1800s. Ricardo showed that when two individuals choose trade, each is better off after the trade than before the trade.
People have different tastes and preferences, and thus, each person values the same things differently. So, if I value something you now own more highly than I value something I own, and you value the thing that I own more highly than you value the thing you own, we will both gain by trading. I get something that I value more than the thing I now own and so do you.

The same concept can be used to show the potential gains from trade associated with specialization. One farmer may be a more efficient producer of one thing, say corn, and another farmer may be a more efficient producer of another, say cattle. If so, one farmer can then specialize in cattle and the other in corn. The better corn producer can then trade corn for beef and the cattle producer can trade beef for corn, and they both will be better off than if they each tried to produce both beef and corn.

Even if one farmer is a better producer of both beef and corn, the other farmer will have a “comparative advantage” in producing one or the other. Let’s say the first farmer could produce either a 1,200-lb. steer or 300 bushels of corn with a given amount of land, labor, and capital. Assume a second farmer could only produce only a 750-lb. steer or only 250 bushels of corn using the same amount of resources – not as much of either as the first farmer.

If the first farmer decided to produce only corn, he or she would have to forego 4-lbs. of beef for each bushel of corn produced (1200/300). However, if the second farmer decided to produce corn, he or she would only have to forego only 3-lbs. of beef for each bushel of corn (750/250). In economic terms, this means that the second farmer has a “comparative advantage” in producing corn, because his or her “opportunity cost” of producing corn is less. The two farmers will have to forego less beef for each bushel of corn if the second farmer uses his or her land, labor, and capital to produce corn and the first farmer produces the beef. Using the
same logic, the first farmer has a lower “opportunity cost” of producing beef – 1/4 bushel of corn per lb. of beef (300/1200) compared with 1/3 bushel per lb. (250/750) for the second farmer.

Although the arithmetic gets messy, if the second farmer specializes in corn and the first in beef, and they trade their surpluses with each other, both will be better off than if each produces their own corn and beef. Of course the real world is much more complex than this simple “two farmer, two commodity” example, but this simple one-on-one trade situation is still at the heart of contemporary economic trade theory.

So, if both traders gain from specialization and trade, what’s wrong with “free trade?” The problems arise because “free trade” between two independent individuals, in the context of the early 1800s, does not accurately reflect the reality of trade among nations in the early 2000s.

First, trade is truly free only if both partners are “free not to trade.” Participants in “free trade” must have an “interdependent” relationship. Interdependence implies that people depend on each other “by choice,” not by necessity. If one trading partner is dependent on another, the dependent partner may have no choice but to do whatever is necessary to maintain the relationship. When both are independent, neither has any obligation to maintain the relationship. “Interdependent” relationships can only be formed between two independent entities. Under such circumstances, relationships are formed only if they are beneficial to both and continue to exist only so long as they remain beneficial to both. Through the WTO, stronger nations are trying to force weaker nations to form “dependent” trading relationships – to create situations where the weaker nations are “not free to not trade.”

Trade made under conditions of coercion, under explicit or implied threats of retribution if one does not trade, is not free trade. The school kid, who trades lunches with one bully to secure his protection from another bully,
is not participating in free trade. Neither is a weak nation that trades with a strong nation, under the threat of denial of military protection from some global tyrant. Nor is it “free trade” if one nation is dependent on the other for its economic wellbeing, such as in cases where one has built up large debts to another. Poor nations are made dependent on rich nations by their disproportionate economic wealth, economic infrastructure, and technological advantage, regardless of their inherent worth to humanity. In many cases, rich nations are able to exploit the workers and resources of poor nations through trade, because the poor see no other way to avoid physical deprivation or starvation of their people. This is not free trade.

Second, “free trade” assumes “informed trade.” Both parties must understand the ultimate consequences of their actions. If a car dealer trades cars with a customer, knowing that the car is a gas-guzzler, needs lots of repairs, and is unsafe to drive, and trades without informing the customer, this is not a “free trade.” When a developed nation encourages a lesser-developed nation to produce for export, knowing that such production will lead to exploitation of their natural and human resources, and does so without informing them of the consequences, this is not free trade. The leaders of the lesser-developed nations may benefit from such trade, including bribes or payoffs from the outside exploiters, but the resources of the lesser-developed nation will be exploited rather than developed. The people will be left with fewer opportunities for developing their country after than before the trade. The exploiters know the consequences but the exploited do not. Uninformed trade is not “free trade.”

Third, “free trade,” in economic theory, implies that the decision is made by an individual, not a nation. Individuals are whole people, presumably absent of unresolved internal conflicts regarding the relative values of items being traded. A person trades only if they decide that the trade, overall, is good for them as a whole. Nations, on the other hand, may make and carry out trade agreements to which a substantial portion of the
nation’s population is opposed – perhaps even more than half are opposed, both before and after trade takes place. The economic rational for such agreements is that if the economic benefits to those who favor trade more than offset the economic costs to those opposed the nation as a whole will benefit from the trade.

Economics is incapable of dealing with interpersonal relationships. In economics, a nation is said to gain from trade if those who benefit from trade could compensate those who lose and still have something left over. Of course, the gainers are under no legal obligation to compensate the losers, and rarely, if ever, do so. And, it doesn’t matter that the rich are made richer and the poor are made poorer. In economics, it doesn’t really matter how many people are made relatively worse or better off by trade, as long as the trade results in growth of the economy. Contemporary economics doesn’t address issues of social equity or justice.

Finally, the foundational principles of economic trade theory are rooted in a “barter economy” – one person trades something to another. In an international currency economy, “comparative advantages” in trade can be distorted by fluctuations in exchange rates, resulting from differences in monetary policies among nations. Such fluctuations can cause the exports from one nation to become more or less costly to importers from another nation for reasons totally unrelated to differences in production efficiency. Under such conditions, “free markets” do not result in efficient resource use.

In classic trade theory, also, each trading partner uses their individual resources, land, labor, capital, technology, etc. to do whatever they do best – to exploit their comparative advantage. No consideration is given to the possibility that one nation might instead transfer some of their resources, such as capital and production technology, to another nation where they might generate greater profits. Mobility of capital and
technology, hallmarks of today’s global economy, eliminates the “comparative advantage” of higher cost nations, forcing them to import from lower cost nations, devaluing both land and labor in the higher cost nation to globally competitive levels.

Because of these inconsistencies between economic theory and economic reality, most international trade today does not fit the theory of economic “free trade.” Perhaps more important, opposition and open defiance of the WTO, from countries all around the globe, indicates that any future expansion of trade forced upon people by the WTO almost certainly will “not” be free trade, but “coerced” trade.

If the ultimate “free market” goals of the WTO were achieved, all national economic boundaries would be removed. Initially, all economic barriers to trade would be translated into tariffs, and over time, all tariffs would be eliminated, erasing all economic boundaries among nations. The world economy would presumable operate pretty much as a national economy. “International commerce” would be a lot like “interstate commerce,” and no nation would be allowed to have laws interfering with such commerce. However, under the WTO, nothing could be arbitrarily excluded from “international commerce.” Ultimately, anything we own might have to be offered for sale to the highest bidder. The WTO would decide what we can and cannot exclude from the world marketplace. And, no seller or buyer would be allowed to offer a different price or different conditions of trade to one nation than is offered to any other.

Under such rules of trade, a nation could not subsidize its agriculture by any means that might be trade distorting; that is, it couldn’t subsidize producers of one commodity more than it subsidizes producers of another. A nation could not establish environmental, health, or safety standards for its production processes that were more restrictive than those specified by the WTO. A nation could not close its borders to WTO approved “cultural exports” from other nations – movies, television
programs, clothes, and magazines – no matter how repulsive they may be to current residents of that nation. A nation could not refuse to sell its natural resources, such as minerals, oil, or even water, to another nation. And, the WTO would stand ready to enforce merchandise patents and intellectual property rights globally, regardless of whether the people of the world agree that all things, such as life forms, should be patented. These are some of the potential consequences of the WTO vision of globalization.

So what are the “real” costs of globalization to Americans? After all, we are the strongest of the strong nations and the strongest promoter of the “free market” goals of the WTO. Certainly, the U.S. expects to benefit economically – at least in terms of economic growth. But, at what social and ecological costs? And can we even be sure that the economic benefits of globalization will accrue to the “people of nations” rather than a select group of investors and executives of “global corporations?”

First in farming, until a decade or so ago, few questioned the ability of American farmers to compete with farmers anywhere in the world. We were the self-declared global leaders in agriculture. We had the most highly educated and efficient farmers in the world using the latest production technologies to cultivate the best agricultural land in the world. However, in recent years, the US share of global agricultural exports has plummeted, dropping farm profits, and shaking confidence in the American farmer’s ability to compete.

The U.S. market share of global exports of soybean and soybean product, for example, shrank from 80 percent during the 1960s to just 35 percent in 1998-2000. Over that same period, the combined share for Argentina and Brazil grew from less than 10 to nearly 50 percent. Abundant land and favorable climates, coupled with low-cost labor and a favorable exchange rate, have given Argentina and Brazil a clear competitive advantage – not just for soybeans, but for corn and most other grain crops as well.
U.S. livestock producers face strong competition from Canada and Mexico in domestic livestock and meat markets, causing some livestock producers to question the wisdom of the NAFTA. Threats by agribusiness to move their large-scale confinement animal feeding operations to Mexico or elsewhere, to avoid growing environmental and animal welfare restrictions, also cast a shadow on the future of meat production in the U.S. South America and Australia are lower cost producers of range cattle, and countries such as Mexico and China could gain competitive advantages in restructured global pork and poultry industries.

Declining exports have led American farmers into their fourth straight year of economic “emergency” – resulting in $5-$9 billion per year in “emergency” government payments, in addition to already generous farm program benefits. American farmers today are among the most heavily subsidized in the world, and the new farm bill seems certain to maintain this dubious distinction. Without these generous subsidies from taxpayers, American farm exports would be far less, and we would be in the midst of an American “farm financial crisis” at least as severe as that of the 1980s. Without continued large subsidies, American farmers quite likely will not be able to compete in a free market global economy, regardless of what the free market promoters may say.

America’s lack of competitiveness in farming is not just a short run phenomenon resulting from unfavorable exchange rates or a depressed global economy. As Steven Blank points out in his recent book, “The End of Agriculture in the American Portfolio[3],” rising costs of land and labor are destroying the traditional competitive advantage of American farmers in world markets. Growing demand for land in rural areas for residential purposes, as America’s affluent urbanites acquire more living space, will make even good farmland too costly to farm. Employment opportunities arising from the “new economy” will make the economic sacrifice of an occupation in farming too high. Cornfields can’t compete with
condominiums for land and the Missouri Valley can’t compete with the Silicone Valley for labor.

According to Blank, Americans will choose their best economic alternatives and will leave agriculture to the farmers of other countries. Americans will continue to be well fed, he says, we will simply import our food from other countries where it can be produced at a lower cost. We will exploit our comparative advantages, but they won’t be in agriculture.

Although Blank didn’t make an issue of it, if the multinational corporations succeed in gaining control of global agriculture, this scenario is quite plausible, if not inevitable. Under comprehensive corporate production contracts, agricultural producers become little more than landlords, tractor drivers, or hog house janitors. The corporation will select the crop and livestock genetics, will own the growing crop or livestock, and will make all of the important decisions – including where and with whom they choose to contract. These same corporations will control access to global commodity markets, and producers without contracts will not have access to those markets.

Multinational agribusiness corporations have no sentimental ties to family, community, or even to any given nation, because they are not real people and their stockholders may be located anywhere on the globe. They will simply move their agricultural operations, including contractual operations, to wherever on the globe they can make the most money, and increasingly, that will be somewhere other than in America. So, what will be the real cost of globalization to American farmers? Perhaps the cost will be the lost opportunity for farming in America, at least farming in the sense that we have known farming in the past. The end of the “American farm” could well be one of the “real” costs of globalization.

Maybe America won’t quit producing food, but the U.S. in the future could well become as dependent on the rest of the world for food as we are
today for oil. Economists argue that it doesn’t matter where our food is produced. If producing it elsewhere in the world will be cheaper, we will all be better off without agriculture in the U.S., so they say. But how long will it be before an OFEC (Organization of Food Exporting Countries) is formed to restrict world food supplies causing our food prices to skyrocket – as we have seen OPEC do with our energy prices in the past. Even more important, we have only a few days supply of food in the “food pipeline” at any point in time. The disruption of global food supplies, even for a short period of time, could have devastating consequences for millions of people.

Perhaps we could keep our food imports flowing – through our military might, if economic coercion fails. But, what will be the real costs? How many more terrorist attacks might we expect as a consequence of our global food policy? How many small wars will we feel compelled to fight? How many people will be killed to support a global food system? The highest “real” costs of globalization may be paid in human blood.

Even if America somehow maintains its food security, nations with less productive resources are almost certain to become subject to “nutritional blackmail” in the new global economy. Those nations that have food inevitably will threaten to withhold it from those who do not, as the U.S. has withheld food from our “enemies” in the past. Even more important, those corporations that will control global food production in the future will use their new-found power to shape national policies in every nation of the world, including America.

With the multinational corporations in control of the global food supply, the resources of no nation will be secure from exploitation. There will be no effective limits to their ability to exploit, pollute, and destroy. And almost certainly, with corporate control of the food economy, food prices are far more likely to rise than to fall, and those without the means to pay the higher prices will be more likely to starve. A major cost of globalization
The Real Costs of Globalization

may be the loss of food security – for people of both the rich and the poor nations of the world.

Finally, what are the costs of globalization of the food system to global society? The answer, quite possibly, is the sustainability of human life on earth. The question of sustainability is: how can we meet the needs of all people of the present, while leaving equal or better opportunities for those of the future? The answer to the question of sustainability is, through systems of production and distribution that are ecologically sound, economically viable, and socially responsible. Globalization is a strategy designed for short-run economic exploitation, not for long run societal sustainability.

A sustainable food system, to be ecologically sound, must work in harmony with nature – not attempt to dominate or conquer nature. Nature is inherently diverse. Diversity in nature is necessary to support life within nature. “Boundaries” in nature define the diversity of landscapes, life forms, and resources needed to support healthy, natural, sustainable production processes. Fence rows, streams, and ridges define unique agroecosystems within which nature can sustain different types of human enterprises. Globalization will remove the fence rows, divert the streams, and level off ridges, to facilitate standardization and homogenization of production processes. The natural boundaries needed for sustainability will be removed to achieve greater economic efficiency. A “real” cost of globalization to society will be the loss of ecological sustainability.

A sustainable food system, to be socially responsible, must function in harmony with human “communities,” including towns, cities, and nations. Humanity is inherently diverse. Diversity among people is necessary for “interdependent” relationships – relationships of choice among unique, independent individuals. Although we have our humanity in common, each person is unique, and we need unique human “communities” within which to express our uniqueness. Social and cultural boundaries define
Those “communities” – towns, states, and nations. Globalization will remove those boundaries and will homogenize global culture and society. The natural boundaries needed to sustain social responsibility will be removed to achieve greater economic efficiency. A “real” cost to humanity will be the loss of social sustainability.

A sustainable food system, to be economically viable, must facilitate harmonious relationships among people and between people and their natural environment. The inherent diversity of nature and of humanity must be reflected in diversity of the economy. Although potential gains from specialization are real, such gains are based on the premise that people and resources are inherently diverse, with unique abilities to contribute to the economy. Competitive capitalism is based on the premise that individual entrepreneurs make individual decisions and accept individual responsibility for their actions. If globalization is allowed to destroy the boundaries that define the diversity of nature and people, then it will destroy both the efficiency and sustainability of the economy. A “real” cost of globalization to humanity may well be the loss of long run economic viability.

The “true” costs of globalization quite simply are too high to pay. But what can we do to avoid paying these costs? How can we stop globalization? First, we can help people realize that the undeniable existence of a global ecosystem, a global society, and a global economy does not justify “economic globalization” – i.e., the removal of all economic boundaries. Natural boundaries are necessary to ensure ecological integrity. Cultural boundaries are necessary to ensure social responsibility. And economic boundaries are necessary to ensure long run economic viability. Without boundaries, the biosphere would be left without form, without structure, without order, and without life.

Every nation has both a right and a responsibility to protect its people and its resources from exploitation, just as every person has a right and
responsibility to protect their person and property from exploitation. Globalization would deny these most fundamental of human rights to the “communities” of people that constitute the nations of the world. People need to have healthy relationships with each other and with the earth, but healthy relationships are relationships of choice, not relationships of coercion. Global society needs a world forum, such as the WTO might be – not to remove boundaries, but to ensure that every person of every nation is protected from economic exploitation. To avoid the high costs of globalization, we must reclaim our rights to individual and national sovereignty.

Other things we can do to fight globalization are more tangible and practical. For example, we can all help develop more sustainable, local alternatives. Thousands of farmers and consumers all across North America are already joining forces to develop more sustainable, local food systems. These people come together regularly within local communities at farmers markets, CSAs, community gardens, and other venues where farmers and consumers meet around food. In addition, the number of large conferences in recent months, bringing farmers and consumers together around common concerns for food safety, nutrition, environmental quality, social justice, and other issues of sustainability, indicate a growing interest in local food systems. Farmers can give priority to local markets in developing more sustainable farming systems. The rest of us can buy as much of our food as possible from local farmers. We can all help to develop a local, sustainable alternative to globalization. Much of the rest of this program will focus on ways to help make this positive vision a future reality.

Supporting local food systems doesn’t mean that we have to give up oranges, bananas, coffee, or things that can’t be produced locally. Trading when we are “free not to trade” can be beneficial to all concerned. We simply need to buy and sell locally to the extent necessary to maintain the sustainability of our local food system. We can
and should continue trading with those in other regions and other nations to help ensure the sustainability of agriculture everywhere on the globe. It’s just that relationships among regions and nations must be “interdependent,” rather than “dependent,” if the global food system is to be sustainable. We must maintain boundaries to maintain our identity, our integrity, and our ability to act interdependently.

It would be easy to be skeptical about the possibility of success of local food systems – such systems currently make up such a small part of the huge global food system. Farmers and consumers may seem too few and too weak to confront the giant global food corporations. However, the trend toward a global food system, occurring over the past several decades, took place one farmer and one customer at a time. One-by-one, as farmers changed what they produced, and where they sold their products, and as consumers changed what they ate, and where they bought their food, a food system that had been local became global. Again, one-by-one, we can and must make the changes needed to create a sustainable, local food system.

Will we succeed in avoiding the high costs of globalization? I don’t know if we will, but I know it is possible, and thus, I have hope. Hope is not the expectation that something good is destined to happen, or even that the odds favor something good, but rather, that something good is possible. I know that something better than globalization is possible. It is this very real “possibility” of a sustainable, local food system that gives farmers and consumers the courage to challenge globalization, with everything from protesting in the streets to buying and selling locally. Regardless of whether we ultimately win or lose in this struggle, life is simply too precious to live without hope.

[2] John Ikerd is Professor Emeritus, University of Missouri, Columbia, MO – USA. E-mail: JElkerd@AOL.COM  web site: http://www.ssu.missouri.edu/faculty/jikerd

Reclaiming the Soul of Food and Farming

John Ikerd

Webster defined the “soul” as the “immaterial essence, the animating principle, or actuating cause” of life. For something to have a soul, using this definition, it must first have life, but it must also be something more than purely physical in nature. It must have a nonmaterial, abstract dimension – something conceptual that defines the principles of its life and its purpose for living.

Eating and farming are living processes. And in times past, at least, both food and farming were considered metaphysical, as well as physical, in nature. All life was a miracle, a gift from God – not just the product of physical evolution from some past biological accident. Food not only was the physical essence of life, but it was a central focus of family, community, and worship – of our connectedness with each other and with the Holy. To farm meant to be an active participant in the miracle of life and to be a caretaker of the earth, the root of all life. Certainly, the soul of things like food and farming is something fundamentally different from the soul of a human being. But there was a time when food and farming were important sources of spiritual, as well as physical, sustenance for humanity.

Over time, however, the “soul” of food and farming has been lost. In our preoccupation with the physical and material, we have lost our sense of the spiritual. In our quest for ever more food, clothing, shelter, transportation, health care, education, entertainment, etc. to make life easier we have lost our sense of the value of friendship, stewardship, purpose, and meaning in making life better. In our unending quest to make farming more efficient, to produce more food at a lower cost, we have taken the “soul” out of farming. In our unending quest for food that is quick, convenient, and cheap, we have taken the “soul” out of food.
As we took the “soul” from food and farming, we also took its heart. In our never-ending quest for cheap food, we transformed American Agriculture from a system of small, diversified, independently operated, family farms into a system of large-scale, industrialized, corporately controlled agribusinesses. The production technologies that supported specialization, mechanization, and ultimately, large-scale, contract production, were all developed to make agriculture more efficient – to make food cheaper for consumers. Millions of farm families have been forced off the land and many of those remaining are sacrificing their independence. Thousands of small farming communities have withered and died -- all for the sake of cheap food.

We’re told this destruction of rural culture was an inescapable consequence of economic progress. The “agricultural establishment” has boasted loudly that ever fewer farmers have been able to feed a growing nation with an ever-decreasing share of consumer income spent for food. The increases in economic efficiency have been impressive, but what about the human costs? What is the value of the lives of farm families that have been destroyed by the loss of their farms, their way of life, and their heritage? What is the value of the lives of rural people – with roots in rural schools, churches, and businesses – who were forced to abandon their communities as farm families were forced off the land?

As we took the “soul” out of food and farming, we degraded the natural environment. Today, only the most diehard industrialists bother to deny that we have depleted the productivity of the land through erosion and contamination, and that we have polluted the natural environment with agricultural chemicals – in our never-ending pursuit of cheaper food. Certainly, we had soil erosion in the “dust bowl” days, but we were making great strides in soil conservation, before the dawning of industrial agriculture in the late 1940s. In spite of stepped up soil conservation efforts during the 1990s, American farms still are losing topsoil at rates far
exceeding rates of soil regeneration. Feeble efforts to control soil loss through reduced tillage leave farmers increasingly reliant on herbicides that pollute our streams and groundwater and that disrupt or destroy the biological life in the soil.

We are told that farmers still have a strong sense of stewardship, that they are environmentalists at heart. Perhaps this is true, but many farmers have felt compelled to do whatever was necessary to survive the relentless competitive pressures in an agricultural industry driven by the economic bottom line. Many will admit that they are doing things to the land that they don’t want to do, but feel they have no choice. The gains in economic efficiency have been impressive, but what about the ecological costs? What is the value of the health and productivity of the land? What is the value of maintaining the ability of the earth to support human life?

As we took the “soul” out of food and farming, it has come increasingly under corporate control. The multinational food corporations that increasingly control agriculture today are not people – they have no heart, no soul, nor citizenship in any particular country. Once decision making becomes separated from ownership and responsibility, as it is in publicly held corporations, economics becomes the sole motivation. Corporations have no sense of good or evil or of right or wrong, they can only do what they were designed to do – make profits and grow. Thus, with the globalization of agriculture through “free-trade” agreements, food in the future will be grown wherever in the world it can be produced at the lowest economic cost and sold wherever it yields the greatest economic return.

Increasingly, food will be produced somewhere other than in North America and Europe. High costs of land and labor – consequences of favorable employment opportunities and rural residential development -- will keep production costs in the more economically developed countries well above costs in the less developed food producing regions of the world. Increasingly, lower costs of land and labor in countries such as
Argentina, Brazil, China, and South Africa will be exploited by agribusiness corporations to provide cheap food for affluent consumers in North America, Europe, and elsewhere.

A global agriculture might produce still more food at a still lower cost – although, increasing market power of corporations may ensure that lower production cost benefits investors far more than it does consumers. However, even with more food there would be no assurance of fewer people being left hungry. Historically, when a developing country begins to produce food for export, outside corporate investors benefit at the expense of local, independent farmers. Local indigenous farmers can’t compete with large-scale, industrial farming operations, and thus, are no longer able to sell their surplus production to generate cash income. Eventually, local farmers are forced to abandon farming as an occupation, but most will be unable to find jobs in the cities that pay enough to feed their families. The cities become flooded with displaced farm families. Indigenous people face increasing poverty and hunger. Greater agricultural production is not used to feed the poor, but instead, is exported to affluent consumers elsewhere. A corporate agriculture has no “soul.” Its responsibility is to its stockholders, not to the hungry, so it sells to those who are willing and able to pay the highest price.

Ironically, a heartless, soulless agriculture means food insecurity for the rich as well as the poor of the world. For example, the U.S. could someday become as dependent on the rest of the world for food as we are today for oil. Economists argue that it won’t matter where our food is produced. If producing food elsewhere in the world will be cheaper, we will all be better off without agriculture in the US. But how long will it be before an OFEC (Organization of Food Exporting Countries) is formed to restrict world food supplies causing our food prices to skyrocket – just as we have seen skyrocketing prices for gasoline in the past. Perhaps we in the U.S. can keep food imports flowing – through our military might, if economic coercion fails. But, how many terrorist attacks will we suffer as
a consequence of our global food policies, how many small wars will we have to fight, and how many people will we be “forced to kill?” How secure is food of any nation, rich or poor, after it loses the ability to feed itself?

As we took the “soul” out of food and farming, we have sacrificed our sense of connectedness with each other and with the earth, not just to save money, but also to save time and effort. The consequences of our efforts to make food quick and convenient are no less dire than are the consequences of our efforts to make food cheap.

Today, nearly eighty cents of each dollar Americans spend for food goes to pay for marketing services – processing, packaging, transportation, storage, advertising, etc. All of these costs are associated with making our food convenient – getting it into the most convenient form and package, getting it to the most convenient location, at the most convenient time, and convincing us to buy it. Today, we pay more to those who “package and advertise” our food than we pay to the farmers who “produce” it. So, we pay far more for the convenience of our food than we pay for the food itself. Those who complain about the rising cost of food should instead complain about the rising cost of convenience. Ironically, it seems that poorer people are even more susceptible to the promotion of highly processed and elaborately packaged foods, thus spending even more for convenience than do the affluent.

Our growing addiction to convenience is not only adding to our cost of food, but also is placing control of our food supply in the hands of a few giant, multinational corporations. Today, the global food distribution system is dominated by a handful of giant agribusiness firms, allied by various means to form four or five “global food clusters.”[3] These firms influence, and in many cases control, nearly everything that happens to our food after it leaves the farm. They control both food cost and our access to food because they control the processes that make our food
convenient.”

The consequences of *quick* food are similar in nature to the consequences of convenience food. Our growing addiction to “fast foods” is evident in the ever increasing share of our food dollar spent at restaurants and other eating establishments – a share approaching half of total food purchases. And, “fast foods” places, such as McDonalds, Kentucky Fried Chicken, Taco Bell, and Pizza Hut, account for nearly half of all food consumed away from home. Erick Schlosser, in his recent best seller, “Fast Food Nation,” addresses the cost of our “love affair” with fast foods. He states, “fast food has triggered the homogenization of our society. Fast food has hastened the malling of our landscape, widening of the chasm between rich and poor, fueled an epidemic of obesity, and propelled the juggernaut of American cultural imperialism abroad.”

Our quest for *quick* food has lured us into choosing diets deficient in nearly everything except calories, supporting practices deceptive in every aspect from advertising to flavoring, and food systems that degrade nearly everyone and everything involved in the process. The fast food industry has lured low-income consumers, along with the affluent, into paying ridiculously high prices for low-quality meats, potatoes, vegetable oil, and sugar. However, the high dollar-and-cent costs are but the tip of the iceberg. The true costs of quick food must include the costs of poor health, lost dignity in work, degraded landscapes, and ethical and moral decay in business matters, including international trade and investment.

We are left today with a “soulless” food and farming system that values nothing other than the physical and tangible – the things that can be measured by weight and volume and sold for dollars and cents. Our system of food and farming reflects no sense of vital motivation, living principles, or spiritual essence. It has even lost any true sense that food and farming are *living* processes – that eating and farming are even capable of being soulful activities. We are left with systems that are
motivated by profit and are carried out by mechanistic processes for purely materialistic purposes. We are left with systems of food and farming that have no soul.

The vital motivation for eating, and farming, is to sustain life. The root of all life, including human life, is in the soil. Air, water, and sunlight are essential to life, but no more essential than is the soil – the earth. All life on earth is interconnected, and in turn, is connected with the earth. The living things in the soil -- bacteria, fungi, nematodes, earthworms, etc. – live in a symbiotic relationship with the roots of plants. The living things above the soil – insects, plants, and animals, including humans – live in an interdependent relationship, with the health of one interdependent with the health of others, and the health of the soil. Healthy soils make healthy plants and animals, and healthy plants and animals make healthy people.

Most certainly, humans are not the only “consumers” on earth. In fact, all living things exist by consuming other living things, or at least by eating the remains of things that once were living. The waste of one living thing becomes the food for another, and some living things must die, becoming food, so that others may live. Microorganisms, insects, plants, animals, and humans are all part of an interdependent web of life. We humans are no less dependent on the health of microorganisms in the soil or wildlife in the forest than we are on the health of crops in the fields and the animals on the farm. And in turn, their well-being is dependent upon us – upon what we do to the water, the air, and the soil in the process of feeding ourselves.

When we lost the “soul” of food and farming, we lost this sense of this interdependence. Most people have no real sense of where their food comes from. They may be vaguely aware that farmers somewhere grow the food that they buy in their local supermarket or fast food restaurant. But, most people have no real sense of their connectedness with the earth, or of their dependence on the other living things on the earth. Few
people seem to realize that we are as dependent upon the land and upon farmers today as we were when everyone grew their own food.

We are destroying the ability of the earth to support life, including human life, because we have lost our sense of the immaterial essence and vital motivation for food and farming. Since we took the “soul” out of food and farming, we have been doing things that are destroying the future of humanity.

To sustain human life on earth, we must honor the basic principles of living systems – the necessity to renew, regenerate, and reproduce, as we consume. We must honor the soul of food and farming. All systems, both living and “dead,” have three basic characteristics: pattern, structure, and process. The pattern is the conceptual framework for the system. For a dead system – a tool, a machine, or a factory – the pattern is the blueprint or design. For a living system – a plant, animal, or person – the pattern is embedded in its genetic code or DNA. The pattern is constant, unchanging, or fixed for both dead and living systems. A machine always is a machine and a person always is a person.

A principle difference between dead and living systems is found in the structure. The structure of a system is the physical embodiment of the pattern. For dead systems the structure is the thing you see or touch – the tool, machine, building, etc. For a living system, the structure also is the thing you see or touch – the plant, animal, human body, etc. For dead systems, the structure is fixed – it can never change on its own. It may wear out or it may be rebuilt or redesigned, but it has no autonomous ability to change. A machine keeps its same physical structure for all of its useful life. However, the structures of living systems are continual changing. Living things are born, they grow, they mature, they reproduce, and they die. This continual change is a fundamental characteristic of life – living things are “self-making,” dead things are not.
Living and dead systems also differ in principle with respect to process. The processes by which dead systems perform their purpose or tasks are linear and sequential. The fundamental purpose of dead systems is to transform some input into a more useful or desirable output – step-by-step, from input to output. A person rides a bicycle to transform kinetic energy embodied in leg muscles into mechanical energy that turns the wheels and propels the bike down the road. An engine transforms the kinetic energy in fossil fuels into mechanical energy to perform some useful task. Input results in output. But, dead systems use up inputs in the process of producing output – they don’t regenerate, renew, or reproduce.

Living systems perform useful purposes or tasks as well, but living processes are renewing, regenerative, and reproductive as well as functional. Living processes are circular and simultaneous rather than linear and sequential. Living systems operate in cycles of birth, growth, and reproduction – before death. Function and regeneration occur simultaneously for living systems – they “remake” themselves in the process of fulfilling their purpose.

In summary, dead systems are designed to accomplish some purpose according to some blueprint or pattern, they function for the duration of their usefulness, and then they are either redesigned or discarded. On the other hand, the pattern and purpose of a living system in embedded in its genetic makeup, in its DNA. The processes of a living system include both functional usefulness and self-renewal. Living systems continually change and renew their structure in accordance with the unchanging genetic code embedded in their DNA.

When we lost the soul of food and farming, we lost any real sense of the necessity for living system to be self-sustaining – to be self-renewing, regenerative, and reproductive. We have developed “dead” systems of farming, turning non-renewable resources and finite inputs into...
consumable outputs, giving little consideration for their ability to recreate resources or recycle inputs, in order to sustain their productivity over time. When we consume food, we are “consuming” rather than “using” the resources of the earth. When we consume, without regenerating, we are participating in a process of exploitation that simply cannot be sustained over time.

We are destroying the ability of the earth to support life, including human life, because we have lost our sense of the animating principles of living systems for food and farming. Since we took the “soul” out of food and farming, we have been doing things that are destroying the future of humanity.

To sustain human life on earth, we must find ways to meet the needs of all in the present, while leaving equal or better opportunities for those the future. We cannot sustain our systems of food and farming if we continue to focus only on meeting the needs of those who are willing and able to pay for food. Food systems must be profitable for today’s producers, but free markets will not meet the needs of those who are unable to pay, nor will free markets meet the needs of those of future.

The poorest of the poor cannot compete in the market place for food. If the basic food needs of all are to be met, we, as a society, must make conscious, purposeful decisions to do so. Those of future generations cannot even participate in today’s market place. Thus, they cannot buy resources to set aside for their future use. Nor can those of the future vote in today’s public referendums through which we might set aside resources for their future use. If the needs of the future are to be met, we, as a society, must make conscious, purposeful decisions to do so.

We, as a society, will not make the conscious, purposeful decisions needed to ensure sustainability until we reclaim the spiritual essence of food and farming. We must recognize that eating and farming are
something more than mechanical and biological processes – eating and farming are ethical and moral acts. Admittedly, food and farming have no “spiritual essence,” per se, but farmers and eaters do. Our concerns for the sustainability of life on earth are fundamentally ethical and moral concerns. Our eating and farming choices are means of reflecting our ethics and morality – of expressing our uniquely human spirituality.

Our concern for sustainability must arise from a belief in a “higher order of things” – a belief that we are but parts of something meaningful that is bigger than ourselves. The purpose of anything, including a human life, can be determined only from the perspective of the larger whole of which the thing is but a part. For example, a doctor may be able to describe the function of the human heart or brain – to pump blood or process electrical impulses – but the purpose of these organs cannot be determined without considering the body as a whole. The human body represents a higher order of things within which the heart and brain acquire purpose or reason for their functions.

Likewise, the purpose and meaning of our life is not embodied in us individually, nor can it be derived from our relationships with others, but instead, arises from our place within a larger, intangible whole -- a higher order of things. The purpose and meaning of life must come from that which transcends life – that which is beyond or above us – from our spiritual essence. Without this higher sense of purpose and meaning, we will choose to care only for ourselves, or for those whom we love, and will not make choices to care for those whom we don’t know or can never know.

Moral and ethical decisions are a reflection of our spiritual essence – our innate sense of good and bad, of right and wrong – that distinguishes between actions that are in harmony with the higher order and those that are not. Without a clear sense of spirituality, we will not make conscious, purposeful decisions to ensure that the basic food needs of all are met,
regardless of their ability to pay. Without this sense of soulfulness, we will not make conscious, purposeful decisions to leave those of future generations with opportunities to have as much food and as good a food as we have today. We must reclaim the soulfulness of food and farming or we will not make the decisions necessary to sustain human life on earth.

Our soulfulness allows us to see our lives are made better by caring for other people – by helping those who are less fortunate than ourselves. Our soulfulness allows us to see that our own lives are made better by being responsible stewards of the resources of the earth – for the benefit of future generations. These things give purpose and meaning to our lives – they help us live in harmony with the higher order. We benefit from living more spirit-filled lives.

The sustainability of human life on earth is undeniably a question of human spirituality. The Golden Rule, a fundamental aspect of every enduring religion of the world and of most philosophies, is a clear reflection of human spirituality. “Do unto others as you would have them do unto you,” is a prescription for righteous living – for living in harmony with the higher order. It implies that we must have self-respect, as well as respect for others. Otherwise, how we are treated, and thus, how we treat others just doesn’t matter. But, the Golden Rule commands that we must make conscious, purposeful decisions to care for others, as we would have them care for us.

The Golden Rule does not imply that we can choose to leave other people to fend for themselves simply because we are able to fend for ourselves. It says that we must care for those who are without means to care for themselves, as we would have them care for us, if we were without means to care for ourselves. Lives lived in isolation and in denial of responsibility have no purpose or meaning – they perform no function within the higher order. Thus, caring for others is not a sacrifice; instead, it helps give
purpose and meaning to our lives.

The concept of sustainability extends the Golden Rule across generations. Sustainability requires that we not only care for others of this generation but that we “do for those of future generations as we would have them do for us” – if we were of their generation and they were here today. With an attitude of soulfulness, we recognize that being stewards of resources for the benefit of future generation is not a sacrifice; instead, it helps give purpose and meaning to our lives.

Benjamin Franklin concluded, in his later years, that commandments, such as the Golden Rule, “are not good for us because they are commanded, but instead, are commanded because they are good for us.” In other words, the Golden Rule is enduring and widely acclaimed today because it has proven to be a “better way to live.” Following the Golden Rule is not a sacrifice; instead, it defines a life of purpose and meaning. Living sustainably is not a sacrifice; instead, it defines a life of purpose and meaning. To sustain human life on earth, we must reclaim the soul of food and farming – the vital motivation, the living principles, and the spiritual essence.

But, how do we reclaim the soul of food and farming? First, we must change the ways we think. We must recognize our complicity in the ecological and social destructiveness of our current food and farming systems and accept personal responsibility for our actions. We need not be repentant for every time we have shopped at a retail super center or have eaten at a fast food restaurant, and we need not boycott such establishments in the future. At times, there may be no logical alternatives. But, we simply must recognize that each time we spend a dollar at Wal Mart or Mac Donald’s, we are helping to support a system of food and farming that is degrading the future of humanity.

As farmers, we must accept our complicity in supporting a system of
production that lacks ecological and social integrity and accept personal responsibility for our actions. We need not repent for every crop of corn or soybeans we have planted, or every batch of hogs or chickens grown in confinement, and we need not pledge to grow only organic crops and grass-fed livestock in the future. At times, we may see no logical alternatives. But we simply must recognize that as long as we pursue conventional, industrial systems of farming, we are supporting a system of farming that is degrading the future of humanity.

We must realize that our individual thoughts and actions have social and ecological consequences. What we think and what we do matters – matters not just to us, but also to others of this generation and for all generations of the future. We must reclaim a sense of food and farming as a source of our connectedness with each other and our connectedness with the earth. Our mothers were right when they told us “we should clean our plates, because the little children in China were starving.” Maybe, there was no “logical” connection between our being appreciative of our food and hunger in other parts of the world, but there was a spiritual connection.

As we grew up, we concluded that it didn’t matter how much food we threw away. We could not reasonably be expected to give our surplus food to the hungry children in other countries – there was no logical way of doing it. But, as a consequence, we lost some of our appreciation for what we had, we lost some of our concern for what others did not have; and the disparity between the haves and havenots of the world grew. It couldn’t be our fault, we reasoned, we couldn’t see any logical connection between our lives and theirs. But, there are spiritual connections among all children of the world – our mothers understood. And, there are spiritual connections among all people of the world. What we think and what we do matter. By changing what we think and what we do, we can change the world.
Perhaps we can’t change the world by ourselves, no matter what we think or do. But, we can each do our part. We can begin to reclaim the soul of food through more spiritual eating. We can be ever conscious that our eating choices reflect and affect our connectedness with the other living and nonliving things, and that we are all parts of some higher order of things. We can eat more meals with others – with family members, with old friends and new friends – and thereby, strengthen our connectedness with other people. We can do more preparing of our own meals “from scratch,” and thereby, strengthen our connectedness with the other life that supports our life. We can grow more of our own food or buy more directly from the farmers who grow it, and thereby, strengthen our connectedness with the land.

We can reclaim the soul of food and farming by doing everything that we can to support food and farming systems that are self-making, regenerative, and thus, sustainable. As eaters or as farmers, we can all help develop and support more sustainable, local alternatives to the corporately controlled, global system of food and farming. We can join with thousands of farmers and consumers all across North America who are developing more sustainable, local food systems. These people come together regularly within local communities by means of farmers markets, Community Supported Agriculture associations (CSAs), community gardens, and at other venues where farmers and eaters meet through their common interest in food. We can connect, though less personally, through locally owned restaurants and grocery stores that buy from local farmers and cater to ecologically and socially conscious consumers.

We don’t have to give up oranges, bananas, coffee, or things that can’t be produced locally in order to support local food systems. “Free trade” can be beneficial to all concerned – when “all are free to either trade or not trade.” We should do everything we can to ensure that the things we buy do not support the exploitation of people, by knowing the conditions under which “all” of our food is grown. We can and should continue trading with
those in other regions and other nations whenever doing so will help ensure the ecological, social, and economic sustainability of their agriculture. Ultimately, agriculture must be sustainable for people everywhere or it can’t be sustainable for people anywhere.

As farmers and as eaters, we must begin to think and act as “whole people” – with physical, relational, and spiritual dimensions. To reclaim the soul of food and farming we must accept our God-given responsibilities for each other and for the earth. Jesus said, “as you did to one of the least of these, you did to me.” When we show lack of respect for the sheep, we show lack of respect for the Shepherd. The Holy Bible states, “the earth is the Lord’s, and the fullness thereof.” When we show lack of respect for the creation, we show lack of respect for the Creator.

As we reclaim the soul of food and farming, we will begin to reclaim the spiritual essence of our own lives. We will begin to understand that all people have an inherent right to sufficient food to ensure their normal physical and mental growth and well-being. We will begin to understand that people of future generations have a right to food -- to an opportunity for as much and as good as we have today. We will begin to understand that the food we eat and the ways we farm have impacts on other peoples' opportunities for food, both today and in the future. We will begin to understand that the sustainability of human life on earth could very well depend upon the choices we make today.

We will develop a conscience with respect to food and farming. We will become more thoughtful eaters – realizing and appreciating the miracles of life embodied in the food that we eat. We will become more thankful eaters -- thankful to God not only for those who grow and prepare our food, but also for the plants and animals that give their life so we may live. We will become conscious that there are morally and ethically right and wrong things to eat and right and wrong ways to farm.
We will come to understand that our lives gain purpose and meaning as we meet our God-given responsibilities to make conscious, purposeful decisions to help take care of other people and to help take care of the land. We will come to understand that the quality of our life depends as least as much on the quality of our relationships and on our commitment to stewardship as on our individual "standard of living." As we reclaim the soul of food and farming, we will rediscover the vital motivation, the living principles, and the spiritual essence of our lives. In reclaiming the soul of food and farming, we will rediscover the essence of our own soul.


[2] John Ikerd is Professor Emeritus, University of Missouri, Columbia, MO – USA. E-mail: JEIkerd@AOL.COM web site: http://www.ssu.missouri.edu/faculty/jikerd

We are witnesses to the end of an era in American agriculture – some go so far as to call it the “end of the American farm.” Agriculture, at least as we have known it, may well be coming to an end. This picture of the future may not seem very pretty, but it is a real possibility. This picture is not unique to Kentucky farms, to tobacco farms, or even to American farms. The same basic trends now dominate agriculture in all of the developed economies of the world. If there is to be a bright future for farming in America, or in Kentucky, we will have to paint a new picture – a picture of the “new American farm.”

Since the end of World War II, American agriculture has been dominated by the process of industrialization. The process actually began in the early 1900s, with the introduction of agricultural mechanization. However, most farms of the 1930s and early 1940s were not all that different from farms at the turn of the century. Horses were still the dominate source of farm power, livestock manure and crop rotations were still the recommended means of maintaining soil fertility and controlling pests, and thus, small, diversified family farms were still the norm. However, wartime technologies heralded a new era in agriculture. In the late 1940s, factories that had made tanks for the war started turning out tractors for farms. Factories that had been designed to make gun power started turning out cheap nitrogen fertilizers instead. And technologies developed for chemical warfare were redirected to the development of agriculture pesticides. With these new “tools,” agriculture could finally be industrialized – a farm could be made to run like a factory.

For at least the past fifty years in America, we have been promoting the industrialization of agriculture. Farmers were encouraged to specialize – first to specialize in livestock or crops, then in specific livestock species or
crops, and finally in a specific phase of livestock or crop production. Farm policies and agricultural technologies were designed to encourage specialization. Increased mechanization, along with more sophisticated use of commercial fertilizers and pesticides, made the agricultural production process more controllable. Crops were irrigated and animals were brought indoors, into confinement, to remove the uncertainty of weather. Production processes could now be standardized, making field and feedlots work like “biological assembly lines.” Finally, through specialization and standardization, agricultural production was simplified, routinized, and mechanized so that land previously supporting many small farms could now be consolidated into larger and larger farming operations.

The final stage of industrialization is consolidation of control – in order to achieve the economic efficiencies from large-scale, specialized production. Over the past several decades, we have seen industrial consolidation in terms of ever-fewer farmers and ever-larger farms. Today, we see the final phase of agricultural consolidation, the corporate takeover of agricultural production – in some cases through outright ownership, but in most cases through contract production. Individually owned and operated family farms quite simply are no longer large enough to compete in an increasingly global agricultural economy.

If there is to be a future for farming in America, it must be in a new and different kind of American farm. America simply can’t depend on corporate farming – even if contract farming were made an acceptable way of life, which rarely is the case today. As costs of land and labor in the U.S. continue to rise, as they almost certainly will, multinational corporations will simply move their farming operations to other countries. Strong residential demand for land and good off-farm employment opportunities ultimately will destroy the ability of America to compete in the race “to the bottom” – the race among countries to produce food at the lowest dollar and cent cost. It there is to be a future in farming in America it must be in a new type of farming – a “new American farm.”
This new type of farming will require a fundamentally different way of thinking about farming. The industrialization of agriculture is the physical manifestation of a “mechanistic” worldview. The mechanistic way of thinking about the world goes back more than 400 years, to the “age of enlightenment” and the “birth of science.” Rene Descartes, a Frenchman, suggested that the world worked like a “big complex machine” – specifically like a big clock – with many interrelated but separable parts. Sir Isaac Newton, an Englishman, built upon Descartes’ ideas and developed many of the fundamental principles of modern mechanical physics.

At first, the then new principles of physics were used only in dealing with “dead things” – inanimate materials, such as water, minerals, gases – as Descartes had suggested was their appropriate use. Over time, however, scientists began to use the same principles to study and to manipulate “living things” – even “thinking things,” such as human beings. Today, modern science treats all things as if they were mechanistic, including living things -- plants, animals, and humans. Muscles and bones are nothing more than a complex system of levers and pulleys, the circulatory system a complicated plumbing system with pumps and valves, and the mind, a sophisticated computer with electrical circuits and connections.

This mechanistic world view lead to the many marvels of today’s world of science. It provided the conceptual foundation for the industrial era of human progress. Machines could duplicate, extend, and eventually replace the productive processes of nature. Factories could be built that would use machines, fossil energy, and human labor to transform various raw materials into useful finished products, such as nature uses plants and solar energy to transform minerals from the earth into food and fiber. People were no longer dependent on nature. They could “manufacture” the things they needed or wanted. They didn’t have to wait for nature to provide them.

The industrial era brought many benefits. It removed much of the
drudgery from day to day life, it challenged the then constant specter of starvation, and it suppressed diseases to extend human life. Few would willingly choose to return to a pre-industrial society. However, in the past few decades, we have begun to realize that treating “living” things as if they were “dead” has inherent negative consequences. In fact, nearly every social ill of today can be traced to the emotional separation of people, to the destruction of family and community, or to domination of the masses by the few – all consequences of a specialized, centrally-controlled economy. Nearly every environmental problem of today is a consequence of separating people from the land, the earth, and then treating an inherently diverse and dynamic natural ecosystem as if it were a specialized, standardized, controllable manufacturing process. The economic problems that today confront individually owned and operated small businesses are all direct consequences of consolidation of economic power and control during the industrial era. And, nowhere are these social, ecological, and economic problems more evident than on American farms.

A farm is a living organism – soils, plants, animals, people, all are living, growing organs. The social, ecological, and economic problems of American agriculture today are all direct consequences of treating the soil, plants, animals, and people as if they were separable, replaceable, mechanistic parts of some sort of sophisticated “biological factory.” The current “biotech craze” in the scientific community is but the latest product of an outdated worldview that life is nothing more than a sophisticated mechanical process. A farm is a living organism. And, farmers are real live, breathing, thinking, caring, people. Solutions to the current problems of American agriculture will require new ways of thinking – a new “living” worldview.

Machines are manmade; they are designed to perform specific functions to achieve a specific purpose. They may be well maintained, but all machines eventually wear out. Worn out machines must be discarded and may or may not be replaced. Living things are born, germinate, hatch, or
otherwise come to life. As they grow and mature, they learn to perform various functions to fulfill their purpose in life. They may be well nurtured, but all living things eventually die. Before they die, however, living things have the capacity to reproduce themselves.

Living things are “self-making” – they have the capacity to grow and reproduce; dead things cannot. Thus, living things are dynamic; they are ever changing. However, the pattern of a living thing, its DNA, remains unchanged throughout its life. A human is always a human through all stages of life – whether it’s a bouncing baby, a strong mature adult, or a feeble “senior citizen,” it’s the “same” human. However, if the various parts of our bodies were surgically separated and laid side by side on an operating table, our life, the essence of who we are, obviously would have been destroyed. A living organism is more than the “sum of its parts” – living organisms are inseparable, holistic. Dividing an elephant into a dozen pieces obviously doesn't result in a dozen little elephants.

Farms are living organisms; they are regenerative, dynamic, and holistic. They are not machines or factories. If there is to be a future for farming in America, our ways of thinking about farming must reflect their dynamic, regenerative, and holistic nature. We must have the courage and wisdom to abandon the old, mechanistic worldview and adopt new, organismic ways of thinking about farming.

The new American farm will require, and will help create, a new rural culture. Farms do not exist in isolation. They are connected not only by their reliance on off-farm inputs and off-farm markets, but also by their connectedness with the places and people, which surround them. Just as plants, animals, and farmers are parts of holistic farming systems, farms in turn are parts of rural landscapes and rural communities. The past preoccupation of many farmers with production and profits was, in no small part, a reflection of an economically dominated, industrial rural culture. It has become the “conventional wisdom” in many rural communities that the most successful farmers are those who have
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managed to survive by mining the soil, degrading the environment, taking advantage of consumers, and competing with their neighbors. If there is to be a future in farming in America, we must paint a new picture of rural communities, of a more holistic, life-centered rural culture – one that values “quality of life” over “standard of living.”

Quality of life is not just a matter of pursuing our economic self-interests – of earning income and accumulating wealth. Certainly, our quality of life is affected by our ability to meet our individual, physical and sensory needs – the essence of economic achievement. However, we humans are “social animals” – people need other people. Our quality of life is affected by the quality of our relationships with other people, within families and within communities – communities both of place and of interests. Our relationships have value, regardless of whether they result in anything of economic value. The value of love among people is truly priceless. People also are moral and ethical beings – we are spiritual, by nature. The quality of our life is affected by our sense of “right living.” We need to know that our lives have purpose and meaning – that we are living in harmony with some higher order of things.

Certainly, we benefit from being able to care for ourselves, to the extent that we are capable of doing so. The quality of our life is enhanced by economic sufficiency and security. However, the quality of our life is not diminished by our concerns for others. Caring for other people is not a sacrifice; it is a privilege. Our relationships with others, within families and communities, are important to our own quality of life. Neither is the quality of our life diminished by our concern for the natural environment. Stewardship, of the land, of the earth, is not a sacrifice; it is a privilege. Our relationship with the earth, with God’s creation, helps give purpose and meaning to our lives. Caring for those of future generations is part of our purpose for being. The personal, the interpersonal, and the spiritual all are important dimensions of our quality of life. Our economic, ecological, and social relationships are all important to our well-being. The picture of the new American farm must be a part of a larger picture of a
new rural culture, and a new human society.

The new American farm is emerging from our search for sustainability – for a way of farming that can meet our needs of the present, while leaving equal or better opportunities for those of the future. Sustainable agriculture probably is viewed by most people as an environmental issue. And in fact, many questions concerning sustainability do have their roots in the environmental movement. The concept of “sustainable agriculture” was first promoted in the public policy arena during the 1980s by the organic farming community – led by the Rodale Institute, a long-time advocate of environmental causes. So, it’s only natural for people to relate sustainability with the environmental movement.

However, sustainable agriculture gained its initial credibility in the public policy arena as an economic issue. During the farm financial crisis of the 1980s, American farmers were caught in a financial squeeze between chronically depressed commodity prices and continually rising costs of production inputs – fertilizers, pesticides, fuels, etc. The organic farming community had been lobbying, without much success, to get the USDA to support research and education programs that would reduce, if not eliminate, farmers’ reliance on commercial chemical inputs. A compromise between conventional farmers, who wanted to reduce input for economic reasons, and organic farmers, who wanted to reduce inputs, for philosophical reasons, resulted in the USDA’s LISA (Low Input Sustainable Agriculture) research and education program.

The agribusiness community openly opposed the LISA program. They were not going to support any government program that might reduce the farmers’ reliance on their products and decrease their profits. They used everything from making jokes about the LISA name, to raising the specter of mass starvation, to phony “research plots” using “no fertility or pest management” to represent LISA farming systems. In defense, the USDA changed the name of the program to Sustainable Agriculture Research and Education (SARE) and shifted the focus from reducing inputs to long
run sustainability.

The social dimension of sustainable agriculture rose to public awareness out of the SARE program. Sustainable agriculture was defined in the SARE legislation as systems of farming that, among other things, would “enhance the quality of life for farmers and society as a whole.” In the legislative discussion, “quality of life” was defined to mean, to "increase income and employment -- especially self-employment -- opportunities in agricultural and rural communities and to strengthen the family farm system of agriculture, a system characterized by small and moderate sized farms which are principally owner operated" (Congressional Record 10/22/90:H11128). Thus, sustainable agriculture was defined to include social responsibility – to increase self-employment opportunities in rural communities and on owner-operated, small- and moderate-sized, family farms.

Thus, sustainable agriculture is about environmental integrity, about economic viability, and about social responsibility, but ultimately, it’s about people. The fundamental purpose of agriculture is to meet the needs of people – to tip the ecological balance in favor of humans relative to other species. However, agriculture is rooted in nature – in soil, air, water, plants, animals, and the other elements of natural ecosystems. The earth and everything upon the earth, including people, are parts of that living, natural ecosystem. And, according to the fundamental principles of ecology, if we attempt to tip the balance of nature in favor of humans too far or too fast, we will destroy the integrity of the ecosystems of which we ourselves are a part.

The three dimensions of sustainability are not a matter of formal definition or legal precedent, but are a matter of common sense. If the land loses its ability to produce, the farm will not be sustainable. If the farmer goes broke, the farm will not be sustainable. And if a system of farming fails to support society, it will not be supported by society, and thus, it will not be sustainable. The economic, ecological, and social dimensions of
sustainability are like the three dimensions of a box. All are necessary but none is sufficient. A box that is lacking in height, width, or length, quite simply is not a box. A farming system that is lacking in ecological integrity, economic viability, or social responsibility, quite simply is not sustainable.

Ultimately, sustainable farming is about enhancing the “quality of life” of people. The economic, social, and ecological dimensions of sustainable agriculture are analogous to the personal, interpersonal, and intergenerational dimensions of quality of life. A sustainable farm contributes to a desirable quality of life for farmers, for people in rural communities, for society in general, both for those of this generation and for all generations to come. A sustainable farm contributes to the physical, mental, and spiritual well-being of farmers, of people in rural communities and for society in general, both now and in the future. The new American farm is emerging from farmers’ searching for a higher “quality of life.”

There are literally thousands of these new sustainable farmers, all across the continent, creating new and better ways to farm. They may call themselves organic, biodynamic, holistic, ecological, natural, practical, or just plain family farmers, but they are all farming by the basic principles of sustainability. At least three regional “sustainable agriculture” conferences in the U.S. regularly draw from 1200 to 1500 farmers each year. Several more conferences draw from 300-500 per year, and the number with 100-200 in attendance are too many to count. Perhaps more important, their numbers, their enthusiasm, and their optimism for the future seems to be growing each year. These farmers are on the frontier of a new and different kind of agriculture. Certainly, they face struggles and hardships and there are failures along the way. Life is rarely easy on any new frontier. But, a growing number are finding ways to succeed.

While there are no “blueprints” for the New American Farm[3], some basic characteristics are emerging. First, these farmers see themselves as stewards of the earth. They are committed to caring for the land and
protecting the natural environment. They work with nature rather than try to control or conquer nature. They fit the farm to their land and climate rather than try to bend nature to fit the way they might prefer to farm. Their farming operations tend to be more diversified than are conventional farms – because nature is diverse. Diversity may mean a variety of crop and animal enterprises, crop rotations and cover crops, or managed livestock grazing systems, depending on the type of farm. By managing diversity, these new farmers are able to reduce their dependence on pesticides, fertilizers, and other commercial inputs that squeeze farm profits and threaten the environment. Their farms are more economically viable, as well as more ecologically sound, because they farm in harmony with nature.

Second, these new farmers build relationships. They tend to have more direct contact with their customers than do conventional farmers. Most either market their products direct to customers or market through agents who represent them with their customers. They realize that as consumers each of us value things differently because we have different needs and different tastes and preferences. They produce the things that their customers value most, rather than try to convince their customers to buy whatever they produce. They are not trying to take advantage of their customers to make quick profits; they are trying to create long-term relationships. They market to people who care where their food comes from and how it is produced – locally grown, organic, natural, humanely raised, hormone and antibiotic free, etc. – and, they receive premium prices by producing what their customers value. Their farms are more profitable as well as more ecologically sound and socially responsible.

These new farmers challenge the stereotype of the farmer as a fiercely independent competitor. They freely share information and encouragement. They form partnerships and cooperatives to buy equipment, to process and market their products, to do together the things that they can’t do as well alone. They are not trying to drive each other out of business; they are trying to help each other succeed. They refuse
to exploit each other for short run gain; they are trying to build long-term relationships. They buy locally and market locally. They bring people together in positive, productive relationships that contribute to their economic, ecological, and social well being.

Finally, to these new farmers, farming is as much a way of life as a way to make a living. They are “quality of life” farmers. To them, the farm is a good place to live – a healthy environment, a good place to raise a family, and a good way to be a part of a caring community. Many of these farms create economic benefits worth tens of thousands of dollars, in addition to any reported net farm income. For full-time farming families, the farm must return a net cash income. But for many, one or more members of the farm family works off the farm to earn the cash income needed to buy those things that can’t be produced on the farms. So even if the farm just breaks even, it still may be making a major contribution to a highly desirable quality of life for the family.

For these farmers, their “quality of life” objectives are at least as important as the economic objectives in carrying out their farming operations. Their farming operations reflect the things they like to do, the things they believe in, and the things they have a passion for, as much as the things that might yield profits. However, for many, their products are better and their costs are less because by following their passion they end up doing what they do best. Most new farmers are able to earn a decent income, but more important, they have a higher quality of life because they are living a life that they love.

At the beginning of this new century, Kentucky has a unique opportunity to take a leading role in helping to create the “new American farm.” The past dependence of the state’s farm economy on tobacco may provide now both the motive and the means for transforming Kentucky agriculture into a new, post-industrial farm economy. The loss of markets for America’s tobacco farmers is different only in timing and magnitude from the pending loss of markets for American growers of soybeans, corn, wheat, cotton,
peanuts, fruit, vegetables, cattle, hogs, poultry, and other such commodities. Increasingly over time, all such basic agricultural commodities will be grown in other parts of the world where land and labor costs are cheaper.

Technology and capital are now moved around the world in search of their highest returns on investment. Increasingly, multinational corporations will make the decisions regarding where tobacco is grown and who grows it, just as they do today for chickens, hogs, many fruits and vegetables, and will do in the future for all basic agricultural commodities. Increasingly, those decisions will be to produce agricultural commodities somewhere other than in America. The current crisis in tobacco may force Kentucky farmers to confront the new realities of agriculture now, while many producers in other states continue to live in denial, perhaps, until it’s too late.

Kentucky’s newly acquired tobacco settlement funds provide Kentucky farmers with the means of making the transition to a new post-industrial farm economy. The share of those funds allocated to the transformation of farming may or may not represent the farmers’ fair share, but they constitute a far larger fund for agricultural transition than is available in any other state. It would be a tragedy if those funds were allowed to be squandered on programs that simply support and accelerate the industrialization of Kentucky agriculture. The opportunity to build a new farm economy will be lost if those funds are diverted to biotechnology, info-technologies, and other high-tech means of transforming farms into “biological factories.”

The opportunity for a new rural economy will be lost if tobacco settlement funds are used to lure corporate investors, who invariably exploit both rural people and their natural environment, into rural areas. If such investments hold any promise for the future, which is highly unlikely, that promise will be realized by private investors in their pursuit of profits. Public funds should be restricted to use for initiatives from which the public will benefit,
but for which private incentives are either absent or inadequate. The creation of a sustainable agriculture – for the benefit of farm families, rural communities, and society in general, for all generations of humanity – provides a prime example of legitimate public investment.

The development of a new, sustainable farm economy will require a very different approach from that of industrial, economic development. The stages of developing the new farm economy should be patterned after the “stages of life,” not after the stages of building a factory. The stages of life include conception, birth, early development, growth, maturity, productivity, and regeneration before death – in an endless cycle.

The first stage in a “living systems” approach to development is to define the purpose of the process. The purpose expressed in the 2001 “draft” of “Kentucky’s Long Term Comprehensive Plan for Agricultural Development” is “to preserve and enhance the social fabric of Kentucky while building a sustainable economic base rooted in local communities and local ecology.” This statement would seem to provide a reasonable starting point for the development process – although, with dynamic living systems, the purpose must continually be reassessed. In “natural” living systems, such as humans, the purpose is defined at some “higher level” of organization – still, we humans must continually reassess “our perceptions” of the purpose for our life.

The “conception” of the development process occurs with the selection of a set of guiding principles. The principles, by which a process is carried out define the basic nature of the process, and thus, determine whether or not it can fulfill its initial purpose. Principles provide the conceptual DNA. The DNA of living things determines what they are -- plants, animals, insects, humans, etc. – but it also defines the uniqueness of each member of each living species. Likewise, principles define the basic nature of a development process, industrial, sustainable, etc., as well as define the uniqueness of particular development initiatives.
The number and nature of guiding principles should be sufficient to ensure that, if followed, the purpose will be achieved. However, principles that are not necessary for achievement of the purpose should be omitted, to avoid unnecessary complexity and distraction. For example, the principles of sustainable development are ecological integrity, economic viability, and social responsibility. Any process which follows these principles will be sustainable, any process that does not, will not. The three principles are both necessary and sufficient.

The principles put forth in the CFA “Greenprint” for Kentucky’s Agricultural Economy reflect a commitment to a grassroots process of community economic “self-development.” “Local economies are the foundation for a strong state economy.” “Political and economic democracies begin with local people who plan their own future.” “Fostering a ‘culture of learning,’ which places a premium on fresh, high quality food.” These are all statements of commitment to building a strong farm economy and strong rural communities from the “inside out” and from the “ground up.”

After conception comes birth and early development. The “living systems” approach assumes that development processes require different types of support during the early phases of development than will be required at later stages. Industrial developers prefer to bring “full grown” industries into their communities so they can immediately realize whatever benefits are to be achieved. However, these “outside” industries have no “natural ties” to the community – they didn’t “grow up” there. They have no commitment to contribute to the community in any way that does not fulfill their short-run corporate economic objectives. Sustainable, grassroots development must come from local people – from people who are committed to the future of the community. Their ideas must be encouraged and nurtured; their initiatives must be supported, so eventually, their “infant” ventures will grow to maturity. And in the process, those who are new in the role of business and politics will grow to become community leaders with a commitment to helping others to grow and mature.
The stages of birth and early development should focus on the creation and dissemination of knowledge – on empowering people to solve their own problems and to realize their unique opportunities. The “food” for the “early development of knowledge” is “information.” And, the type of information provided must be appropriate for “living processes.” Sustainable farming, for example, requires a fundamentally different approach to research and education than does industrial agriculture. Public institutions must be redirected to creating and disseminating information and technologies appropriate for Kentucky’s new farm economy. Public policies should provide “protection” for the process, at lease during the stages of “early development.” Public policies must be redesigned or redirected, as appropriate, to nurture Kentucky’s new farm economy. Public policies for Kentucky’s new approach to sustainable, community self-development must be fundamentally different from the industrial development policies of the past.

The developmental stages of growth, productivity, and maturity, in a living process, require little more than encouragement. Access to financing, appropriate marketing infrastructure, accommodative laws, and facilitating regulations are a few examples of the types of encouragement that local agricultural entrepreneurs need to grow, develop, and become mature, productive members of their communities and of society. The key to success in the “living systems” approach to development is to focus on people rather than production and profits. Once people have achieved a desirable quality of life – economically, socially, and spiritually – they will be committed to the well-being of others, both today and in the future.

Mature members of “living communities” will accept the social responsibilities of caring for others as a privilege, not as a sacrifice. Mature members of “living communities” will accept the responsibilities of stewardship of nature, as a privilege, not as a sacrifice. Mature members of “living communities” will accept their responsibilities to “regenerate” their community, not to abandon it. They will participate with others in the
process of “conception and birth” of the new ideas needed to sustain new generations of people. They will contribute to the “early development and growth” of others who will grow and mature to fulfill their responsibilities in the future. They will help care for the “aged and dying” of the community, because they will know at some future time their work too will be done.

Finally, the key ingredients of a successful “living systems” approach to development are the same as the key ingredients of a successful life – faith, hope, and love. Those who successfully pursue truly sustainable approaches to development must have a fundamental faith in people, a faith in nature, and faith in some “higher order of things,” in God, to give purpose and meaning to their life.

People who succeed in sustainable development also must be people of hope. Hope is not the expectation that something good is destined to happen, or even that the odds favor something good, but rather, that something good is possible. It is this “possibility” of something good that gives us the courage to challenge the conventional wisdom, to denounce the status quo, to try new and different things, because we hope to achieve something better.

The final ingredient to success in sustainable development is love. No one, in my opinion, expresses the very practical connection between sustainability and love better than Wendell Berry – although, he doesn’t specifically use the word. In his book of essays, What Are People For? he writes, "if agriculture is to remain productive, it must preserve the land and the fertility and ecological health of the land; the land, that is, must be used well. A further requirement, therefore, is that if the land is to be used well, the people who use it must know it well, must be highly motivated to use it well, must know how to use it well, must have time to use it well, and must be able to afford to use it well.” In essence, he is saying, if agriculture is to be sustainable, we must have people on the land who love the land.
Applying that same concept of love to rural communities, “if our rural communities are to remain viable, they must preserve the productivity of rural people, their physical, emotional, and spiritual well-being; rural people, that is, must be treated well. A further requirement is that if people are to treat each other well, they must know each other well, must be motivated to treat each other well, must have time to treat each other well, and must be able to afford to treat each other well. If our rural communities are to be sustainable, we must have people in rural communities who love each other.

Agriculture as we have known it in the past is coming to an end. If there is to be a future in farming, we must paint a new picture of agriculture – we must create the “new American farm.” The new American farm will require new ways of thinking. We must replace the old mechanistic worldview and industrial model of development with a new “living” worldview and a new sustainable model of development. Thousands of farmers all across America are already creating the new American farm, but Kentucky has a unique opportunity to help paint this new picture and create a new farm economy. But, the people of Kentucky must have the wisdom and vision to create a new future and the courage to challenge the outdated, industrial approach to economic development.

The new vision must focus on life, because farms and communities are living organisms – not machines or factories. The new vision must focus on sustainability – economic viability, ecological integrity, and social responsibility. The new vision must focus on a more desirable quality of life for people – economically, socially, and ecologically. The new approach must be a grass roots approach to community self-development – not industrial development. The new approach to development must be based on the stages of development of living systems, from birth, to maturity, to regeneration.

But most important the new picture of rural America must painted with faith, hope, and love. All three are important in painting the picture of the
new farm economy, but the greatest of these is love – of the land, of each other, and of God. The picture of the new farm economy, ultimately, must be a picture painted with love.

[1] Presented at Annual Meeting of Community Farm Alliance, Lexington, KY, January 12, 2002
[2] John Ikerd is Professor Emeritus, University of Missouri, Columbia, MO – USA. E-mail: JEIkerd@AOL.COM  web site: http://www.ssu.missouri.edu/faculty/jikerd
[3] For 50 real life examples, see “The New American Farmer – Profiles in Agricultural Innovation,” the SARE Program, USDA, Washington DC. ($10 US – call: 802-656-0484 or e-mail: sanpubs@uvm.edu , also available free on line at http://www.sare.org/newfarmer)
American agriculture is in crisis. Crisis is most frequently considered something negative, something to be avoided, such as pain, distress, or disorder. However, crisis can be defined more generally to be either positive or negative. A crisis is a decisive moment, a critical time or state of affairs whose outcome will make a decisive difference for either better or worse. In fact, the Chinese have a word for crisis that is used to mean both threat and opportunity. The current crisis in agriculture most certainly is a time of pain, distress, and disorder for farmers and rural communities. However, it is also a time of opportunity – a critical time and state of affairs that will make a decisive difference, either for better or for worse.

The current crisis in agriculture is not a consequence of world trade problems, global recession, domestic recession, or even of unwise government policies. These things have only magnified the symptoms of problems that are rooted in causes far more fundamental. Crisis is a chronic symptom of the type of agriculture we have been promoting in this country for at least the past fifty years. Reoccurring financial crises are the consequence of our encouraging farmers to industrialize – to become more specialized, standardized, and ever larger – to make American agriculture more economically efficient. We have rationalized the industrialization of agriculture as a means of reducing the cost of food for American consumers.

The promise of profits is the bait that keeps farmers in a never-ending race to make their farms more specialized, more mechanized, and ever larger in scale. Farmers are continually offered new cost cutting technologies from both public and private research, which promise increased profits. Invariable, these technologies require more capital, but
reduce labor and management, allowing each farmer to reduce per unit costs of production while increasing total production. However, as more and more farmers adopt these new technologies, the resulting increases in production cause prices to fall, eliminating the profits of the early adopters and driving those who refuse to adopt, or adopt too late, out of business. This “technology treadmill” has resulted in chronically reoccurring overproduction. Whenever government programs prevent commodity prices from falling, land rental costs rise instead, with the same net impact on farm profits and displaced farmers.

This “technology treadmill” has been driving farmers off the land for decades. Those remaining on the treadmill after each crisis must run faster each time just to survive until the next round. So, they don’t have time to be overly concerned with the ecological health of their land. They don’t have time for their families, let alone their communities. They can’t afford to care too much about their neighbor, for they know soon, that in order to survive, they will have to have their neighbor’s land.

Those who fail are labeled as poor managers or as laggards. However, inefficiency and reluctance to change are not the causes of failures among American farmers. Farm failure is an inherent part of the system. Some must fail in order for others to “succeed.” After each “crisis” there is room for fewer and fewer survivors. And, there is always another round of cost-cutting, output-increasing technology “waiting in the wings.”

Thankfully, a new type of agriculture is emerging to address the crisis in American agriculture. A group of creative, innovative, entrepreneurial farmers are seizing the opportunities within the necessity of change – they are creating the New American Farm. These new farmers may claim the label of organic, low-input, alternative, biodynamic, holistic, permaculture, eco-farmer, practical farmer, or just plain farmer. But they are all pursuing the same basic purpose by the same set of principles. They are trying to build farming systems that are not only profitable, but
also are ecologically sound and socially responsible, and thus, will be economically viable over time.

These new farmers pursue their self-interest – after all, they are human. However, they realize that quality of life has social and ethical, as well as economic, dimensions. They pursue a “broader” self-interest – recognizing that our quality of life is enhanced by positive relationships with others, regardless of whether such relationships bring us any economic advantage. We humans are a social species – we need each other. It is not a sacrifice to be socially responsible; it is a privilege. They pursue a “higher” self-interest – recognizing that our quality of life is enhanced by ethical and moral behavior, beyond any economic advantage such behavior might bring. We are spiritual beings – we find purpose and meaning within some higher order of things. It is not a sacrifice to be stewards of the land; it is a privilege. They pursue a “more enlightened” concept of self-interest – recognizing that life is mental and spiritual as well as physical and that life is interpersonal and intergenerational as well as personal. They are pursuing a more enlightened concept of quality of life that includes the social and ecological as well as economic dimensions.

They farm for long run sustainability, not out of some sense of self-sacrifice, but as a matter of common sense. A sustainable agriculture must be ecologically sound, economically viable, and socially responsible. This is not a matter of formal definition or legal precedent, but instead, a matter of common sense. If the land loses its ability to produce, the farm can’t be profitable over the long run – such a farm is not sustainable. On the other hand, if the farmer goes broke in the short-run, there is no long run – such a farm is not sustainable. And, if a farm fails to provide for the needs of society, as consumers or producers, it will not be supported by society, and thus, such a farm is not sustainable. The economic, ecological, and social dimensions of sustainability are like the three dimensions of a box. All are necessary but none is sufficient. A box
that is lacking in height, width, or length, quite simply is not a box. A farming system that is lacking in ecological integrity, economic viability, or social responsibility, quite simply is not sustainable.

Today, literally thousands of new sustainable farmers, all across the continent, are creating new and better ways to farm. They are on the frontier of a better kind of agriculture, an agriculture capable of meeting the needs of the present while leaving equal or better opportunities for those of the future – a sustainable agriculture. These farmers face struggles and hardships and there are failures along the way. Life is rarely easy on any new frontier. But, a growing number are finding ways to succeed.

These farmers are succeeding with very little help from their public institutions, including the Land Grant Universities or USDA. However, sustainable farming clearly benefits the “public,” as well as individual farmers, and thus legitimately deserves “public” support. At a very minimum, our public institutions should stop subsidizing the exploitation of the land and of people by subsidizing the industrialization and corporatization of agriculture. Virtually all government programs in place today, from commodity-based direct payments to government-insured loans, were designed to help farmers specialize and become larger, and now, are subsidizing the corporatization of agriculture. Sustainable farmers need and deserve at least a “level playing field” upon which to compete with industrialization.

Restoring competition in the agricultural market place is a primary responsibility of government. The government is the only entity with the power and authority to ensure competition. A large numbers of buyers and sellers, freedom of entry and exit, adequacy of quality information, and protection of consumer sovereignty; all are necessary to ensure economic competitiveness. None of these conditions exists today – not for agriculture or for any other major sector of the economy. The
government has the clear legal authority to correct these deficiencies – it must accept its responsibility and act upon that authority.

In the early 1800s, Alex De Tocqueville, a Frenchman, wrote of his impressions of the new American democracy. So many of the observations in his *Democracy in America* have proven to be correct that the book has become a classic among scholars of political science. Tocqueville warned of the tendency of a democracy to drift toward a strong central government. He saw this as a potential threat, in that he considered dispersion of power among people at local, state, and federal levels to be a major strength of democracy. However, Tocqueville also warned of the tendency toward excessive wealth and power in the "manufacturing" sector – today’s “corporate” sector. He thought the American society might well evolve toward a “manufacturing” aristocracy – with the wealth arising out of industry creating a new upper class of aristocrats. Apparently, he did not anticipate the corporate aristocracy’s eventual control of government, because he didn’t believe that the American people would allow it to happen.

Tocqueville believed that survival of the American Democracy was critically dependent on deeply rooted religious beliefs, which constrained early Americans’ pursuit of self-interests. He reasoned that if these strong religious beliefs were ever to erode, they would have to be replaced with a strong sense “that man serves himself in serving his fellow-creatures, and that his private interest is to do good.” He wrote of early Americans who believed strongly “that men ought to sacrifice themselves for their fellow-creatures… that such sacrifices are as necessary to him who imposes them upon himself as to him for whose sake they are made.” Tocqueville believed that “self-interests rightly understood,” i.e. an enlightened self-interest, would reflect the fact that people benefit from fulfilling their proper role in the larger society in ways that could never be linked directly to one’s narrowly-defined, individual self-interest.
Over the years, the deeply rooted religious beliefs of which Tocqueville wrote “have” been eroded, and religion “has not” been replaced with a strong sense that “man serves himself in serving his fellow-creatures.” Instead, religion has been replaced by a belief that “man serves his fellow-creatures by serving himself.” In the blind pursuit of “self-interests, not-rightly understood,” Americans not only have neglected to care for our fellow-creatures, but we have neglected even our responsibilities to govern ourselves. We have allow the corporate aristocracy to gain control of our government – the only institution capable of restraining corporate exploitation of people and of nature, in their blind pursuit of the their narrow, individual self-interests.

If we are to restore competitiveness to markets for agricultural commodities – or restore competitiveness to any other sector of the U.S. economy – we must first restore to the people the control of their government. Perhaps we should be concerned about the tendency toward a strong central government within our democracy, but the problem today is not that the government is too strong. Instead, government is too weak. Once we have restored the power of government to control the corporate aristocracy, we can then turn our concerns to limiting the powers of government.

Beyond eliminating “corporate welfare” and restoring competition, government farm programs need to be re-thought and re-built from the ground up. Government programs should be limited to providing legitimate “public goods and services” – not to subsidizing “private” business ventures. Many private business ventures result in benefits to the public, such as employment, income, and taxes to fund public services. However, the markets provide adequate incentives to ensure that most such ventures take place.

Expenditures of “public funds,” i.e. taxpayer dollars, should be limited for those things that are clearly in the “public interest,” but for which private
market incentives either “do not exist or are inadequate.” Most would agree that such activities as national defense, police protection, interstate transportation, and basic education are legitimate “public services.” Private market incentives to produce such things are either absent or inadequate to ensure that “public interests” will be served. Public goods and services are defined most clearly as those things to which “all people” have “equal” right to access regardless of their “ability to pay.” Markets, by definition, will not ensure “equal” access for all. Markets provide goods and services only to those who are willing and able to pay. Thus, the public, through government, must accept responsibility for ensuring equality, in those cases where equality is a right of all.

All Americans have a right to life, liberty, and the pursuit of happiness. This doesn’t mean all will be equally happy, but each must be given an equal opportunity to pursue happiness. According to our Constitution, the government has responsibility not only to “provide for the common defense and ensure domestic tranquility,” but also to “promote the general welfare” of society – in those cases where private incentives are absent or inadequate.

Agriculture produces many legitimate “public benefits,” but today’s government programs focus on those benefits for which adequate market incentives already exist. Adequate profit incentives exist to provide for the food and fiber needs of those who are willing and able to pay the cost. Today, agribusiness corporations are exceeded only by the pharmaceutical industry in returns on stockholder investment. Most so-called farm programs today simply transfer wealth from taxpayers to corporate stockholders and wealthy landowners, leaving legitimate farmers with the “crumbs” that fall along the way. Many farmers continue to support such programs because they don’t know how they would survive without those “crumbs,” but such programs produce little of true “public benefit.” Existing farm programs should be eliminated, with public funds shifted to fund programs that will serve legitimate “public interest.”
“Pursuit of happiness” and the “public welfare” demands that every American have access to sufficient food, clothing, and shelter to ensure survival, growth, and development. Anything less is not acceptable. Thus, the assurance of “food equity” is a legitimate public service. Every American must be given an opportunity to develop their human capacities to think and to work and to be productive, successful members of society. Anything less is not acceptable. Thus, “employment security” is a legitimate public service. All people have an equal right to a clean and healthy natural environment. It is by this principle, that “environmental protection” is defined as a public service. And, every nation has both a right and a responsibility to protect its people and its resources from exploitation from outside forces. “Food security” is one aspect of this public service responsibility. Private markets will not ensure any of these things; thus, these are legitimate “public service” responsibilities of the government.

Agricultural policy should be re-built upon a new foundation of “public support for public goods and services.” This is not a radical concept. It has been pursued by the Europeans for several years in world trade negotiations. They have argued that agriculture is “multifunctional” – that it performs social and ecological functions, in addition to its economic functions. They have argued that each nation should be allowed to maintain government programs necessary to ensure that their agricultural sectors continue to provide those social and ecological benefits. They have argued that only the truly “economic” restraints should be removed if “free trade” is to be of benefit to global society. Governments have both the right and responsibility to ensure that “public benefits” of agriculture continue to be provided to the people, in Europe, in America, and in all countries of the world.

The government should reward farmers for “public services,” because they will not be rewarded for those things by the private markets. A
legitimate means of rewarding for their contribution to the public good would be to provide farmers with “employment security” – similar to the security provided to others who serve the public good. Today’s farm programs are based on commodities produced or acres farmed – possibly appropriate for past times when the public benefit from agriculture was reflected in a reduced cost of food. Today, however, consumers only spend a dime out of each dollar on food, and the farmer only gets a penny of that dime – the rest goes for purchased inputs and marketing services. There is virtually nothing left to be squeezed from the “farmer’s penny” for the benefit of the public. It is time to shift program benefits from production to people – to the people who are willing to produce true “public benefits.” And farmers who make major contributions to the public good at least should be secure in their employment.

The cornerstone of a new farm policy should be the concept of agricultural sustainability. An ecologically sound agriculture provides clear benefits to the public, both now and in the future, beyond the economic benefits to farmers. A socially responsible agriculture provides clear benefits to the public, both rural and urban, beyond the economic benefits to farmers. An economically secure agricultural sector provides clear benefits to the public, in terms of food security, beyond the economic benefits to farmers. The quality of life benefits to farming sustainably will compensate farmers for most of their ecological and social contributions. However, they have to be able to survive economically in order to realize the ecological and social benefits of farming. They need employment security, particularly during the early stages of transition to sustainability. Many currently conventional farmers might well be willing and able to make the switch to sustainability, if they had some assurance of economic security during the transition.

A government farm program based on sustainability would be fundamentally different than the farm bill that is destined to be passed by the U.S. Congress in 2002. First, with respect to ecological integrity,
government farm programs eventually must recognize that no one has the “right” to degrade the natural environment. Thus, any farmer who receives government payments, of any kind, should be required to meet environmental standards that conserve the soil, protect the quality of water and air, and in general, ensure the integrity of the natural resource base. New programs, providing for government “green” payments, should be limited to rewarding farmers who “rebuild” soil fertility, “restore” water quality, and “enhance” the natural environment.

A socially responsible agriculture must provide farmers, as people, with opportunities to lead productive, successful lives. This doesn’t mean that everyone who chooses to farm has a right to do so, regardless of their ability or willingness to apply themselves to the occupation. However, those who choose to farm, to farm sustainably for the public good, should be given an opportunity to do so. To support such opportunities, government benefits should be limited to individually owned and operated farms and to family farms. And, the benefits should be paid only to “real” people, not to corporations. The objective should be to provide self-employment opportunities for farmers and others in rural areas, not to subsidize the landowners and corporations that threaten the sustainability of agriculture.

The first question likely to arise is how would the government pay for such programs? The answer, with the same dollars currently used to support current farm programs, although the total cost could be considerably less. And in contrast to existing programs, a sustainability based farm program could be completely phased out over time.

The second question, how would the government administer such a program? The answer: as simply as possible. Willard Cochrane, long-time agricultural policy expert, has proposed that each “family farm” be awarded an annual payment of $20,000 per farm. I would amend Dr. Cochrane’s proposal to provide for a $20,000 “tax credit” to go to each
“family farm that is implementing an acceptable plan for moving toward sustainability.” Farmers who are approved for the “tax credit” would also have an “alternative” farm tax rate – possibly, 50 percent of total farm income. Thus, as total farm income increases, the advantage of the “alternative” tax rate and tax credit would diminish. At a net farm income of $40,000, for example, the taxes owed (50% of $40,000) would completely offset the $20,000 credit. At some higher level of income, probably $60,000-$80,000, it would be advantageous for the farmer to give up the special, farm tax credit, and be taxed as any other business. At this point, however, the sustainable farming operation would be sufficiently profitable to ensure its sustainability without any further government support.

Such a program could be called an “alternative farm tax” program rather than a “farm program.” The “alternative farm tax” would provide many of the employment security benefits available to other public workers – minimum wages, unemployment benefits, and workers compensation. The farmer would have the assurance of the tax credit to tide them over in years of crop failures, depressed prices, times of ill health or other economic set backs on their way to achieving sustainability. Over time, farmers would be required to show progress toward sustainability to remain eligible for the “alternative tax.” If after some specified number of years, they fail to achieve economic sustainability, they could be helped to find employment elsewhere, freeing up their farm for a beginning farmer, who would then be eligible for the “alternative farm tax” program.

Other government programs, including publicly funded research and education, could be redirected to support sustainable farming – to provide true public benefits rather than corporate subsidies. State and federal programs could also be targeted to developing the physical and informational infrastructure needed to support local, niche markets needed for “sustainable-sized” farms – connecting local consumers with local farmers. Federal, state, and local governments could be required to
purchase agricultural products from local farmers supported by the program to enhance their chances for success. The justification being to provide maximum total public benefits, rather than minimizing the cost of one food security program at the expense of another food security program. Government stocks of grains and other storable commodities could be held in farmer-owned facilities to keep them in the local community, as well as enhance farm income.

As such programs are implemented, the economic viability of farms will rise, and the costs of government farm programs will fall. As ecologically sound and socially responsible farms become economically viable, without government assistance, a sustainable agriculture will have permanently displaced an unsustainable system that is based on industrial exploitation of people and of nature. People, once rewarded with the quality of life that comes from sustainable farming, will not revert to the pursuit of narrow, individual self-interest – as long as government fulfills its responsibilities to maintain competitive markets and to eliminate corporate welfare. The balance between economics and democracy will have been restored and Alex De Tocqueville’s optimism of the early 1800s will have been well founded.

American agriculture is in crisis. Crisis has been chronic in American agriculture, but this crisis is different. It could spell the end of farming in America, as least farming as we know it, as the multinational corporations take control. But in crisis, there is opportunity. A crisis is but a critical point in time, at which change occurs – for either better or worse. There are new opportunities for change in agriculture today. A new kind of American farm is emerging from farmers’ search for agricultural sustainability. The farm financial crisis, coupled with new agricultural opportunities, provide farmers with both the incentive for change and a promising new direction for the future. Now is the time for farmers to get off the industrial technology “treadmill,” that has left them without time for family, for community, or even for themselves, and ever closer to “falling
There is no future for farmers in a corporately controlled, industrial agriculture. There is a better way to farm and a better way to live. But first, farmers must find the courage to change.

Farmers need not “jump” off the “treadmill” all at once, they can slow down a bit before they “step” off. The change to a new type of sustainable farming doesn’t have to come all at once. Conventional farmers can take some time to get reacquainted with their land, with their families, and with their community. They can try growing different things, involving the family in the decision and the work, maybe, marketing a few things at the local farmers’ market, beginning to find out what they do well and what they really like to do. They can begin build relationships with other like-minded farmers and with potential customers and supporters – they can begin searching for their niche in the local economy and in their local community. And they can begin reaping the rewards of a better quality of life – economically, socially, and spiritually. Farmers, anywhere, can begin doing these things – today.

Farmers, individually and through their organizations, can begin building support for “the next farm bill” – a farm bill that will reward the “public benefits” of agriculture. They can start building public support for change by helping voters understand the threats of a corporately controlled agriculture to food safety, food quality, food equity, food security, environmental integrity, and the future of family farms and rural communities. Farmers can start building a consensus for dramatic and radical change in farm policies – change built on a new foundation of economic, ecological, and social sustainability. American farmers have a rare opportunity to re-create American agriculture. There is opportunity in the current crisis in American agriculture. Now is the time to seize it.

[2] John Ikerd is Professor Emeritus, University of Missouri, Columbia, MO – USA.
E-mail: JElkerd@AOL.COM  web site: http://www.ssu.missouri.edu/faculty/jikerd

[3] For 50 real life examples, see “The New American Farmer – Profiles in Agricultural Innovation,” the SARE Program, USDA, Washington DC. ($10 US – call: 802-656-0484 or e-mail: sanpubs@uvm.edu, also available free on line at http://www.sare.org/newfarmer)
North American agriculture is in the midst of a “great transition” – a transition that is fundamentally transforming rural America. Although my rural life experiences have been in the United States, I have spent enough time over the past decade in Canada, talking with Canadians, to believe the rural transformations of the U.S. and Canada are not all that different. Agriculture as we have known it, with family farms and viable rural communities, is being rapidly transformed into an industrial agriculture, with factory farms and dying rural communities. Such times of change are times of great risks but also times of great opportunity. There are no guarantees of survival or success. But, an understanding of the forces of change can be quite helpful in coping with the risks of change and in realizing the opportunities. The forces driving change in American agriculture today are the continuing forces of industrialization.

This industrialization of agriculture is not a new phenomenon. The trend toward specialization, standardization, and consolidation – toward industrialization – began around the turn of the 20th century, with the mechanization of agriculture. However, the chemical technologies that emerged from World War II, particularly commercial fertilizers and pesticides, accelerated the industrialization process. Until recently, the most obvious consequence of this process had been larger farms, fewer farms, and fewer farm families. But, farmers and families, real people, were still making the decisions concerning what was produced, how it was produced, who it was produced for, and they considered how their decisions might affect the land and their neighbors. Today, however, these important decisions increasingly are made in the boardrooms of giant, multinational corporations. These corporations are not real people; they have no families, no friends, no communities, and increasingly no single nationality. Their decisions are driven by the never-ending need to generate profits and to grow. The needs of families, communities, the land, and society in general, must be considered secondary to the needs of the corporation.
Until recently, the specialization, standardization, and consolidation of farming had been driven by the decisions of individual, family farmers. Farmers freely choose to adopt the new mechanical and chemical technologies, many of which were developed through publicly supported research, because they seemed to promise increased profits. These technologies invariably promised greater production efficiency, which would reduce cost per unit of production, leaving the farmer with a wider profit margin. Increased efficiency generally meant that each farmer could produce more than before, in fact, needed to produce more to justify the new technological investment and to realize the full benefit of the new technology.

However, the “early adopters” were the only farmers to realize increased profits. As more and more farmers adopted a new technology, a new kind of machine or agri-chemical, total production invariably increased, because each farmer was now compelled to produce more. With increased production, market prices invariably fell, leaving even the innovators no better off than before. The later adopters rarely had a chance to recoup their investment before prices fell. In cases where the government supported commodity prices, land prices rose, with the same net effect on profits. Eventually, technological adoption was motivated by survival rather than profits, and those farmers who adopted too late didn’t survive.

Some farmers had to fail so others could expand – could farm more land or produce more livestock – in order to realize the full benefits of the new technologies. In fact, prices invariably stayed low enough long enough to force enough farmers out of business to accommodate the new industrial technologies. And, after each “technological adjustment” was complete, there was always another round of technology waiting for adoption. Chronic crisis and farm failures have been a necessary consequence of agricultural industrialization.

The current corporatization of agriculture is but the final stage of the industrialization process. As the new technologies have required larger and larger
operations to justify the new investments, capital requirements have exceeded the
credit capacity of all but the largest of individual farmers. Many farmers have
formed family corporations to enhance their ability to raise investment capital.
Increasingly, however, only the “publicly owned” corporations are able to meet
the agricultural capital requirements of an increasingly industrial agriculture.

Economists now proclaim corporate contracts as the farmers’ only means of
gaining access to the technology, capital, and markets they will need to be
competitive in the 21st century. Most of the land and basic production facilities
are still owned by individual farmers and family corporations, but production is
carried out under direction of agri-business corporations. Through contracts, the
agribusiness corporations, many of them multinational, are making the decisions
concerning what is produced, how it is produced, whom it is produced for, and
how the production process affects the land and the neighbors.

With increasing corporate control of the food system, even those independent
producers with lower cost than the contract producers are finding it difficult to
compete. The corporations now control much of the new technology, particularly
biotechnology, to which farmers can gain access only through contractual
arrangements. Large corporate processors increasingly procure nearly all of their
raw materials through contracts, thus denying market access, or at least denying
competitive markets, to non-contract producers. The corporatization of
agriculture is now driven much more by the quest for greater market power than
for increased production efficiency.

Family corporations are not all that different from individuals; their decisions
reflect the basic values of the family. Even with “closely held” corporations, with
few stockholders, decisions can still reflect the basic social and ethical values of
the owners. However, once the number of stockholders becomes large, as in
large publicly held corporations, and management is essentially separated from
ownership, the motives for decision making become profits and growth. Most of
the stock in such corporations is owned by mutual funds and pension funds, and
the stockholders are concerned foremost, if not completely, with growth in the
value of their investment. A corporately controlled agriculture is fundamentally different from the agriculture we have known in the past.

The industrialization and corporatization of North American agriculture has been supported by government policies – including government farm programs and publicly supported research and education programs. In both the U.S. and Canada, the overriding objective of public policies has been to increase the efficiency of agriculture for the ultimate benefit of consumers, in the form of lower food prices. The “agricultural establishments” of both countries continually brag about the small percentage of income that the consumers in our respective countries spend for food. The political rhetoric in support of family farming has continued; but government programs obviously have supported continued specialization, standardization, and consolidation, which have ensured the demise of the family farm.

At the signing of the new U.S. “Farm Security and Rural Investment Act of 2002,” the President said, “The farm bill will strengthen the farm economy… will promote farmer independence, and preserve the farm way of life for generations.” In fact, it most certainly will not provide either “farm security” or national “food security” and it will do nothing to improve the lives of people in rural America. The new U.S. farm bill is just more of the same – huge subsidies for the wealthy landowners and agribusinesses that control the political process.

We don’t need a lot of data, facts, or figures to understand what is happen to North American agriculture; it’s just plain common sense. In making agriculture more efficient, we have chosen industrial technologies, which have resulted in fewer, larger farming operations, and now, corporate control of agriculture and agricultural policy. The outcome is a logical consequence of the objectives and strategies that have been pursued. We have sacrificed our security for the sake of efficiency. It’s just common sense.

So, what’s wrong with a corporate, industrial agriculture? Why should we be concerned? First, many people don’t see anything wrong with a corporate,
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industrial agriculture, and they are not particularly concerned. As long as the corporations can give them food that is quick, convenient, and cheap, they are not going to ask too many questions. They aren’t all that concerned about where their food comes from, who produces it, how it is produced, and what the consequences are for rural people and the land. Many trust the competitive forces of a “free market” economy to ensure that the needs of society are met.

However, a growing number of people are concerned about the corporate, industrialization of agriculture. They are concerned about what it is doing to the lives of farm families who are losing control of land that has been in their families for generations. They are concerned about people in rural communities who have supported and been supported by those family farms. They are concerned about the low-pay and long hours in the food processing factories that have moved into some of these chronically depressed rural areas. They are concerned about the landfills, toxic waste dumps, and giant livestock feeding operations that pollute the once pristine rural environment with dangerous chemicals, biological wastes, and hazardous stench. They are concerned about the ability of the soil to continue to produce after the topsoil is eroded and it is saturated with chemicals and about the quality of water subjected to similar industrial abuses. They are concerned about the safety of their food and safety of the people who produce it. They are concerned about the negative impacts of an industrial agriculture on the people who farm the land, who live in rural areas, who eat the food. They are concerned about those of future generations who will still be as dependent upon the land for their sustenance, their very survival, as we are today. They are concerned about the sustainability of agriculture.

This growing concern for agricultural sustainability raises some “common sense” questions about our food system. It asks, how can we equitably meet the needs of people in the present, while leaving equal or better opportunities for those of the future – not just how can we make food quick, convenient, and cheap? It asks, how can we develop an agriculture that is ecologically sound, economically viable, and socially responsible – not just how can we make agriculture more economically efficient? It asks, how can we ensure our long run food security –
not just our current abundance? Sustainability asks how can we sustain a desirable quality of human life on this earth, individually, socially, and ethically – both for ourselves and for those of future generations?

Sustainable farming systems must be ecologically sound, economically viable, and socially responsible. All three are essential; more of one cannot offset a lack of either of the other two. The three dimensions of sustainability are not part of some formal or legal definition, but instead, are a matter of common sense. If the land loses its ability to produce, the farm is not sustainable. If the farmer goes broke, the farm is not sustainable. And if a system of farming fails to support society, it will not be supported by society, and thus, is not sustainable. The economic, ecological, and social dimensions of sustainability are like the three dimensions of a box. All are necessary. A box that is lacking in height, width, or length, quite simply is not a box. A farming system that is lacking in ecological integrity, economic viability, or social responsibility, quite simply is not sustainable.

There is growing evidence that current concerns for the sustainability of agriculture are well founded – that a corporate industrial food system, in fact, is not sustainable. The threats to the natural environment and to the quality of life of farmers, residents of rural communities, and members of society as a whole have continually risen as we have industrialized American agriculture. The same technologies that support our specialized, standardized, large-scale farming systems are now the primary sources of growing environmental degradation. Commercial fertilizers and pesticides – essential elements in a specialized, industrialized agriculture – have become a primary source of growing concerns for environmental degradation and food safety. And, industrialization has transformed agriculture, created for the fundamental purpose of converting solar energy to human-useful form, into a mechanized agriculture that uses more non-renewable fossil energy than it captures in solar energy from the sun.

Industrial systems of production also degrade the human resource base. Henry Ford is quoted as once saying the biggest problem in running a factory is that you
have to hire whole people when all you need is two hands. Large corporate contract farming operations transform independent decision-makers, into building superintendents and farm workers – into people who only know how to follow instructions or directions but not how to make decisions. At a recent conference in Minnesota, one farmer remarked, “any fool could grow a good crop of soybeans using the Roundup Ready system of Monsanto.” We have transformed our farms into factories, our fields and feed lots in biological assembly lines, and our farmers into factory, assembly line workers.

Industrial systems of production have decimated many rural communities, both economically and socially. Larger, more specialized farms tend to bypass their local communities in purchasing feed, fertilizers, and production inputs, and in marketing their products. They feel they must minimize costs and maximize prices in order to stay competitive. Larger farms meant fewer farms and fewer farm families to buy shoes, clothes, groceries, haircuts, and auto repairs, etc. from local businesses. As farms have grown larger and more specialized, many rural communities have lost their economic vitality.

Fewer farm families also have meant fewer people to support local schools, churches, health clinics, and other public institutions. Fewer farmers and business people have meant fewer local leaders to support local government, organize volunteer fire departments, emergency medical teams, and other civic organizations, which enhance the rural quality of life. It takes people, not just production, to sustain local communities. A fundamental purpose of industrialization is to make it possible for fewer people to produce more, and agricultural industrialization has left fewer of the people in rural agricultural areas. The industrialization of American agriculture is killing rural America. Again, it’s just a matter of common sense.

Perhaps even more important, industrialization has separated the people left in rural areas from each other, and thus, has destroyed the social structure of communities that remain. Today, farmers can’t be too concerned about their farmer neighbors, because they know their neighbor will have to fail in order for
them to succeed. They can’t love their neighbor, because, sooner or later, they will have to have their neighbor’s land to survive. Farmers can’t be too concerned about the people who live in town, because increasingly, those people are asking hard questions about the industrial technologies farmers feel they must use to survive. Town people seem to be challenging their inherent “right to farm.” Neither can farmers be too concerned about the welfare of food consumers, because they need a share of the consumers’ income to survive. Farmers, processors, retailers, consumers, are locked in economic competition, in pursuit of their individual self-interests.

An industrial agriculture also degrades the relationship of people to the land, because it separates people from the land. As Wendell Berry, the Kentucky farmer, philosopher, and writer puts it: If the land is to be used well, we must have people on the land who know it well, know how to use it well, have time to use it well, and are able to afford to use it well. To farm sustainably, we must have people on the land who love the land. Industrialization has separated farmers from the land, if not physically, at least psychologically. Most farmers today don’t even own the land they farm. Most who own land don’t have enough time or can’t afford to care “for it,” even if they do care “about it.” They can’t afford to love the land because they have to put a higher priority on staying competitive in a global economy.

No one set about intentionally to destroy the social responsibility, or economic viability, or ecological integrity of North American agriculture. We simply lost sight of the fundamental purpose of agriculture, to meet the needs of people – as consumers, as producers, as members of rural communities, and of society. In our preoccupation with increasing economic efficiency, to bring down the cost of food, we neglected to monitor what was happening to the overall quality of life of people. In our preoccupation with increasing production today, we neglected to monitor the agricultural legacy we were leaving for people of the future. We don’t need a lot of data, facts, or figures to understand what has happened to American agriculture; it’s just plain common sense.
Thankfully, the corporate industrial approach is not the only viable alternative for our future food and farming systems. A new breed of American farmer has emerged in response to growing concerns about the negative ecological and social impacts of our large-scale, industrial agriculture. Again, from my experiences with Canadian farmers over the past decade, in six Provinces spanning from Hazleton, British Columbia to Charlottetown, Prince Edward Island, I know such farmers are scattered all across North America. These new American farmers are concerned about the sustainability of agriculture. However, the success of this new type of farming also has important implications for food safety, food security, viability of rural communities, and our overall quality of life.

While there are no “blueprints” for the **New American Farm**[^3], some basic characteristics are emerging. First, these farmers see themselves as stewards of the earth. They are committed to caring for the land and protecting the natural environment. They have a deep sense of personal connection to their land. They work with nature rather than try to control or conquer nature. They fit the farm to their land and climate rather than try to bend nature to fit the way they might prefer to farm. Their farming operations tend to be more diversified than are conventional farms – because nature is diverse. Diversity may mean a variety of crop and animal enterprises, crop rotations and cover crops, or managed livestock grazing systems, depending on the type of farm. By managing diversity, these new farmers are able to reduce their dependence on pesticides, fertilizers, and other commercial inputs that squeeze farm profits and threaten the environment. Their farms are more economically viable, as well as more ecologically sound, because they farm in harmony with nature.

Second, these new farmers build relationships. They tend to have more direct contact with their customers than do conventional farmers. Most either market their products direct to customers or market through agents who represent them with their customers. They realize that as consumers each of us value things differently because we have different needs and different tastes and preferences. They produce the things that their customers value most. They are not trying to take advantage of their customers to make quick profits; they are trying to create...
long-term relationships. They are personally connected with their customers. They market to people who care where their food comes from and how it is produced – locally grown, organic, natural, humanely raised, hormone and antibiotic free, etc. – and, they receive premium prices by producing foods their customers value. Their farms are more profitable as well as more ecologically sound and socially responsible.

These new farmers challenge the stereotype of the farmer as a fiercely independent competitor. They freely share information and encouragement. They form partnerships and cooperatives to buy equipment, to process and market their products, to do together the things that they can’t do as well alone. They are not trying to drive each other out of business; they are trying to help each other succeed. They refuse to exploit each other for short run gain; they are trying to build long-term relationships. They feel a personal connectedness to each other. They buy locally and market locally. They bring people together in positive, productive relationships that contribute to their economic, ecological, and social well-being. They are helping to revitalize rural communities and are providing a new foundation for sustainable rural community development.

Finally, to these new farmers, farming is as much a way of life as a way to make a living. They are “quality of life” farmers. To them, the farm is a good place to live – a healthy environment, a good place to raise a family, and a good way to be a part of a caring community. Many of these farms create economic benefits worth tens of thousands of dollars, in addition to any reported net farm income. Their “quality of life” objectives are at least as important as the economic objectives in carrying out their farming operations. Their farming operations reflect the things they like to do, the things they believe in, and the things they have a passion for, as much as the things that might yield profits. They are connected spiritually through a sense of purpose and meaning for their lives. However, for many, their products are better and their costs are less because by following their passion they end up doing what they do best. Most new farmers are able to earn a decent income, but more important, they have a higher quality of life because they are living a life that they love.
There are literally thousands of these new farmers, all across the North American continent, creating new and better ways to farm. They may label themselves organic, biodynamic, ecological, natural, holistic, practical, innovative, or nothing at all; but they are all pursuing the same basic purpose. They are on the frontier of a new and different kind of agriculture, an agriculture capable of meeting the needs of the present while leaving equal or better opportunities for those of the future – a sustainable agriculture. These farmers face struggles and hardships and there are failures along the way. Life is rarely easy on any new frontier. But, a growing number are finding ways to succeed.

These new American farmers are getting very little help from government farm programs, from publicly funded research and education programs, or from anyone else in the “agricultural establishment.” These new farmers glean information from wherever they can find it; some of the best available published sources are often several decades old. They also learn from each other. But for the most part, they have learned to rely on their common sense. They have rejected the conventional wisdom of industrialization, and instead have embraced the common sense of sustainability.

They have rejected the conventional wisdom of specialization of function and instead, have adopted a more holistic approach to managing their physical and economic resources. They have rejected the conventional wisdom of standardization of process, and instead, have farming systems that match the diversity of their resources and markets. They have rejected the conventional wisdom that farmers must get bigger or get out, and instead, have found ways to make a better living with less land and less money invested. They have rejected the conventional wisdom of independence and competition, and instead, have focused on “interdependence,” relationships of choice, and cooperation with their neighbors and their customers. These new American farmers have rejected the conventional wisdom of industrialization and are embracing a new and different common sense vision for a sustainable future.
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Human civilization, like American agriculture, is in the midst of a “great transition.” The industrial era of economic development is drawing to a close and a new era of sustainable human progress is dawning. Industrialization is the physical manifestation of a “mechanistic” way of thinking about the world that goes back more than 400 years – to the beginning of the “age of enlightenment” and the “birth of science.” Rene Descartes, a Frenchman, suggested that the world worked like a “big complex machine” – specifically like a big clock – with many interrelated but separable parts. Sir Isaac Newton, an Englishman, built upon Descartes’ ideas and developed many of the fundamental principles of modern mechanical physics.

At first, the then new principles of physics were used only in dealing with “dead things” – inanimate materials, such as liquids, minerals, gases – as Descartes had suggested was their appropriate use. Over time, however, scientists began to use the same principles to study and to manipulate “living things” – even “thinking things,” such as human beings. Today, modern science treats all things as if they were mechanistic, including living things -- plants, animals, and humans. Muscles and bones are nothing more than a complex system of levers and pulleys, the circulatory system a complicated plumbing system with pumps and valves, and the mind, a sophisticated computer with electrical circuits and connections.

This mechanistic worldview led to the many marvels of today’s world of science. It provided the conceptual foundation for the industrial era of human progress. Machines could duplicate, extend, and eventually replace the productive processes of nature. Factories could be built that would use machines, fossil energy, and human labor to transform various raw materials into useful finished products, much as nature uses plants and solar energy to transform minerals from the earth into food and fiber. People were no longer dependent on nature. They could “manufacture” the things they needed or wanted. They didn’t have to wait for nature to provide them.

The industrial era brought many benefits. It removed much of the drudgery from day to day life, it challenged the then constant specter of starvation, and it
suppressed diseases to extend human life. Few would willingly choose to return to a pre-industrial society. However, in the past few decades, we have begun to realize that treating “living” things as if they were “dead” has inherent negative consequences. In fact, nearly every social, ecological, and economic ill of today can be traced to our treating living organisms, including people, as if they were inanimate, mechanistic objects.

A farm is a living organism – soils, plants, animals, people, all are living, growing organs. The social, ecological, and economic problems of American agriculture today are all direct consequences of treating the soil, plants, animals, and people as if they were separable, replaceable, mechanistic parts of some sort of sophisticated “biological factory.” Current “bio-technologies” are but the latest products of an outdated worldview that treats life as nothing more than a sophisticated mechanical process.

A rural community is a living organism – an organization of living beings. The people who constitute a community are living, breathing, thinking, caring, and loving beings. The social, ecological, and economic problems confronting rural communities today are a consequence of treating people as if they were separable, replaceable, mechanistic parts of some “complex mechanism” called a community. Current efforts to develop rural areas by recruiting outside industries that exploit and degrade the rural environment and de-skill rural people is a reflection of this outdated mechanistic way of thinking.

Machines are manmade; they are designed to carry out specific functions in order to achieve a specific purpose. If the machine is properly designed and built, it will perform its intended function. The purpose and function are built into the machine. But all machines eventually become obsolete or wear out, regardless on how well they are maintained. Worn out or obsolete machines must be redesigned, rebuilt, or discarded, and may or may not be replaced. Machines can’t redesign, rebuild, or replace themselves.

Living things are born, germinate, hatch, or otherwise come to life. Living things
are born with a purpose. As they grow and mature, they become capable of performing the various functions necessary to fulfill their purpose in life. They may be well nurtured, but all living things eventually die. Before they die, however, living things have the capacity to reproduce themselves. Reproduction is an essential part of the continuing process of life.

Living things are “self-making” – this characteristic, more than any other, distinguishes between living and dead systems. Living things are dynamic and ever changing. Their physical structure changes and evolves as necessary to allow them to fulfill their purpose in an ever-changing physical and social environment. However, the pattern of a living thing, its DNA, remains unchanged throughout its life. A human is always a human at all stages of life – whether it’s a bouncing baby, a strong mature adult, or a feeble “senior citizen,” it’s the “same” human. This, continual self-renewal of structure, in accordance with an unchanging pattern, is an essential part of the process of life.

The key to revitalizing and sustaining rural communities is the same as the key to agricultural sustainability, to quit treating living organisms, including people, as if they were inanimate “machines.” The development of new, sustainable rural communities will require an approach very different from the traditional approach of industrial, economic development. The stages of developing the new American community should be patterned after the “stages of life,” not after the phases of building a factory. The stages of life include conception, birth, early development, growth, maturity, productivity, and regeneration before death – in an endless cycle.

The first stage in a “living systems” approach to development is to define the purpose of the process. To be sustainable, the fundamental purpose for any rural community must be linked to the community, to the specific place or location, where development is to be sustained. This does not imply a return to agriculturally dependent communities, but for development to be sustainable, it must be “linked” to some something in the community that cannot be moved elsewhere. Capital, technology, and even people, with no commitment to the
community, will move to wherever they can earn the highest economic return. Land, on the other hand, must be used where it lies. Some rural areas have highly desirable climates, others beautiful landscapes, others have abundant forest or minerals, but the most valuable geographically fixed resource in most rural areas today is still “farmland.” Thus, agriculture is still a logical foundation for rural revitalization and for the sustainable development of many rural communities.

The failure of agricultural-linked rural development strategies of the past was not inherent in their linkages to agriculture, but rather in the specific type of agriculture to which they were linked. Sustainable rural community development must be linked with sustainable agriculture and with other strategies for the sustainable development of local natural resources.

Regardless, the first stage in revitalization of a rural community is for the people of the community to come together, formally or informally, and redefine or rediscover their fundamental purpose for being in the community – for being in that place. For “natural” living systems, such as humans, purpose is defined at some “higher level” of organization – still, we humans must continually reassess “our perceptions” of the purpose for our life. In communities, people must find a common sense of shared purpose, some reason in common for their living and working together. A community of people with no commonality of purpose is not really a community, but rather, a collection of people who happen to be living in the same geographic area.

The “conception” of the development process occurs with the selection of a set of guiding principles. Principles define the basic nature of the development process, and thus, determine whether the process is consistent with the purpose. Principles provide the conceptual DNA. The DNA of living things determines what they are – plants, animals, insects, humans, etc. – but it also defines the uniqueness of each member of each living species. Likewise, principles define the basic nature of a development process, industrial, sustainable, etc., as well as define the uniqueness of particular development initiatives.
The number and nature of guiding principles should be sufficient to ensure that, if followed, the purpose of the community can be carried out. However, principles that are not necessary in carrying out the purpose should be omitted, to avoid unnecessary complexity and distraction. For example, the principles of sustainable development are ecological integrity, economic viability, and social responsibility. Any process which follows these principles will be sustainable, any process that does not, will not. The three principles are both necessary and sufficient.

After “conception” comes “birth and early development.” The “living systems” approach assumes that development processes require different types of support during the early phases of development than will be required at later stages. Industrial developers prefer to bring “full grown” industries into their communities so they can immediately realize whatever benefits are to be achieved. However, these “outside” industries have no “natural ties” to the community – they didn’t “grow up” there. They have no commitment to contribute to the community in any way that does not fulfill their short-run corporate economic objectives.

Sustainable development must be “grassroots” development – it must be “conceived and born of” local people, who are committed to the future of the community. The conceptions or ideas of such people must be brought to life, encouraged, and nurtured – their initiatives must be supported, so eventually, their “infant” ventures will grow to “maturity.” And in the process, those who are introduced to business and politics will grow to become community leaders with a commitment to helping others within the community to also grow and mature.

The stages of birth and early development should focus on the creation and dissemination of knowledge – on empowering people to solve their own problems and to realize their unique opportunities. The “food” for the early development of knowledge is “information.” And, the type of information provided must be appropriate for “living processes.” Public institutions must be redirected to creating and disseminating information and technologies appropriate for
sustainable, grassroots development rather than traditional industrial development. Public policies should provide “protection” for individual, “grassroots” initiatives, at least during their “early stages” development. Once these early initiatives become “fully developed,” they will be strong enough help “feed and protect” themselves and to nurture the initiatives of others, ensuring the continual self-renewal of the community development process.

The latter developmental stages of growth, productivity, and maturity require little more than encouragement. Access to financing, appropriate marketing infrastructure, accommodative laws, and facilitating regulations are a few examples of the types of encouragement that local entrepreneurs need to grow, develop, and become mature, productive members of their communities and of society. The key to success in the “living systems” approach to development is to focus on people rather than production and profits. Once people have achieved a desirable quality of life – economically, socially, and spiritually – they will be committed to the well-being of others, both today and in the future.

Mature members of “living communities” will accept the social responsibilities of caring for others as a privilege, not as a sacrifice. Mature members of “living communities” will accept the responsibilities of stewardship of nature, as a privilege, not as a sacrifice. Mature members of “living communities” will accept their responsibilities to “regenerate” their community, not to abandon it. They will participate with others in the process of “conception and birth” of the new ideas needed to sustain new generations of people. They will contribute to the “early development and growth” of others who will grow and mature to fulfill their responsibilities in the future. They will help care for the “aged and dying” of the community, because they will know at some future time their work too will be done.

Most of the so-called “rural economic development” strategies of today instead are sucking the life out of rural North America. Industrial development is driven by the purposes of maximizing profits and growth, which give no recognition to natural limits or constraints. Industrial development is based on the mechanistic
principles of industrialization – of ever-greater specialization of function, standardization of process, and consolidation of control. Industrial development makes no distinction between mechanisms and organisms – between the living and dead. Plants and animals are treated as machines on biological assembly lines; even their genetic materials are considered interchangeable and replaceable. Rural people, those who organize and work on farms or in business organizations, and make up rural communities, are treated as interchangeable and replaceable machines on some assembly. When they grow old or become obsolete, they are discarded and replaced with newer models. It doesn’t take a lot of data or facts to know that such approaches to rural community development are fundamentally flawed. It’s just plain common sense. Rural revitalization and sustainable community development, first and foremost, must be built on a foundation of common sense.

Rural people are free to reject the conventional wisdom that the industrial exploitation of the people and natural resources of rural North America is inevitable. They can reject the conventional wisdom that family farms are things of the past, that sustainable agriculture is impractical and idealistic, and that rural development can no longer be based on agriculture or other natural resource-based enterprises. They can reject the conventional wisdom that rural people are incapable of developing their own economies and communities and instead must rely on outside investment and advice. They can reject the conventional wisdom of an outdated approach to development.

They can learn, instead, to rely on their common sense – the sense of right and wrong, of good and bad, that comes from our spiritual sense of place, within the higher order of things. Our common sense is our insight into the true nature of things. The common sense of humanity is reflected in the Golden Rule, the Ten Commandments, and in similar fundamental principles of life, which transcend all major religions and philosophies of the world. We all have access to this sense we share in common; we only need take the time to listen to it, and then, to use it.
Our common sense tells us that it’s foolish to allow our rural communities to be destroyed for the sake of corporate profits. Our common sense tells us that our systems of development must be ecologically sound and socially responsible if they are to be economically viable, and thus, sustainable over time. Our common sense tells us that caring for the earth and caring for each other is not a sacrifice, but instead, gives our life meaning and purpose. Our common sense tells us it is fundamentally wrong to allow systems made up of living things – plants, animals, and people – to be built, managed, worn out, and discarded as if they were inanimate machines with replaceable parts. Our common sense tells us that revitalization of rural communities and sustainable community development must be based on approaches and processes appropriate for living things, because communities are living organizations.

We know what needs to be done to achieve sustainable development. Thousands of farmers are already on the frontier in developing more sustainable farming systems. Our common sense tells us this same basic approach to working with living farming systems can be employed in revitalizing and sustaining the development of rural communities. As these sustainable farmers are finding new purpose in an ever-changing world, rural people in general can find a new sense of purpose for being in the communities or rural places where they choose to live. Indigenous ideas and “grassroots” initiatives, conceived of the principles of living systems, can come to life, grow, develop, mature, and reproduce, to sustain the development of North America’s rural communities.

American agriculture and rural America are in the midst of a “great transition.” Within this transition are opportunities to reclaim family farms, revitalize rural communities, and to sustain a more desirable quality of life for farmers, rural residents, and society as a whole. We need only the common sense to see the opportunity for change, and courage to seize it.

sponsored by Agricultural Renewal Alliance, Government of Manitoba, at Brandon, Manitoba, October 24-25, 2002.

[2] John Ikerd is Professor Emeritus, University of Missouri, Columbia, MO – USA. E-mail: JEIkerd@AOL.COM  web site: http://www.ssu.missouri.edu/faculty/jikerd

[3] For 50 real life examples, see “The New American Farmer – Profiles in Agricultural Innovation,” the SARE Program, USDA, Washington DC. ($10 US – call: 802-656-0484 or e-mail: sanpubs@uvm.edu , also available free on line at http://www.sare.org/newfarmer )
American agriculture is in the midst of a “great transition.” Agriculture as we have known it, with family farms and viable rural communities, is being rapidly transformed into an industrial agriculture, with factory farms and dying rural communities. Such times of change are times of great risks but also times of great opportunity. There are no guarantees of survival or success. But, an understanding of the forces of change can be quite helpful in coping with the risks of change and in realizing the opportunities. The forces driving change in American agriculture today are the continuing forces of industrialization.

The industrialization of agriculture is not a new phenomenon. The trend toward specialization, standardization, and consolidation – toward industrialization – began around the turn of the 20th century, with the mechanization of agriculture. However, the chemical technologies that emerged from World War II, particularly commercial fertilizers and pesticides, accelerated the industrialization process. Until recently, the most obvious consequence of this process had been larger farms, fewer farms, and fewer farm families. But, farmers and families, real people, were still making the decisions concerning what was produced, how it was produced, who it was produced for, and they considered how their decisions might affect the land and their neighbors.

Until recently, the specialization, standardization, and consolidation of farming had been driven by the decisions of individual, family farmers. Farmers freely chose to adopt the new mechanical and chemical technologies, many of which were developed through publicly supported research, because they seemed to promise increased profits. These technologies invariably promised greater production efficiency, which would reduce cost per unit of production, leaving the farmer with a wider profit margin. Increased efficiency generally meant that
each farmer could produce more than before, in fact, needed to produce more to justify the new technological investment and to realize the full benefit of the new technology.

However, the “early adopters” were the only farmers to realize increased profits. As more and more farmers adopted a new technology, a new kind of machine or agri-chemical, total production invariably increased, because each farmer now was compelled to produce more. The new technologies allowed farmers to reduce costs per unit, but only if they produced more units. With increased production, market prices invariably fell, leaving even the innovators no better off than before. The later adopters rarely had a chance to recoup their investment before prices fell and profits were gone. In cases where the government supported commodity prices, land prices rose instead, with the same net effect on profits. Eventually, technological adoption was motivated by survival rather than profits, and those farmers who adopted too late didn’t survive.

Some farmers had to fail so others could expand – could farm more land or produce more livestock – in order to realize the full benefits of the new technologies. In fact, prices invariably stayed low enough long enough to force enough farmers out of business to accommodate the new industrial technologies. And, after each “technological adjustment” was complete, there was always another round of technology waiting for adoption. Chronic crisis and continuing farm failures have been a necessary consequence of agricultural industrialization.

The current “corporatization” of agriculture is but the final stage of the industrialization process. As the new technologies have required larger and larger operations to justify the new investments, capital requirements have exceeded the credit capacity of all but the largest of individual farmers. Many farmers have formed family corporations to enhance their ability to raise investment capital. Increasingly, however, only the “publicly owned” corporations are able to meet the agricultural capital requirements of an increasingly industrial agriculture. Economists now proclaim corporate contracts as farmers’ only means of gaining
access to the technology, capital, and markets they will need to be competitive in the 21st century. Most of the land and basic production facilities are still owned by individual farmers and family corporations, but production increasingly is carried out under direction of giant agribusiness corporations.

The industrialization and corporatization of American agriculture has been supported by government policies – including government farm programs and publicly supported research and education programs. The overriding objective of such policies has been to increase the efficiency of agriculture for the ultimate benefit of consumers, in the form of lower food prices. The political rhetoric in support of family farming has continued; but government programs obviously have supported continued specialization, standardization, and consolidation, which have ensured the demise of the family farm.

At the signing of the new “Farm Security and Rural Investment Act of 2002,” the President said, “The farm bill will strengthen the farm economy… will promote farmer independence, and preserve the farm way of life for generations.” These same kinds of claims have been made for every U.S. Farm Bill since the 1930s. Yet, the farm economy has continually floundered and American agriculture has limped from one crisis to the next. And now, independent family farmers are becoming a rarity. This new Farm Bill will not do any of the things promised. It simply continues the policies of the past, which subsidize wealthy landowners and the agribusiness corporations, at the expense of family farmers. The new Farm Bill won’t promote farmer independence or preserve the farm way of life. It most certainly will not provide for either “farm security” or “food security,” nor will it improve the lives of people in rural America.

With increasing corporate control of the food system, even those independent producers with lower cost than the contract producers are finding it difficult to compete. The corporations now control much of the new technology, particularly biotechnology, to which farmers can gain access only through contractual arrangements. Large corporate processors increasingly procure nearly all of their raw materials through contracts, thus denying market access, or at least denying
competitive markets, to non-contract producers. The corporatization of agriculture is now driven much more by the quest for increased market share and greater market power than for increased production efficiency.

Family corporations are not all that different from individuals; their decisions reflect the basic values of the family. Even with “closely held” corporations, with few stockholders, decisions can still reflect the basic social and ethical values of the owners. However, once the number of stockholders becomes large, as in large publicly held corporations, and management is essentially separated from ownership, the motives for decision making become profits and growth. Most of the stock in such corporations is owned by mutual funds and pension funds, and the stockholders are concerned foremost, if not completely, with growth in the value of their investment. A corporately controlled agriculture is fundamentally different from the agriculture we have known in the past.

We don’t need a lot of data, facts, or figures to understand what is happening to American agriculture; it’s just plain common sense. In making agriculture more efficient, we have chosen industrial technologies, which have resulted in fewer, larger farming operations, and now, in corporate control of agriculture. The outcome is a logical consequence of the objectives and strategies we have pursued. We have sacrificed our security for the sake of efficiency. It’s just common sense.

So, what’s wrong with a corporate, industrial agriculture? Why should we be concerned? First, many people don’t see anything wrong with a corporate, industrial agriculture, and they are not particularly concerned. As long as the corporations can give them food that is quick, convenient, and cheap, they are not going to ask too many questions. They aren’t all that concerned about where their food comes from, who produces it, how it is produced, and what the consequences are for rural people and the land. Many trust the competitive forces of our “free market” economy to ensure that the needs of society are met.

However, a growing number of people are concerned about the corporate,
industrialization of agriculture. They are concerned about what it is doing to the lives of farm families who are losing control of land that has been in their families for generations. They are concerned about people in rural communities who have supported and been supported by those family farms. They are concerned about the low-pay and long hours in the food processing factories that have moved into some of these chronically depressed rural areas. They are concerned about the landfills, toxic waste dumps, and giant livestock feeding operations that pollute the once pristine rural environment with dangerous chemicals, biological wastes, and hazardous stench. They are concerned about the ability of the soil to continue to produce after the topsoil is eroded and it is saturated with chemicals and about the quality of water subjected to similar abuses. They are concerned about the safety of their food and safety of the people who produce it. They are concerned about the negative impacts of an industrial agriculture on the people who farm the land, who live in rural areas, who eat the food. They are concerned about those of future generations who will still be as dependent upon the land for their sustenance, their very survival, as we are today. They are concerned about the sustainability of agriculture.

This growing concern for agricultural sustainability raises some “common sense” questions about our food system. It asks, how can we equitably meet the needs of people in the present, while leaving equal or better opportunities for those of the future – not just how can we make food quick, convenient, and cheap? It asks, how can we develop an agriculture that is ecologically sound, economically viable, and socially responsible – not just how can we make agriculture more economically efficient? It asks, how can we ensure our long run food security – not just our current abundance? Sustainability asks, how can we sustain a desirable quality of human life on this earth, individually, socially, and ethically – both for ourselves and for those of future generations?

Sustainable farming systems must be ecologically sound, economically viable, and socially responsible. All three are essential; more of one cannot offset a lack of either of the other two. The three dimensions of sustainability are not a part of some formal or legal definition, but instead, are a matter of common sense. If the
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land loses its ability to produce, the farm is not sustainable. If the farmer goes broke, the farm is not sustainable. And if a system of farming fails to support society, it will not be supported by society, and thus, is not sustainable. The economic, ecological, and social dimensions of sustainability are like the three dimensions of a box. All are necessary. A box that is lacking in height, width, or length, quite simply is not a box. A farming system that is lacking in ecological integrity, economic viability, or social responsibility, quite simply is not sustainable.

There is growing evidence that current concerns for the sustainability of agriculture are well founded – that a corporate industrial food system, in fact, is not sustainable. The threats to the natural environment and to the quality of life of farmers, rural residents, and members of society as a whole have continually risen as we have industrialized American agriculture. The same technologies that support our specialized, standardized, large-scale farming systems are now the primary sources of growing environmental degradation. Commercial fertilizers and pesticides – essential elements in a specialized, industrialized agriculture – have become a primary source of growing concerns for environmental degradation and food safety. And, industrialization has transformed agriculture, created for the fundamental purpose of converting solar energy to human-useful form, into a mechanized agriculture that uses more non-renewable fossil energy than it captures in solar energy from the sun.

Industrial systems of production also degrade the human resource base. Henry Ford is quoted as once saying the biggest problem in running a factory is that you have to hire whole people when all you need is two hands. Large corporate contract farming operations transform independent decision-makers, into building superintendents and farm workers – into people who only know how to follow instructions or directions but not how to make decisions. At a recent conference in Minnesota, one farmer remarked, “any fool could grow a good crop of soybeans using the Roundup Ready system of Monsanto.” We have transformed our farms into factories, our fields and feed lots in biological assembly lines, and our farmers into assembly line workers.
Industrial agriculture, inherently, is management “extensive.” It allows fewer farmers to farm more land by using more capital -- machinery and equipment -- and more purchased inputs. As farms have grown larger and more specialized, agriculturally dependent rural communities have withered and died. Larger farms meant fewer farms and fewer farm families to support local schools, churches, public institutions, and retail businesses. In addition, larger farms tend to bypass local communities in purchasing production inputs and in marketing their products. It takes people, not just production, to sustain local communities. The fundamental purpose of agricultural industrialization was to make it possible for fewer people to produce more.

An industrial agriculture degrades the land, because it separates people from the land. As Wendell Berry, the Kentucky farmer, philosopher, and writer puts it: If the land is to be used well, we must have people on the land who know it well, know how to use it well, have time to use it well, and are able to afford to use it well. To farm sustainably, we must have people on the land who love the land. Industrialization has separated farmers from the land, if not physically, at least psychologically. Most farmers today don’t even own the land they farm. Most who own land don’t have enough time or can’t afford to care “for it,” even if they do care “about it.” They can’t afford to love the land and still stay competitive in a global economy.

An industrial agriculture exploits people, because it separates people from each other. Today, farmers can’t be too concerned about their neighbors, because they know their neighbor will have to fail in order for them to succeed. They can’t love their neighbor, because, sooner or later, they will have to have their neighbors land to survive. Neither can farmers be too concerned about the welfare of consumers, because they need a share of the consumers’ income to survive. No matter what tactics the processors and retailers use to separate consumers from their money, or how small the farmers’ share, if the consumer doesn’t buy, the farmer can’t sell. Farmers, processors, retailers, consumers, are locked in economic competition, in pursuit of their individual self-interests. A
No one set about intentionally to destroy the ecological integrity, social responsibility, or economic viability of American agriculture. We simply lost sight of the fundamental purpose of agriculture, to meet the needs of people – as consumers, as producers, as members of rural communities, and of society. In our preoccupation with increasing economic efficiency, to bring down the cost of food, we neglected to monitor what was happening to the overall quality of life of people. In our preoccupation with increasing production today, we neglected to monitor the agricultural legacy we were leaving for people of the future. We don’t need a lot of data, facts, or figures to understand what has happened to American agriculture; it’s just plain common sense.

Thankfully, the corporate industrial approach is not the only viable alternative for our future food and farming systems. A new breed of American farmer has emerged in response to growing concerns about the negative ecological and social impacts of our large-scale, industrial agriculture. These farmers are concerned about the sustainability of agriculture. The success of this new type of farming also has important implications for food safety, food quality, food security, and our overall quality of life.

While there are no “blueprints” for the New American Farm[3], some basic characteristics are emerging. First, these farmers see themselves as stewards of the earth. They are committed to caring for the land and protecting the natural environment. They have a deep sense of personal connection to their land. They work with nature rather than try to control or conquer nature. They fit the farm to their land and climate rather than try to bend nature to fit the way they might prefer to farm. Their farming operations tend to be more diversified than are conventional farms – because nature is diverse. Diversity may mean a variety of crop and animal enterprises, crop rotations and cover crops, or managed livestock grazing systems, depending on the type of farm. By managing diversity, these new farmers are able to reduce their dependence on pesticides, fertilizers, and other commercial inputs that squeeze farm profits and threaten the environment.
Their farms are more economically viable, as well as more ecologically sound, because they farm in harmony with nature.

Second, these new farmers build relationships. They tend to have more direct contact with their customers than do conventional farmers. Most either market their products direct to customers or market through agents who represent them with their customers. They realize that as consumers each of us value things differently because we have different needs and different tastes and preferences. They produce the things that their customers value most. They are not trying to take advantage of their customers to make quick profits; they are trying to create long-term relationships. They are personally connected with their customers. They market to people who care where their food comes from and how it is produced – locally grown, organic, natural, humanely raised, hormone and antibiotic free, etc. – and, they receive premium prices by producing foods their customers value. Their farms are more profitable as well as more ecologically sound and socially responsible.

These new farmers challenge the stereotype of the farmer as a fiercely independent competitor. They freely share information and encouragement. They form partnerships and cooperatives to buy equipment, to process and market their products, to do together the things that they can’t do as well alone. They are not trying to drive each other out of business; they are trying to help each other succeed. They refuse to exploit each other for short run gain; they are trying to build long-term relationships. They feel a personal connectedness to each other. They buy locally and market locally. They bring people together in positive, productive relationships that contribute to their economic, ecological, and social well-being.

Finally, to these new farmers, farming is as much a way of life as a way to make a living. They are “quality of life” farmers. To them, the farm is a good place to live – a healthy environment, a good place to raise a family, and a good way to be a part of a caring community. Many of these farms create economic benefits worth tens of thousands of dollars, in addition to any reported net farm income.
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Their “quality of life” objectives are at least as important as the economic objectives in carrying out their farming operations. Their farming operations reflect the things they like to do, the things they believe in, and the things they have a passion for, as much as the things that might yield profits. They are connected spiritually through a sense of purpose and meaning for their lives. However, for many, their products are better and their costs are less because by following their passion they end up doing what they do best. Most new farmers are able to earn a decent income, but more important, they have a higher quality of life because they are living a life that they love.

There are literally thousands of these farmers who are creating new and better ways to farm. They may label themselves organic, biodynamic, ecological, natural, holistic, practical, innovative, or nothing at all; but they are all pursuing the same basic purpose. They are on the frontier of a new and different kind of agriculture, an agriculture capable of meeting the needs of the present while leaving equal or better opportunities for those of the future – a sustainable agriculture. These farmers face struggles and hardships and there are failures along the way. Life is rarely easy on any new frontier. But, a growing number are finding ways to succeed.

These new American farmers are getting very little help from government farm programs, from publicly funded research and education programs, or from anyone else in the “agricultural establishment.” The government and public universities at least are becoming aware of the sustainability movement, especially through the growth of markets for organic foods. However, the few million dollars of public money allocated to support sustainable agriculture is but a pittance when compared with the billions of tax dollars subsidizing corporate, industrial agriculture. These new farmers glean information from wherever they can find it; some of the best available published sources are often several decades old. They also learn from each other. But for the most part, they have learned to rely on their common sense. They have rejected the conventional wisdom of industrialization, and instead have embraced the common sense of sustainability.
They have rejected the conventional wisdom of specialization of function and instead, have adopted a more holistic approach to managing their physical and economic resources. They have rejected the conventional wisdom of standardization of process, and instead, have farming systems that match the diversity of their resources and markets. They have rejected the conventional wisdom that farmers must get bigger or get out, and instead, have found ways to make a better living with less land and less money invested. They have rejected the conventional wisdom of independence and competition, and instead, have focused on “interdependence,” relationships of choice, and cooperation with their neighbors and their customers.

Understandably, production methods have received much of the attention, thus far, in developing more sustainable farming systems. Farmers traditionally have identified themselves as “producers,” not processors or marketers. At one time, farmers produced food, not raw materials for further processing, and farmers sold their products direct to food consumers. However, one of the first stages of industrialization was the separation of food production into the specialized functions of farming, processing, preservation, and distribution. So, farmers specialize in production of the raw materials and left the rest up to others.

Sustainability, however, will require a reconnecting of these specialized functions – a reintegration of farming with processing, preservation, and distribution; and thus, a reconnection of farmers and consumers. To farm sustainably, farmers will need to relearn both the value and means of developing and maintaining positive productive relationships with their customers. They will have to develop a better understanding of how they can help enhance the quality of life of their customers, if they are to sustain a desirable quality of life for themselves on the farm.

Niche marketing may well hold the key to relationship marketing, and thus, to achieving economic viability for farming systems that are environmentally sound and socially responsible. The natural resource base that supports most agricultural production is diverse – in soils, topography, climate, etc. Niche markets for small quantities of many different types of products allow sustainable
farmers to match their enterprises and production practices to the uniqueness and diversity of their natural resources. Niche markets can make ecologically sound farming systems economically viable.

Niche marketing provides opportunities for more farmers to make a better living in a given geographic area, by allowing farmers to participate in the total process of food production. Eighty percent of the economic value of food is currently created beyond the farm gate, and thus, beyond the farmer’s ability to participate or benefit. By marketing in the niches, individual farmers have opportunities to market direct to consumers, and thus, to participate and benefit from the total process of food production. Thus, niche markets make possible a more socially responsible agriculture – one that not only meets the needs of people, as consumers, but also provides more quality opportunities for people, as producers, to work and live on the land. Niche marketing offers a more socially responsible, sustainable alternative.

Niche marketing provides economic opportunities by allowing farmers to match their unique resources with the unique wants and needs of consumers. A brief review of some basic economic concepts validated the soundness of this proposition. All economic value or utility arises from four fundamental sources: form, place, time, and person or possession. In order to know the value of anything, we must first know four things: Its physical form – what is it? Its geographic location – where is it? The time of availability – when can I get it? And finally, the individual people involved in the transaction – who has it and who wants it? Only when we know the answer to all four questions, can we know the economic value of anything.

During the industrial area, our attention has been focused on the first three dimensions of value – form, place, and time. The fundamental advantage of industrialization is that it greatly reduced the costs of changing the form, time, and place of things, through mass production and mass marketing. But, to achieve the economic efficiencies to mass production and marketing, industrial food producers had assumed that all consumers want the same basic thing. “The
“consumer” wants food that is “quick, convenient, and cheap,” they said, as if there were only “one consumer.”

But, different consumers have different tastes and preferences. The same thing at the same place and time may have greater value to one person than to another. It matters who wants whatever is offered for sale. The tastes and preferences of individual consumers, and small groups of consumers, matter – not just the desires of the masses. But industrial systems couldn’t create benefits for people as individuals, only for people as masses. So it seemed best to the industrialist if people didn’t know too much about what they couldn’t have – they tried to sell everyone on food that is quick, convenient, and cheap.

However, a growing number of consumers are now asking for something more – they want a sustainable food system. Of course, these consumers want some of the same things that other consumers want. They want their food to be safe, wholesome, attractive, flavorful, and reasonably priced, but they are asking for something more. They want to know where their food came from, who produced it, how it was produced, and what were the consequences of its production on the natural environment and on all of the people touched by the process. The sustainable producer must meet some of the same basic expectations as industrial producers with respect to the basic safety and quality of food products. But the sustainable producer must meet the additional expectations of consumers who are concerned with the ecological and social implications of the production process.

Many consumers who are concerned about sustainability will sacrifice cosmetic appearance, preparation time, convenience, and price, at least to some extent, in order to ensure the ecological and social integrity of their food. But, they will not sacrifice on food safety or wholesomeness, and most will expect even higher qualities of freshness, nutrition, and flavor. By marketing in the niches and marketing direct, sustainable farmers can meet those expectations. They can surpass supermarket quality with respect to freshness, nutrition, and flavor, and can meet consumers’ expectations for ecological and social integrity. By marketing in the niche of sustainability, they take themselves out of direct
competition in the quick, convenient, cheap food market.

The critics argue that niche markets are but a small part of the total food market, and that niche markets will always be marginal in relation to the mainstream of food production. However, all consumer markets are made up of niche markets, because we all have different tastes and preferences. The question is not one of size of the total market, but rather of how narrowly the total market can be segmented and still be served effectively at a reasonable cost. The more relevant question may be, how big is the sustainable foods niche market?

Psychologist Sherry Anderson and market researcher, Paul Ray, in their book, The Cultural Creative, indicate that possibly 50 million such people currently live in the United States alone. These “culturally creative” people believe that relationships are very important, share a strong sense of community, are committed to social equity and justice, believe that nature is sacred, and are concerned for the natural environment and ecological sustainability. They also tend to be more altruistic, idealistic, optimistic, and spiritual than is the average American. They are less materialistic; less concerned about job prospects, and have fewer financial concerns. These are all characteristics of people who are concerned about issues of sustainability.

These “Cultural Creatives” have joined together in various social movements, including those advocating social justice, civil rights, human rights, world peace, environmental protection, sustainable development, holistic health, organic foods, and spiritual psychology. These common sense issues are merging into a common movement committed to building a more sustainable human society. While this group represents only about 20 percent of the total population, their numbers are growing, and they are far more than sufficient in numbers to provide markets for a rapidly expanding number of sustainable farmers.

To sustain a farm economically, however, the farmer must find their niche within the sustainability consumer market by developing relationships with their own specific group of individual customers. The social and ethical principles of
sustainability ultimately must be expressed through relationships among people and between people and the earth. For food eaters who do not grow their own food, their relationship must be with their farmer, and through their farmer, with the earth. Such relationships cannot be developed through production and marketing standards for environmental integrity and social justice. They must be developed face-to-face, one-to-one, between people who share a common commitment to each other and to the earth.

“Relationship marketing” takes both farmers and eaters away from the corporate, industrial, competitive market place. The quickness, convenience, and cost of food become secondary to the integrity of the food and the integrity of the farmer-customer relationship. The integrity of the food is ensured by the integrity of the relationship. A violation of this integrity, however, diminishes the quality of the relationship and threatens the integrity of the market. However, “relationship markets” are characterized by mutual concern between farmer and customer for the success and well-being of the other. As long as farmers and eaters genuinely care about each other, they will be able to work through minor misunderstandings and miscommunications. “Relationship markets” also are characterized by a bond of mutual consideration between farmer and eaters, reflected in a degree of patience, empathy, sympathy, and forgiveness that is simply not found in supermarkets and fast food franchises. In the best of “relationship markets,” farmers and their customers support and reinforce their mutual confidence in a better future, with a sense of open-mindedness, optimism, and hopefulness. “Relationship markets” truly reconnect consumers with their farmers, and through their farmer, with the land.

The most prominent examples of relationship food markets today are found in farmers’ markets, community supported agriculture organizations, roadside stands, and other forms of direct contact between farmers and their customers. Another form of relationship market is becoming increasingly common between farmers and chefs in restaurants. In this case, the chef becomes involved in the farmer-eater relationship. In the best of situations, the chef and farmer then work together in meeting the “needs and expectations” of the customer, and the
relationship involves all three. In some cases, farmers’ agents serve the facilitating role in bringing farmers and eaters together. The key in all cases involving a third party is that the third party does not attempt to replace the farmer in the relationship. Ultimately, to ensure sustainability, the customer, the agent, and the farmer must share a connectedness to the land. The key to “relationship marketing” is the connectedness of people with each other, and through each other, with the land.

American agriculture is in the midst of a great transition. Agriculture as we have known it is being transformed into something fundamentally different, and the future of farming and food production in America is at risk. When the corporations have degraded the productivity of the land and have polluted the natural environment, and when they find desperate workers elsewhere who will work even harder for less, they will move on. They will leave America with desolated rural areas that resemble previously colonized third world countries, and will leave Americans without the ability to feed ourselves in a time of crisis. We will become as dependent on the rest of the world for food as we are today for oil. Something is fundamentally wrong in American agriculture. We don’t need a lot of facts and statistics to understand it; it’s just plain common sense.

It’s time for a return to common sense in American agriculture. We are not powerless to oppose the multinational food corporations. We are free to reject the conventional wisdom that corporatization is inevitable, that bigger is better, that the economy is more important than the environment, and that everyone should just mind their own business and look out for themselves. We can learn, instead, to rely on our common sense – the sense of right and wrong, of good and bad that comes from our sense of place within the higher order of things, within which all things are connected. Our common sense is our insight into the true nature of things. This common sense of humanity is reflected in the Golden Rule, the Ten Commandments, and in similar fundamental principles of life, which transcend all of major religions and philosophies of the world. We all have access to this sense we share in common; we only need take the time to listen to it, and then, to use it.
Our common sense tells us that it’s foolish to allow the sustainability of agriculture to be destroyed for the sake of corporate profits. Our common sense tells us that agriculture must be ecologically sound and socially responsible if it is to be economically viable, and thus, sustainable over time. Our common sense tells us that a nation that can’t feed itself is no more secure than a nation that can’t defend itself. And, our common sense tells us that caring for the earth and caring for each other is not a sacrifice, but instead, gives our life meaning and purpose. Sustainability requires nothing more than practicing the Golden Rule, both within and across generations. It asks only that we do for others, including those of future generations, as we would have them do for us.

We know what needs to be done to create a sustainable agriculture. Thousands of farmers are already on the frontier in finding new and more sustainable ways to farm. Millions of potential consumers are searching for ways to help build a more sustainable society. As increasing numbers of these farmers and eaters find ways to reconnect with each other, the vision of agricultural sustainability will become clearer. Niche markets will become the mainstream and relationship marketing will become a way of life as much as a way of doing business. As people begin to reconnect with each other and to reconnect with the earth, all across society, America again will begin to realize the value of relationships. Through a renewed love of the land and of each other, we will realize a higher quality of life.

American agriculture is in the midst of a “great transition.” Within this transition is the opportunity to help build a better world and a better way of life. We need only the common sense to see it, and courage to claim it.

[2] John Ikerd is Professor Emeritus, University of Missouri, Columbia, MO – USA. E-mail:
For 50 real life examples, see “The New American Farmer – Profiles in Agricultural Innovation,” the SARE Program, USDA, Washington DC. ($10 US – call: 802-656-0484 or e-mail: sanpubs@uvm.edu , also available free on line at http://www.sare.org/newfarmer )
American agriculture is in the midst of a “great transition.” Agriculture as we have known it, with family farms and viable rural communities, is being rapidly transformed into an industrial agriculture, with factory farms and dying rural communities. Such times of change are times of great risks but also times of great opportunity. There are no guarantees of survival or success. But, an understanding of the forces of change can be quite helpful in coping with the risks of change and in realizing the opportunities. The forces driving change in American agriculture today are the continuing forces of industrialization.

The industrialization of agriculture is not a new phenomenon. The trend toward specialization, standardization, and consolidation – toward industrialization – began around the turn of the 20th century, with the mechanization of agriculture. However, the chemical technologies that emerged from World War II, particularly commercial fertilizers and pesticides, accelerated the industrialization process. Until recently, the most obvious consequence of this process had been larger farms, fewer farms, and fewer farm families. But, farmers and families, real people, were still making the decisions concerning what was produced, how it was produced, who it was produced for, and they considered how their decisions might affect the land and their neighbors.

Until recently, the specialization, standardization, and consolidation of farming had been driven by the decisions of individual, family farmers. Farmers freely chose to adopt the new mechanical and chemical technologies, many of which were developed through publicly supported research, because they seemed to promise increased profits. These technologies invariably promised greater production efficiency, which would reduce cost per unit of production, leaving the farmer with a wider profit margin. Increased efficiency generally meant that each farmer could produce more than before, in fact, needed to produce more to justify the new technological investment and to realize the full benefit of the new...
However, the “early adopters” were the only farmers to realize increased profits. As more and more farmers adopted a new technology, a new kind of machine or agri-chemical, total production invariably increased, because each farmer now was compelled to produce more. The new technologies allowed farmers to reduce costs per unit, but only if they produced more units. With increased production, market prices invariably fell, leaving even the innovators no better off than before. The later adopters rarely had a chance to recoup their investment before prices fell and profits were gone. In cases where the government supported commodity prices, land prices rose instead, with the same net effect on profits. Eventually, technological adoption was motivated by survival rather than profits, and those farmers who adopted too late didn’t survive.

Some farmers had to fail so others could expand – could farm more land or produce more livestock – in order to realize the full benefits of the new technologies. In fact, prices invariably stayed low enough long enough to force enough farmers out of business to accommodate the new industrial technologies. And, after each “technological adjustment” was complete, there was always another round of technology waiting for adoption. Chronic crisis and continuing farm failures have been a necessary consequence of agricultural industrialization.

The current “corporatization” of agriculture is but the final stage of the industrialization process. As the new technologies have required larger and larger operations to justify the new investments, capital requirements have exceeded the credit capacity of all but the largest of individual farmers. Many farmers have formed family corporations to enhance their ability to raise investment capital. Increasingly, however, only the “publicly owned” corporations are able to meet the agricultural capital requirements of an increasingly industrial agriculture. Economists now proclaim corporate contracts as farmers’ only means of gaining access to the technology, capital, and markets they will need to be competitive in the 21st century. Most of the land and basic production facilities are still owned
by individual farmers and family corporations, but production increasingly is carried out under direction of giant agribusiness corporations.

The industrialization and corporatization of American agriculture has been supported by government policies – including government farm programs and publicly supported research and education programs. The overriding objective of such policies has been to increase the efficiency of agriculture for the ultimate benefit of consumers, in the form of lower food prices. The political rhetoric in support of family farming has continued; but government programs obviously have supported continued specialization, standardization, and consolidation, which have ensured the demise of the family farm.

At the signing of the new “Farm Security and Rural Investment Act of 2002,” the President said, “The farm bill will strengthen the farm economy… will promote farmer independence, and preserve the farm way of life for generations.” These same kinds of claims have been made for every U.S. Farm Bill since the 1930s. Yet, the farm economy has continually floundered and American agriculture has limped from one crisis to the next. And now, independent family farmers are becoming a rarity. This new Farm Bill will not do any of the things promised. It simply continues the policies of the past, which subsidize wealthy landowners and the agribusiness corporations, at the expense of family farmers. The new Farm Bill won’t promote farmer independence or preserve the farm way of life. It most certainly will not provide for either “farm security” or “food security,” nor will it improve the lives of people in rural America.

With increasing corporate control of the food system, even those independent producers with lower cost than the contract producers are finding it difficult to compete. The corporations now control much of the new technology, particularly biotechnology, to which farmers can gain access only through contractual arrangements. Large corporate processors increasingly procure nearly all of their raw materials through contracts, thus denying market access, or at least denying competitive markets, to non-contract producers. The corporatization of agriculture is now driven much more by the quest for increased market share and
greater market power than for increased production efficiency.

Family corporations are not all that different from individuals; their decisions reflect the basic values of the family. Even with “closely held” corporations, with few stockholders, decisions can still reflect the basic social and ethical values of the owners. However, once the number of stockholders becomes large, as in large publicly held corporations, and management is essentially separated from ownership, the motives for decision making become profits and growth. Most of the stock in such corporations is owned by mutual funds and pension funds, and the stockholders are concerned foremost, if not completely, with growth in the value of their investment. A corporately controlled agriculture is fundamentally different from the agriculture we have known in the past.

Americans are losing control over American agriculture. Increasingly, the decisions concerning what will be produced, how much will be produced, where it will be produced, how it will be produced, and who will produce it, are being made, not by American citizens, but by multinational corporations. The people who own the land and do the work may still be Americans, but someone else, somewhere else, is making the decisions. For the most part, contractual arrangements determine who makes the decisions, leaving “producers” as little more than landlords, tractor drivers, or hog house janitors, but certainly not with the traditional role of “farmer.”

The agribusiness corporations dictating the terms of these contracts are legal entities but they are not people. They have no families, no friends, no communities, and increasingly, no national citizenship. The people who work for these corporations are real people and are citizens of some nation – with families, friends, and communities. But, once corporate ownership is separated from management, as in the case of most publicly held corporations, the people within corporations have no choice but serve the economic needs of the corporation for profits and growth. The multinational agribusiness corporations that increasingly control American agriculture have stockholders scattered throughout the world, and thus, have no citizenship.
Increasingly, the multinational corporations will find it more profitable to produce somewhere other than in America. Our land and labor costs are simply too high for America to compete with places such as South America, Australia, South Africa, or China in production of basic agricultural commodities – corn, soybeans, hogs, cattle, cotton, rice, etc. We have higher-paying employment opportunities for our labor and higher-valued residential uses for our land. Eventually, the agribusiness corporations, having no commitment to producing in America, simply will move their operations elsewhere – to somewhere that will give their stockholder a higher return on their investment.

In their struggle to stay competitive in global markets, American producers will feel compelled to accept contractual arrangements that result in the exploitation of both land and people. The industrialization of poultry and hog production, with large-scale confinement animal feeding operations, provides a prime example of such exploitation. These operations consistently pollute the rural environment with odors and waste, yield minimum returns at best for laborers and investors, and drive family farming operations out of business. Even so, they are becoming the only means by which producers can gain access to markets. The same basic trend is already well underway in dairy; and with genetic patenting and biotechnology, corporate control of crop production will soon follow.

Before corporate agriculture abandons America, they will have turned much of rural America into a “third-world” wasteland. Polluted streams and groundwater, abandoned waste lagoons, eroded and depleted topsoil, depleted aquifers, rural crime, a de-skilled workforce, and decaying rural communities; these will be the legacies of the corporatization of American agriculture. Americans will fight back with more environmental rules and regulations, but eventually, short-run economic considerations will prevail. Ultimately, however, the corporations will find it cheaper to produce food and fiber elsewhere in the world. And with a global, “free market” economy, there will be nothing to keep them from moving their agricultural operations elsewhere.
We don’t need a lot of data, facts, or figures to understand what is happening to American agriculture; it’s just plain common sense. In making agriculture more efficient, we have chosen industrial technologies and methods, which have resulted in fewer, larger farming operations, and now, in corporate control of agriculture. In the process, we have lost both the security of our farms and the food security of our nation. These outcomes are the logical consequences of the objectives and strategies we have pursued. We have sacrificed our security for the sake of efficiency. It’s not all that difficult to understand; it’s just common sense.

Economists argue we need not be concerned about becoming dependent upon the rest of the world for our food. They suggest it is only logical that America moves beyond farming in the new global era of economic development, that we have higher valued uses for our land and labor resources. We will be even better fed at a lower cost, they say, because food can now be produced cheaper elsewhere in the world. But in times of crisis, a nation that can’t feed itself is no more secure than is a nation that can’t defend itself. Perhaps we won’t abandon agriculture completely, but we could easily become as dependent on the rest of the world for our food as we are today for our oil. Perhaps, we can keep our food imports flowing, as we do for oil, but how large a military force will it take, how many “small wars” will we have to fight, and how many people will be killed.

Many consumers, members of the public, seem to agree with the economists. They don’t see anything wrong with a corporately controlled, industrial agriculture, and they are not particularly concerned. As long as the corporations can give them food that is quick, convenient, and cheap, they are not going to ask too many questions. They aren’t all that concerned about where their food comes from, who produces it, how it is produced, and what the consequences are for rural people and for the land. Many trust the competitive forces of a “global free market” economy to ensure that the needs of society are met.

However, a growing number of people are concerned about the corporate industrialization of agriculture. They are concerned about what it is doing to the
lives of farm families who are losing control of land that has been in their families for generations. They are concerned about people in rural communities who have supported and been supported by those family farms. They are concerned about the low-pay and long hours in the food processing factories that have moved into some of these chronically depressed rural areas. They are concerned about the landfills, toxic waste dumps, and giant livestock feeding operations that pollute the once pristine rural environment with dangerous chemicals, biological wastes, and hazardous stench. They are concerned about the ability of the soil to continue to produce after the topsoil is eroded and it is saturated with chemicals and about the quality of water subjected to similar abuses. They are concerned about the safety of their food and safety of the people who work to produce it. They are concerned about the negative impacts of an industrial agriculture on the people who farm the land, who live in rural areas, who eat the food. They are concerned about those of future generations who will still be as dependent upon the land for their sustenance, their very survival, as we are today. They are concerned about the sustainability of agriculture.

This growing concern for agricultural sustainability is raising some “common sense” questions about our food system. It asks, how can we equitably meet the needs of people in the present, while leaving equal or better opportunities for those of the future – not just how can we make food quick, convenient, and cheap? It asks, how can we develop an agriculture that is ecologically sound, economically viable, and socially responsible – not just how can we make agriculture more economically efficient? It asks, how can we ensure our long run food security – not just our current abundance? Sustainability asks how can we sustain a desirable quality of human life on this earth, individually, socially, and ethically – both for ourselves and for those of future generations?

Sustainable farming systems must be ecologically sound, economically viable, and socially responsible. All three are essential; more of one cannot offset a lack of either of the other two. The three dimensions of sustainability are not a part of some formal or legal definition, but instead, are a matter of common sense. If the
land loses its ability to produce, the farm is not sustainable. If the farmer goes broke, the farm is not sustainable. And if a system of farming fails to support society, it will not be supported by society, and thus, is not sustainable. The economic, ecological, and social dimensions of sustainability are like the three dimensions of a box. All are necessary. A box that is lacking in height, width, or length, quite simply is not a box. A farming system that is lacking in ecological integrity, economic viability, or social responsibility, quite simply is not sustainable.

There is growing evidence that current concerns for the sustainability of agriculture are well founded – that a corporate industrial food system, in fact, is not sustainable. The threats to the natural environment and to the quality of life of farmers, rural residents, and members of society as a whole have continually risen as we have industrialized American agriculture. The same technologies that support our specialized, standardized, large-scale farming systems are now the primary sources of growing environmental degradation. Commercial fertilizers and pesticides – essential elements in a specialized, industrialized agriculture – have become a primary source of growing concerns for environmental degradation and food safety. And, industrialization has transformed agriculture, created for the fundamental purpose of converting solar energy to human-useful form, into a mechanized agriculture that uses more non-renewable fossil energy than it captures in solar energy from the sun.

The long run food security of America ultimately depends on the sustainability of its agriculture. Once a nation depletes or destroys the productivity of its agricultural base – its soils, its irrigation aquifers, its biological diversity, its agricultural knowledge base, its farming culture – its food supply is no longer secure. If such a nation is strong militarily, it must be willing to go to war to ensure its food supplies. If such a nation is weak militarily, it is continually subject to “blackmail” from food producing nations. A nation without sufficient agricultural resources is more vulnerable than a nation without sufficient energy resources. People can live without gasoline but not without food. A nation that allows its agricultural resources to be exploited for short-run economic gains is
more foolish than a nation that exploits its energy reserves to ensure the wealth of its leaders. Fossil fuels are non-renewable, and thus, eventually will be depleted. It’s just a matter of when. Agricultural resources, on the other hand, are regenerative and renewable – if they are nurtured, cared for, and conserved. The long run security of any nation depends on its willingness and ability to ensure the sustainability of its food and farming systems.

No one set about intentionally to destroy the ecological integrity, social responsibility, or economic viability of American agriculture. We simply lost sight of the fundamental purpose of agriculture, to meet the needs of people – as consumers, as producers, as members of rural communities, and of society. In our preoccupation with making agriculture more productive, we have taken the thinking out of farming; we have degraded the occupation of farming, and diminished the intellectual, social, and economic rewards of being a farmer. In our preoccupation with increasing economic efficiency, to bring down the cost of food, we neglected to monitor what was happening to the overall quality of life of people. In our preoccupation with increasing production today, we neglected to monitor the ecological legacy we were leaving those of future generations. In our preoccupation with remaining economically competitive in a global economy, we have sacrificed our long run food security. We don’t need a lot of data, facts, or figures to understand what has happened to American agriculture; it’s just plain common sense.

Thankfully, a new breed of American farmer has emerged to develop a new and better paradigm for farming. They have emerged in response to growing concerns about the negative ecological and social impacts of the corporate industrial model of agriculture. These new farmers are concerned about the ecological, social, and economic sustainability of agriculture. However, the success of this new type of farming also has important implications for food safety, food quality, food security, and our overall quality of life for all of society.

While there are no “blueprints” for the New American Farm[3], some basic characteristics are emerging. First, these farmers see themselves as stewards of
the earth. They are committed to caring for the land and protecting the natural environment. They have a deep sense of respect and commitment to caring for the land. They work with nature rather than try to control or conquer nature. They fit the farm to their land and climate rather than try to bend nature to fit the way they might prefer to farm. Their farming operations tend to be more diversified than are conventional farms – because nature is diverse. Diversity may mean a variety of crop and animal enterprises, crop rotations and cover crops, or managed livestock grazing systems, depending on the type of farm. By managing diversity, these new farmers are able to reduce their dependence on pesticides, fertilizers, and other commercial inputs that squeeze farm profits and threaten the environment. Their farms are more economically viable, as well as more ecologically sound, because they farm in harmony with nature.

Second, these new farmers build relationships. They tend to have more direct contact with their customers than do conventional farmers. Most either market their products direct to customers or market through agents who represent them with their customers. They realize that as consumers each of us value things differently because we have different needs and different tastes and preferences. They produce the things that their customers value most. They have a strong sense of respect for people, an appreciation for the value of human relationships. They are not trying to take advantage of their customers to make quick profits; they are trying to create long-term relationships. They market to people who care where their food comes from and how it is produced – locally grown, organic, natural, humanely raised, hormone and antibiotic free, etc. – and, they receive premium prices by producing foods their customers value. Their farms are more profitable as well as more ecologically sound and socially responsible.

These new farmers challenge the stereotype of the farmer as a fiercely independent competitor. They freely share information and encouragement. They form partnerships and cooperatives to buy equipment, to process and market their products, to do together the things that they can’t do as well alone. They are not trying to drive each other out of business; they are trying to help each other succeed. They refuse to exploit each other for short run gain; they are trying to
build long-term relationships. They buy locally and market locally. They bring people together in positive, productive relationships that contribute to their economic, ecological, and social well-being. They value people, for personal as well as economic reasons, and want to build and maintain good human relationships.

Third, to these new farmers, farming is as much a way of life as a way to make a living. They are “quality of life” farmers. To them, the farm is a good place to live – a healthy environment, a good place to raise a family, and a good way to become a part of a caring community. Many of these farms create economic benefits worth tens of thousands of dollars, in addition to any reported net farm income. Their “quality of life” objectives are at least as important as the economic objectives in carrying out their farming operations. Their farming operations reflect the things they like to do, the things they believe in, and the things they have a passion for, as much as the things that might yield profits. They are connected spiritually through a sense of purpose and meaning for their lives. However, for many, their products are better and their costs are less because by following their passion they end up doing what they do best. Most new farmers are able to earn a decent income, but more important, they have a higher quality of life because they are living a life that they love.

Finally, new American farms tend to be independently owned and operated, smaller family farms. Without farmers on the land, who care about the land and are able to take care of the land, making decisions about how the land is used, agriculture cannot be sustained. A corporately controlled, large-scale, industrial agriculture quite simply is not sustainable – in America or anywhere. In addition to being independently owned and operated, new American farms also tend to be among America’s smaller farms. They are not necessarily the smallest, as the smallest farms tend to be hobby farms, retirement farms, and rural residences. But, neither are sustainable farms typical among America’s larger farms.

Sustainable farming is a product of balance, or harmony, among the ecological, economic, and social dimensions of a farming system. A smaller farm lacking
this harmony is less likely to be sustainable than a larger farm that is more in harmony. But there are sound, logical reasons to believe that the necessary balance and harmony will be easier to achieve with a larger number of smaller farms than with a smaller number of large farms.

Nature is inherently diverse. Geographic regions are different, watersheds are different, farms are different, and fields on the same farm are even different. Industrial agriculture treats fields, farms, watersheds and even regions as if they were all pretty much the same. Certainly, industrial systems can be fine-tuned a bit here and there to make production practices of one region fit another. Each state has a bit different set of best management practices, and some further adjustments are made from farm to farm and field to field. But, the fundamental systems of conventional production are all pretty much the same.

The same breeds and varieties, fertilizers and feeds, pesticides and antibiotics, machinery and equipment, and business and marketing strategies are used across fields, farms, and watersheds, in all regions of the country. The goal of research is to find universal solutions to common problems -- to find ways to twist, bend, and force nature to conform to some universal production and distribution process. Industrial, large-scale mass production requires this type of uniformity. Biotechnology is but the latest in a long string of futile efforts to force uniformity upon nature.

But nature is diverse. Large-scale production creates inherent conflicts with this diverse nature – and inherently threatens sustainability. Farms that conform to their ecological niches avoid such conflicts. Some ecological niches may be large, but most are quite small. Current concerns for agricultural sustainability are based on strong and growing evidence that most farms have already outgrown their ecological niches and could be more sustainable if they were smaller.

Sustainable farms must also be of a size consistent with their markets. Conventional wisdom is that most markets are mass markets, and thus, farms must be large – or if not, must market collectively. The conventional wisdom is
wrong. Markets are made up of individual consumers, and as consumers – as people – we are all different. We don’t all want the same things. In fact, each of us actually prefers something just a little bit different, and thus, values the same things a bit differently.

Mass markets are created by lumping together a lot of people who are willing to accept the same basic thing – even though they might not prefer them. If mass markets can be created, the food system can be industrialized, and dollar and cent food costs will be lower. The lower price is a bribe to consumers to accept something other than what they actually would prefer. Typically, they must be coerced as well as bribed to accept what the industrial system has to offer. That’s why Americans spend more for advertising and packaging of food than they pay the farmer to produce it. It costs more to convince people to buy industrial food products than it does to produce them.

Eighty cents of each dollar spent for food goes for processing, transportation, packaging, advertising, and other marketing services. Another ten cents goes to cover the costs of purchased inputs – fertilizers, pesticides, fuel, etc. Farmers currently get only about ten cents of each food dollar, on average, for their contribution to the production process. One key to economic sustainability of small farms is to capture a larger share of the consumers’ food dollar by performing some, and bypassing others, of these marketing services. By tailoring their production to consumer niche markets, and selling more directly to consumers, small farmers have an opportunity to make more profits without becoming big farmers.

The conventional wisdom is that niche-marketing opportunities are limited and can support only a handful of farmers. Again, the conventional wisdom is wrong. Since all people want something slightly different, the ultimate in niche marketing would be to give every individual precisely what they want. All consumer markets are made up of individuals – totally, not just in part. Thus, all markets in total are made up of niche markets. The question is not how many niches exist, but instead how many different niches does it make sense to serve?
The relevant answer, at least at present, is that more than enough market niches exist to support as many small farmers as might choose to direct-market to consumers. A lack of niche markets need not place a lower limit on the size of farms. The number of farms can be as many and their size as small as needed to accommodate the ecological niches of nature.

The most compelling argument in support of sustainable farms being smaller is that sustainable farms must be more “intensively” managed. Wendell Berry puts it most succinctly in his book, What are People For, "...if agriculture is to remain productive, it must preserve the land and the fertility and ecological health of the land; the land, that is, must be used well. A further requirement, therefore, is that if the land is to be used well, the people who use it must know it well, must be highly motivated to use it well, must know how to use it well, must have time to use it well, and must be able to afford to use it well." Intensive management is possible only if farmers have an intensive relationship with the land – if they know it, care about it, know how to care for it, take time to care for it, and can afford to care for it – only if they love it. And, one farmer can only love so much land.

Industrialization degrades and destroys the relationship between the farmer and the land. Industrialization is management “extensive.” Specialization, standardization, and centralization allow each farmer to cover more land, supervise more workers, and handle more dollars. Industrial management is “extensive” in that each manager is able to manage more resources. Extensive management makes it possible for each farmer to make more profits in total, even if profits per unit of production are less. But, as the attention of each farmer is spread over more land, more laborers, and more capital, each acre of land, each worker, and each dollar receives less personal attention. The relationship of the farmer with the land, and with the people of the land, is weakened. If the large farmer no longer knows the land, no longer cares about it, forgets how to care for it, doesn’t have time to care for it, or can't afford to care about it, how well will the land be used? How can it remain productive? How can a large farm be sustainable?
A small farm can be managed “intensively.” Intensive management allows a farmer to manage less land, using less labor, while handling fewer dollars. By managing fewer resources more intensively, the farmer is able to make more profit per unit of output, and thus, make more total profits – even if total production or output is less. As the farmer has more time and attention to give to each acre of land, each worker, and each dollar, the farmer’s relationship to the land and the people of the land is strengthened. The small farmer has an opportunity to know the land, to care about it, to learn how to care for it, has time to care for it, and can afford to care about it. The land on a small farm can be used well and it can remain productive. A small farm can be sustainable.

The fundamental purpose of farming is to harvest solar energy – to transform sunlight into food and fiber for human use. It might seem that even God favors the larger farmer because a large farm covers more space, thus, catching more sunshine and rain. But, God also has given us a choice of making either wise or foolish use of the gifts of nature with which we are entrusted. Our industrial agriculture currently uses more energy from fossil fuels than it captures in solar energy from the sun. This can hardly be deemed wise and efficient use. But as a consequence, a small farmer can be more economically, socially, and ecologically viable than a large farm, simply by being a more effective harvester of the solar energy. In essence, a more intensive manager is a better harvester of the sun.

Some ecosystems and farming systems are easier to manage effectively than are others, and thus, require less attention per unit of resources to manage sustainably. Those requiring less intensive management can be larger without sacrificing sustainability. For example, a sustainable wheat/forage/cattle farm may be far larger than a sustainable vegetable/berry/poultry farm. But the sustainable wheat/forage/cattle farm is likely to be far smaller than the typical specialized wheat farm, forage farm, or cattle ranch. And the sustainable vegetable/berry/poultry farm is likely to be far smaller than the typical specialized vegetable farm, berry farm, or poultry operation.
Sustainable farms need not be small in terms of acres farmed or total production, but they will need to be managed intensively. And intensively managed farms will be smaller than will otherwise similar farms that are managed extensively. Neither land nor people can be sustained unless they are given the attention, care, and affection they need to survive, thrive, and prosper, that attention, care, and affection can be more easily given on a smaller than larger farm.

We can encourage a transition from large to small farms by redirecting farm policy toward issues of long run security – toward making it both possible and profitable for family farmers to make a decent living on a small farm. It’s absurd to argue that current farm policies ensure food security, while those policies subsidize the very systems of production and corporations that are placing our food security at risk. We at least need to quit subsidizing the corporatization of agriculture. Ultimately, however, the survival and success of America’s small family farmers will depend on the farmers, not on the government or industry. Family farmers cannot preserve their independence by becoming increasingly dependent upon the government. Farmers cannot preserve a farm way of life by becoming “hired hands” for agribusiness corporations. A farm is secure only when the farmer’s economic and social relationships are relationships of choice, not relationships of necessity. Once the survival of a farm becomes dependent on a contractor, a banker, a lawyer, or the government, there is no farm security. A nation is secure only when it is able to feed itself in a time of crises. Once the nation becomes dependent on multinational corporations for its food, there is no national security.

In fact, the long run food security of the nation rests in the hands of these new family farmers who have broken away from the global industrial food system and have developed relationship markets with local customers. During some future global crisis, we may well be forced to rely on farmers in our local area or region for our very survival. If so, we will need even more farmers on the land who know how to work with nature to produce more without relying on costly commercial inputs. If so, we will need even more farmers who have developed direct relationships with their neighbors and their customers – who have created
value, as well as reduced costs by marketing more directly to local customers. We will need even more farmers who care about the land, care about people, and care about their country. And farmers who are capable of supplying local markets, for the most part, operate small family farms.

Can America depend on these new family farmers? We can if we make it possible for them to remain true family farmers, sustainable farmers, instead of forcing them to exploit the land, their customers, and each other in vain attempts for economic survival. These new farmers are real people. Unlike multinational corporations, they have hearts, they have souls, and they have families, communities, and citizenship. They are not going to quit farming and move away from their family and friends, just because they could make more money elsewhere. They are rooted in the place where they grew up, where they have family, and would like their children to “take root” in those places as well. They are Americans. They love this country. They are not going to renounce their citizenship and leave this country just because they could make more profit farming in some other country. And the vast majority of these new farmers are on America’s small farms.

What can the rest of us do to help? We can buy more of our food at our local farmers’ markets. We can join a Community Supported Agriculture group. We can seek out and encourage local farmers who are willing to sell direct to customers. We can encourage local grocers and restaurateurs to buy from local farmers at every possible opportunity and patronize those who do so. And, we can encourage our friends, neighbors, and professional associates to buy local as well. We can become involved in local and national political issues that affect local farmers’ access to land, markets, capital, and appropriate technology. But equally important, we can do everything in our power to support the new American farmers. Ultimately, our food is no more secure than are our relationships with each other and our relationships with the land. And for most of us, our relationship with land is through these new sustainable farmers, and most of these farmers are on America’s small farms.

[2] John Ikerd is Professor Emeritus, University of Missouri, Columbia, MO – USA. E-mail: JEIkerd@AOL.COM  web site: http://www.ssu.missouri.edu/faculty/jikerd

[3] For 50 real life examples, see “The New American Farmer – Profiles in Agricultural Innovation,” the SARE Program, USDA, Washington DC. ($10 US – call: 802-656-0484 or e-mail: sanpubs@uvm.edu , also available free on line at  http://www.sare.org/newfarmer )
Successful Farming is Mainly about Thinking

John Ikerd

American agriculture is in the midst of a “great transition.” Agriculture as we have known it, with family farms and viable rural communities, is being rapidly transformed into an industrial agriculture, with factory farms and dying rural communities. Such times of change are times of great risks but also times of great opportunity. There are no guarantees of survival or success. But, an understanding of the forces of change can be quite helpful in coping with the risks of change and in realizing the opportunities. The forces driving change in American agriculture today are the continuing forces of industrialization.

The industrialization of agriculture is not a new phenomenon. The trend toward specialization, standardization, and consolidation – toward industrialization – began around the turn of the 20th century, with the mechanization of agriculture. However, the chemical technologies that emerged from World War II, particularly commercial fertilizers and pesticides, accelerated the industrialization process. Until recently, the most obvious consequence of this process had been larger farms, fewer farms, and fewer farm families. But, farmers and families, real people, were still making the decisions concerning what was produced, how it was produced, who it was produced for, and they considered how their decisions might affect the land and their neighbors.

Until recently, the specialization, standardization, and consolidation of farming had been driven by the decisions of individual, family farmers. Farmers freely chose to adopt the new mechanical and chemical technologies, many of which were developed through publicly supported research, because they seemed to promise increased profits. These technologies invariably promised greater production efficiency, which would reduce cost per unit of production, leaving the farmer with a wider profit margin. Increased efficiency generally meant that each farmer could produce more than before, in fact, needed to produce more to justify the new technological investment and to realize the full benefit of the new
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technology.

However, the “early adopters” were the only farmers to realize increased profits. As more and more farmers adopted a new technology, a new kind of machine or agri-chemical, total production invariably increased, because each farmer now was compelled to produce more. The new technologies allowed farmers to reduce costs per unit, but only if they produced more units. With increased production, market prices invariably fell, leaving even the innovators no better off than before. The later adopters rarely had a chance to recoup their investment before prices fell and profits were gone. In cases where the government supported commodity prices, land prices rose instead, with the same net effect on profits. Eventually, technological adoption was motivated by survival rather than profits, and those farmers who adopted too late didn’t survive.

Some farmers had to fail so others could expand – could farm more land or produce more livestock – in order to realize the full benefits of the new technologies. In fact, prices invariably stayed low enough long enough to force enough farmers out of business to accommodate the new industrial technologies. And, after each “technological adjustment” was complete, there was always another round of technology waiting for adoption. Chronic crisis and continuing farm failures have been a necessary consequence of agricultural industrialization.

The current “corporatization” of agriculture is but the final stage of the industrialization process. As the new technologies have required larger and larger operations to justify the new investments, capital requirements have exceeded the credit capacity of all but the largest of individual farmers. Many farmers have formed family corporations to enhance their ability to raise investment capital. Increasingly, however, only the “publicly owned” corporations are able to meet the agricultural capital requirements of an increasingly industrial agriculture. Economists now proclaim corporate contracts as farmers’ only means of gaining access to the technology, capital, and markets they will need to be competitive in the 21st century. Most of the land and basic production facilities are still owned
by individual farmers and family corporations, but production increasingly is carried out under direction of giant agribusiness corporations.

The industrialization and corporatization of American agriculture has been supported by government policies – including government farm programs and publicly supported research and education programs. The overriding objective of such policies has been to increase the efficiency of agriculture for the ultimate benefit of consumers, in the form of lower food prices. The political rhetoric in support of family farming has continued; but government programs obviously have supported continued specialization, standardization, and consolidation, which have ensured the demise of the family farm.

At the signing of the new “Farm Security and Rural Investment Act of 2002,” the President said, “The farm bill will strengthen the farm economy… will promote farmer independence, and preserve the farm way of life for generations.” These same kinds of claims have been made for every U.S. Farm Bill since the 1930s. Yet, the farm economy has continually floundered and American agriculture has limped from one crisis to the next. And now, independent family farmers are becoming a rarity. This new Farm Bill will not do any of the things promised. It simply continues the policies of the past, which subsidize wealthy landowners and the agribusiness corporations, at the expense of family farmers. The new Farm Bill won’t promote farmer independence or preserve the farm way of life. It most certainly will not provide for either “farm security” or “food security,” nor will it improve the lives of people in rural America.

The survival and success of family farmers will depend on farmers, not the government. Farmers cannot preserve their independence by becoming increasingly dependent upon the government. Farmers cannot preserve the farm way of life by becoming “hired hands” for agribusiness corporations. A farm is secure only when the farmer’s economic and social relationships are relationships of choice, not relationships of necessity. Once the survival of a farm becomes dependent on a contractor, a banker, a lawyer, or the government, there is no farm security. A nation is secure only when it is able to feed itself in a time of crises.
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With increasing corporate control of the food system, even those independent producers with lower cost than the contract producers are finding it difficult to compete. The corporations now control much of the new technology, particularly biotechnology, to which farmers can gain access only through contractual arrangements. Large corporate processors increasingly procure nearly all of their raw materials through contracts, thus denying market access, or at least denying competitive markets, to non-contract producers. The corporatization of agriculture is now driven much more by the quest for increased market share and greater market power than for increased production efficiency.

Family corporations are not all that different from individuals; their decisions reflect the basic values of the family. Even with “closely held” corporations, with few stockholders, decisions can still reflect the basic social and ethical values of the owners. However, once the number of stockholders becomes large, as in large publicly held corporations, and management is essentially separated from ownership, the motives for decision making become profits and growth. Most of the stock in such corporations is owned by mutual funds and pension funds, and the stockholders are concerned foremost, if not completely, with growth in the value of their investment. A corporately controlled agriculture is fundamentally different from the agriculture we have known in the past.

We don’t need a lot of data, facts, or figures to understand what is happening to American agriculture; it’s just plain common sense. In making agriculture more efficient, we have chosen industrial technologies and methods, which have resulted in fewer, larger farming operations, and now, corporate control of agriculture. In the process, we have lost both the security of our farms and the food security of our nation. These outcomes are the logical consequences of the objectives and strategies we have pursued. We have sacrificed our security for the sake of efficiency. It’s not all that difficult to understand; it’s just common sense.
So, what’s wrong with a corporate, industrial agriculture? Why should we be concerned? First, many people don’t see anything wrong with a corporate, industrial agriculture, and they are not particularly concerned. As long as the corporations can give them food that is quick, convenient, and cheap, they are not going to ask too many questions. They aren’t all that concerned about where their food comes from, who produces it, how it is produced, and what the consequences are for rural people and for the land. Many trust the competitive forces of our “free market” economy to ensure that the needs of society are met.

However, a growing number of people are concerned about the corporate industrialization of agriculture. They are concerned about what it is doing to the lives of farm families who are losing control of land that has been in their families for generations. They are concerned about people in rural communities who have supported and been supported by those family farms. They are concerned about the low-pay and long hours in the food processing factories that have moved into some of these chronically depressed rural areas. They are concerned about the landfills, toxic waste dumps, and giant livestock feeding operations that pollute the once pristine rural environment with dangerous chemicals, biological wastes, and hazardous stench. They are concerned about the ability of the soil to continue to produce after the topsoil is eroded and it is saturated with chemicals and about the quality of water subjected to similar abuses. They are concerned about the safety of their food and safety of the people who work to produce it. They are concerned about the negative impacts of an industrial agriculture on the people who farm the land, who live in rural areas, who eat the food. They are concerned about those of future generations who will still be as dependent upon the land for their sustenance, their very survival, as we are today. They are concerned about the sustainability of agriculture.

This growing concern for agricultural sustainability is raising some “common sense” questions about our food system. It asks, how can we equitably meet the needs of people in the present, while leaving equal or better opportunities for those of the future – not just how can we make food quick, convenient, and
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cheap? It asks, how can we develop an agriculture that is ecologically sound, economically viable, and socially responsible – not just how can we make agriculture more economically efficient? It asks, how can we ensure our long run food security – not just our current abundance? Sustainability asks, how can we sustain a desirable quality of human life on this earth, individually, socially, and ethically – both for ourselves and for those of future generations?

Sustainable farming systems must be ecologically sound, economically viable, and socially responsible. All three are essential; more of one cannot offset a lack of either of the other two. The three dimensions of sustainability are not a part of some formal or legal definition, but instead, are a matter of common sense. If the land loses its ability to produce, the farm is not sustainable. If the farmer goes broke, the farm is not sustainable. And if a system of farming fails to support society, it will not be supported by society, and thus, is not sustainable. The economic, ecological, and social dimensions of sustainability are like the three dimensions of a box. All are necessary. A box that is lacking in height, width, or length, quite simply is not a box. A farming system that is lacking in ecological integrity, economic viability, or social responsibility, quite simply is not sustainable.

There is growing evidence that current concerns for the sustainability of agriculture are well founded – that a corporate industrial food system, in fact, is not sustainable. The threats to the natural environment and to the quality of life of farmers, rural residents, and members of society as a whole have continually risen as we have industrialized American agriculture. The same technologies that support our specialized, standardized, large-scale farming systems are now the primary sources of growing environmental degradation. Commercial fertilizers and pesticides – essential elements in a specialized, industrialized agriculture – have become a primary source of growing concerns for environmental degradation and food safety. And, industrialization has transformed agriculture, which was created for the fundamental purpose of converting solar energy to human-useful form, into an industrial process that uses more non-renewable fossil energy than it captures in solar energy from the sun.
Industrial systems of production also degrade the human resource base. Henry Ford is quoted as once saying the biggest problem in running a factory is that you have to hire whole people when all you need is two hands. Large corporate contract farming operations transform independent decision-makers, into building superintendents and farm workers – into people who only know how to follow instructions or directions but not how to make decisions. At a recent conference in Minnesota, one farmer remarked, “any fool could grow a good crop of soybeans using the Roundup Ready system of Monsanto.” If any fool can grow a good crop of Monsanto soybean, just how much do you think anyone is going to get rewarded for doing it? And the answer, about the same as a fool can earn doing anything else – not much. We have transformed our farms into factories, our fields and feed lots into biological assembly lines, and our farmers into low-skilled, low-paid assembly line workers.

There is dignity in all work, including assembly line work. However, as Adam Smith pointed out in, Wealth of Nations, “The man whose whole life is spent in performing a few simple operations… has no occasions to exert his understanding, or to exercise his invention in finding out expeditions for removing difficulties which never occur. He naturally loses, therefore, the habit of such exertion, and generally becomes as stupid and ignorant as is possible for a human creature to become.”

With industrial agriculture, particularly contract agriculture, someone other than the farmer is doing all of the important thinking. Someone other than the farmer has developed the hybrid seed and the chemical fertilizers and pesticides that now nourish and protect the crop of industrial farming. Someone other than the farmer developed the breeds, feeds, and confinement facilities that now dominate animal agriculture. In many cases, someone other than the farmer decides which kinds and how much seed and chemicals to use and when to use them. In contract livestock and poultry operations, someone other than the farmer makes the decisions concerning buildings, breeding, feeding, medicating, and marketing. And in many cases, someone else even owns the live animals and decides when to
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bring them to the farm, and when to take them away. It doesn’t take much thinking to be a contract producer – simply carry out someone else’s instructions.

Someone other than the farmer is doing all of the productive thinking in commercial agriculture today, and someone other than the farmer is making all of the money. The one who solves the problem, benefits from the solution, the one who does something creative, benefits from the new innovation. It’s just common sense. And equally important, those for whom “farming” has been reduced to performing a “few simple operations,” although possibly intelligent in other respects, “in farming” they “generally become as stupid and ignorant as is possible for a human creature to become.” A friend of mine once visited Russia to help those who had worked on the communist collective farms learn how to operate their own small farms. He commented that it was easier to teach former jet pilots how to farm than to teach Soviet farm workers how to farm. Former jet pilots at least knew how to make decisions, although they knew nothing about farming. For decades, Soviet farm workers simply followed some else’s directions, and thus, no longer knew anything about farming or about how to make decisions. If people aren’t challenged to think, they soon forget how to think. Again, it’s simply a matter of common sense.

Industrial agriculture also leads to a loss of understanding, knowledge, and appreciation of the land. As farmers have come to rely on commercial inputs rather than the natural fertility of the soil, they have lost their appreciation for the value of understanding how to maintain the inherent fertility of the land. As livestock have been separated from the land and placed in large confinement operations, animal producers have lost all sense of connectedness to the land. As Wendell Berry, the Kentucky farmer, philosopher, and writer puts it: If the land is to be used well, we must have people on the land who know it well, know how to use it well, have time to use it well, and are able to afford to use it well. To farm sustainably, we must have people on the land who love the land. Industrialization has separated farmers from the land, if not physically, then mentally, or at least psychologically. Most farmers today don’t even own the land they farm. Most who own land don’t have enough time or can’t afford to care “for it,” even if they
do care “about it.” They can’t afford to love the land; they have to stay competitive in a global economy.

An industrial agriculture also leads to a loss of understanding, knowledge, and appreciation of people. Today, farmers can’t be too concerned about their neighbors, because they know their neighbor will have to fail in order for them to succeed. They can’t love their neighbor, because, sooner or later, they will have to have their neighbors land to survive. Neither can farmers be too concerned about the welfare of consumers, because they need a share of the consumers’ income to survive. No matter what tactics the processors and retailers use to separate consumers from their money, or how small the farmers’ share, if the consumer doesn’t buy, the farmer can’t sell. Farmers, processors, retailers, consumers, are locked in economic competition, in pursuit of their individual self-interests.

No one set about intentionally to destroy the ecological integrity, social responsibility, or economic viability of American agriculture. We simply lost sight of the fundamental purpose of agriculture, to meet the needs of people – as consumers, as producers, as members of rural communities, and of society. In our preoccupation with making agriculture more productive, we have taken the thinking out of farming; we have degraded the occupation of farming, and diminished the intellectual, social, and economic rewards of being a farmer. In our preoccupation with increasing economic efficiency to bring down the cost of food, we neglected to monitor what was happening to the overall quality of life of people. In our preoccupation with increasing production today, we neglected to monitor the ecological legacy we were leaving those of future generations. We don’t need a lot of data, facts, or figures to understand what has happened to American agriculture; it’s just plain common sense.

This time of “great transition” is not unique to agriculture. A new era of development is beginning to emerge in virtually every sector of modern society. The old industrial era is dying and a new era of sustainability is struggling to be born. Agriculture is just at a slightly different phase of transformation than is
much of the rest of society. The corporatization of agriculture is the last gasp of a
dying age. However, the same basic forces now emerging to create a new
agriculture and a new rural America already are fundamentally transforming
much of the rest of the world. And, those who expect to be successful in this new
world of the future, in farming or in any other occupation, must be both willing
and able to think.

Peter Drucker, a time-honored consultant to twentieth-century industry, says this
in his book Post-Capitalist Society:

"Every few hundred years in Western history there occurs a sharp
transformation. Within a few short decades, society rearranges itself --
its worldview; its basic values; its social and political structure; its
arts; its key institutions. Fifty years later, there is a new world.... We
are currently living through just such a transformation."

The thing most certain about the future is that it will be very different from
today. The industrial era is behind us, and something fundamentally different lies
ahead. Although agriculture is still caught in the grips of industrialization,
corporatization is the final phase of the industrial process. Much of the rest of the
developed world already is moving beyond industrialization. The giant global
corporations of today are but an unfortunate remnant of this past era. They exist
not because they are more productive or efficient than other forms of
organization, but only because of the economic and political power they were
able to amass when industrialization was in its prime. Multinational corporations
have lost their usefulness and value to society, and ultimately, must lose their
economic and political power.

Noted futurist, Alvin Toffler, in his book Powershift, points out that many
forecasters simply present unrelated trends, such as industrialization, as if they
would continue indefinitely. But, by simply extending trends, they fail to provide
any insight of how trends are interconnected or when and why trends might
change. The agricultural press is filled with such forecasts for the future of
agriculture – simply extending industrial trends into the indefinite future. Biotechnology and information technologies are presented as nothing more than new tools of industrialization. But, Toffler contends that the industrial model of economic progress is becoming increasingly obsolete, and he talks of a new knowledge-based era of development.

Drucker, in his book: The New Realities, talks of the "post business society." He states, "the biggest shift -- bigger by far than the changes in politics, government or economics -- is the shift to the knowledge society. The social center of gravity has shifted to the knowledge worker. All developed countries are becoming post-business, knowledge societies." Toffler agrees that, "the most important economic development of our lifetime has been the rise of a new system of creating wealth, based on the mind." “Because it reduces the need for raw material, labor, time, space, and capital, knowledge becomes the central resource of the advanced economy,” he writes.

Robert Reich, former Secretary of Labor, addresses future trends in the global economy in his book, The Work of Nations. He identifies Symbolic-analysts as the "mind workers" of the future. They include all the problem-solvers, problem-identifiers, and strategic-brokers. They include scientists, design engineers, public relations executives, investment bankers, doctors, lawyers, real estate developers, consultants of all types, -- people who earn their living mostly by thinking. Like Toffler and Drucker, Reich believes that future human progress will result from symbolic-analysis, from mind work, rather than routine production work or personal services.

Drucker points out an important, fundamental difference between knowledge work and industrial work. He states that industrial work is fundamentally a mechanical process, whereas, the basic principle of knowledge work is biological in nature. He relates this difference to determining the "right size" of organization required to perform a given task. "Greater performance in a mechanical system is obtained by scaling up. Greater power means greater output: bigger is better. But this does not hold for biological systems. There, size
follows function. It would surely be counterproductive for a cockroach to be big, and equally counterproductive for the elephant to be small.” He concludes, that differences in organizing principles may be critically important in determining the future size and ownership structure of economic enterprises. Other things equal, the smallest effective size is best for enterprises based on information and knowledge work. According to Drucker, "'Bigger' will be 'better' only if the task cannot be done otherwise.”

But if the industrial era is ending, why are we seeing the rapid industrialization in some sectors of the agricultural economy, specifically in hog and dairy production? In Joel Barker's book, Paradigms, he points out that new paradigms tend to emerge while, in the minds of most people, the old paradigm is doing quite well. Typically, "a new paradigm appears sooner than it is needed" and "sooner than it is wanted." Consequently, the logical and rational response to a new paradigm by most people is rejection. New paradigms emerge when it becomes apparent to some people, not necessarily many, that the old paradigm is incapable of solving some important problems of society. Paradigms may also be applied in situations where they are not well suited, thus creating major new problems while contributing little in terms of new solutions.

American agriculture provides a prime example of over application of the industrial paradigm. The early gains of appropriate specialization in agriculture lifted people out of subsistence living and made the American industrial revolution possible. But, more-recent technological “advances” clearly have done more to damage the ecological and social resources of rural areas than any societal benefit they may have created from more "efficient" food production.

Industrialization of agriculture probably lagged behind the rest of the economy because its biological systems were the most difficult to industrialize. Agriculture by nature doesn't fit industrialization; it has to be forced to conform. Consequently, the benefits are less, the problems are greater, it is becoming fully industrialized last, and it likely will remain industrialized for a shorter period.
The increasing corporate control of agriculture today is no longer a reflection of greater efficiency or lower production costs for industrial methods. Instead, it is a reflection of the ability of the giant corporations to enhance their profits by controlling global markets for agricultural commodities. Corporatization brings a century of agricultural industrialization to its logical conclusion, spelling the end of the agricultural industrialization process. After corporatization, something fundamentally new and different will emerge. The corporatization of agriculture, thus, creates an opportunity to develop a new and fundamentally better paradigm for farming, a sustainable agriculture.

Thankfully, a new breed of American farmer has emerged to develop this new and better paradigm for farming. They have emerged in response to growing concerns about the negative ecological and social impacts of the corporate, industrial model of agriculture. These new farmers are concerned about the ecological, social, and economic sustainability of agriculture. However, the success of this new type of farming also has important implications for food safety, food quality, food security, and our overall quality of life for all of society.

While there are no “blueprints” for the New American Farm[3], some basic characteristics are emerging. First, these farmers see themselves as stewards of the earth. They are committed to caring for the land and protecting the natural environment. They have a deep sense of respect and commitment and a growing understanding of the land. They work with nature rather than try to control or conquer nature. They fit the farm to their land and climate rather than try to bend nature to fit the way they might prefer to farm. Their farming operations tend to be more diversified than are conventional farms – because nature is diverse. Diversity may mean a variety of crop and animal enterprises, crop rotations and cover crops, or managed livestock grazing systems, depending on the type of farm. By managing diversity, these new farmers are able to reduce their dependence on pesticides, fertilizers, and other commercial inputs that squeeze farm profits and threaten the environment. Their farms are more economically viable, as well as more ecologically sound, because they farm in harmony with nature.
Second, these new farmers build relationships. They tend to have more direct contact with their customers than do conventional farmers. Most either market their products direct to customers or market through agents who represent them with their customers. They realize that as consumers each of us value things differently because we have different needs and different tastes and preferences. They produce the things that their customers value most. They have a strong sense of respect for people in general and a growing understanding of the needs and preferences of their particular customers. They are not trying to take advantage of their customers to make quick profits; they are trying to create long-term relationships. They market to people who care where their food comes from and how it is produced – locally grown, organic, natural, humanely raised, hormone and antibiotic free, etc. – and, they receive premium prices by producing foods their customers value. Their farms are more profitable as well as more ecologically sound and socially responsible.

These new farmers challenge the stereotype of the farmer as a fiercely independent competitor. They freely share information and encouragement. They form partnerships and cooperatives to buy equipment, to process and market their products, to do together the things that they can’t do as well alone. They are not trying to drive each other out of business; they are trying to help each other succeed. They refuse to exploit each other for short run gain; they are trying to build long-term relationships. They buy locally and market locally. They bring people together in positive, productive relationships that contribute to their economic, ecological, and social well-being. They value people, for personal as well as economic reasons, and have a growing understanding of how to build and maintain good human relationships.

Finally, to these new farmers, farming is as much a way of life as a way to make a living. They are “quality of life” farmers. To them, the farm is a good place to live – a healthy environment, a good place to raise a family, and a good way to be a part of a caring community. Many of these farms create economic benefits worth tens of thousands of dollars, in addition to any reported net farm income.
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Their “quality of life” objectives are at least as important as the economic objectives in carrying out their farming operations. Their farming operations reflect the things they like to do, the things they believe in, and the things they have a passion for, as much as the things that might yield profits. They are connected spiritually through a sense of purpose and meaning for their lives. However, for many, their products are better and their costs are less because by following their passion they end up doing what they do best. Most new farmers are able to earn a decent income, but more important, they have a higher quality of life because they are living a life that they love.

There are literally thousands of these new farmers who are creating new and better ways to farm. They may label themselves organic, biodynamic, ecological, natural, holistic, practical, innovative, or nothing at all; but they are all pursuing the same basic purpose. They are on the frontier of a new and different kind of agriculture, an agriculture capable of meeting the needs of the present while leaving equal or better opportunities for those of the future – a sustainable agriculture. These farmers face struggles and hardships and there are failures along the way. Life is rarely easy on any new frontier. But, a growing number are finding ways to succeed.

These new American farmers are getting very little help from government farm programs, from publicly funded research and education programs, or from anyone else in the “agricultural establishment.” The government and public universities at least are becoming aware of the sustainability movement, especially through the growth of markets for organic foods. However, the few million dollars of public money allocated to support sustainable agriculture is but a pittance when compared with the billions of tax dollars subsidizing corporate, industrial agriculture. These new farmers glean information from wherever they can find it; some of the best available published sources are often several decades old. They also learn from each other. But for the most part, they have learned to rely on their own experiences, and equally important, on their common sense. They have rejected the conventional wisdom of industrialization, and instead have embraced the common sense of sustainability.
Successful farming is thinking farming. It requires an ability to translate observation into information, information into knowledge, knowledge into understanding, and understanding into wisdom. Agricultural has been characterized as the first step beyond hunting and gathering. But historically, farming was still considered a low-skill minimum-thinking occupation that almost anyone could do. Industrialization then was said to be the next step beyond agrarianism – beyond agriculture. Higher skilled factory work was considered a step up from farming. Sustainable farming, however, is not the “first step beyond hunting and gathering.” Sustainable farming is a step beyond high-skilled factory work – it is “mind work.” Certainly, the new sustainable farming systems involve some hard work, but it is mostly about thinking.

Sustainable agriculture is very much in harmony with a post-industrial paradigm of economic and human development. Sustainable agriculture even goes beyond “knowledge-based” development – in that it requires understanding and wisdom. Sustainable farmers provide valuable personal services and societal benefits, which require a sense of ethics and social responsibility as well as intellect. Sustainable farmers are “thinking workers” – or “working thinkers” – as well as thoughtful, caring people. They combine the physical, mental, and spiritual dimensions of productivity. Contrary to what some have suggested, that America must abandon agriculture as it moves beyond industrialization, America simply needs to embrace this new kind of agriculture that brings with it a new vision for a sustainable future.

The sustainable agriculture paradigm the new American farmers are pursuing is completely consistent with the visions of Toffler, Drucker, Reich and others of a post-industrial era of human progress. It is holistic and integrative – not specialized or segmented. It is diverse, dynamic, and site specific – not standardized and routine. It is management intensive and interdependent – not management extensive and centralized in control. The sustainable model of farming is clearly biological rather than mechanical in nature – where size must conform to function. Targeted niche markets, less reliance on land and capital,
Successful farming is mainly about thinking. People are uniquely capable of thinking, thus, successful farming is mostly about thinking people. Returning to Peter Drucker's Post Capitalistic Society:

"In the knowledge society into which we are moving, individuals are central. Knowledge is not impersonal, like money. Knowledge does not reside in a book, a databank, a software program; they contain only information. Knowledge is always embodied in a person, carried by a person; created, augmented, or improved by a person; applied by a person; taught by a person, and passed on by a person. The shift to the knowledge society therefore puts the person in the center."

Successful farming is about information, successful farming is about knowledge, but equally important, successful farming is about having the wisdom to use information and knowledge to meet the needs of people, of all people, both today and in the future. Successful farming is mostly about thinking, but not just about thinking, because successful farming ultimately is about thinking about how to sustain a desirable quality of life for people.

[2] John Ikerd is Professor Emeritus, University of Missouri, Columbia, MO – USA. E-mail: JEIkerd@AOL.COM web site: http://www.ssu.missouri.edu/faculty/jikerd
[3] For 50 real life examples, see “The New American Farmer – Profiles in Agricultural Innovation,” the SARE Program, USDA, Washington DC. ($10 US – call: 802-656-0484 or e-mail: sanpubs@uvm.edu , also available free on line at http://www.sare.org/newfarmer )
American agriculture is in the midst of a “great transition.” Agriculture as we have known it, with family farms and viable rural communities, is being rapidly transformed into an industrial agriculture, with factory farms and dying rural communities. Such times of change are times of great risks but also times of great opportunity. There are no guarantees of survival or success. But, an understanding of the forces of change can be quite helpful in coping with the risks of change and in realizing the opportunities. The forces driving change in American agriculture today are the continuing forces of industrialization.

The industrialization of agriculture is not a new phenomenon. The trend toward specialization, standardization, and consolidation – toward industrialization – began around the turn of the 20th century, with the mechanization of agriculture. However, the chemical technologies that emerged from World War II, particularly commercial fertilizers and pesticides, accelerated the industrialization process. Until recently, the most obvious consequence of this process had been larger farms, fewer farms, and fewer farm families. But, farmers and families, real people, were still making the decisions concerning what was produced, how it was produced, who it was produced for, and they considered how their decisions might affect the land and their neighbors.

Until recently, the specialization, standardization, and consolidation of farming had been driven by the decisions of individual, family farmers. Farmers freely chose to adopt the new mechanical and chemical technologies, many of which were developed through publicly supported research, because they seemed to promise increased profits. These technologies invariably promised greater production efficiency, which would reduce cost per unit of production, leaving the farmer with a wider profit margin. Increased efficiency generally meant that each farmer could produce more than before, in fact, needed to produce more to justify the new technological investment and to realize the full benefit of the new
However, the “early adopters” were the only farmers to realize increased profits. As more and more farmers adopted a new technology, a new kind of machine or agri-chemical, total production invariably increased, because each farmer now was compelled to produce more. The new technologies allowed farmers to reduce costs per unit, but only if they produced more units. With increased production, market prices invariably fell, leaving even the innovators no better off than before. The later adopters rarely had a chance to recoup their investment before prices fell and profits were gone. In cases where the government supported commodity prices, land prices rose instead, with the same net effect on profits. Eventually, technological adoption was motivated by survival rather than profits, and those farmers who adopted too late didn’t survive.

Some farmers had to fail so others could expand – could farm more land or produce more livestock – in order to realize the full benefits of the new technologies. In fact, prices invariably stayed low enough long enough to force enough farmers out of business to accommodate the new industrial technologies. And, after each “technological adjustment” was complete, there was always another round of technology waiting for adoption. Chronic crisis and continuing farm failures have been a necessary consequence of agricultural industrialization.

The current “corporatization” of agriculture is but the final stage of the industrialization process. As the new technologies have required larger and larger operations to justify the new investments, capital requirements have exceeded the credit capacity of all but the largest of individual farmers. Many farmers have formed family corporations to enhance their ability to raise investment capital. Increasingly, however, only the “publicly owned” corporations are able to meet the agricultural capital requirements of an increasingly industrial agriculture. Economists now proclaim corporate contracts as farmers’ only means of gaining access to the technology, capital, and markets they will need to be competitive in the 21st century. Most of the land and basic production facilities are still owned
by individual farmers and family corporations, but production increasingly is
carried out under direction of giant agribusiness corporations.

The industrialization and corporatization of American agriculture has been
supported by government policies – including government farm programs and
publicly supported research and education programs. The overriding objective of
such policies has been to increase the efficiency of agriculture for the ultimate
benefit of consumers, in the form of lower food prices. The political rhetoric in
support of family farming has continued; but government programs obviously
have supported continued specialization, standardization, and consolidation,
which have ensured the demise of the family farm.

At the signing of the new “Farm Security and Rural Investment Act of 2002,” the
President said, “The farm bill will strengthen the farm economy… will promote
farmer independence, and preserve the farm way of life for generations.” These
same kinds of claims have been made for every U.S. Farm Bill since the 1930s.
Yet, the farm economy has continually floundered and American agriculture has
limped from one crisis to the next. And now, independent family farmers are
becoming a rarity. This new Farm Bill will not do any of the things promised. It
simply continues the policies of the past, which subsidize wealthy landowners
and the agribusiness corporations, at the expense of family farmers. The new
Farm Bill won’t promote farmer independence or preserve the farm way of life.
It most certainly will not provide for either “farm security” or “food security,” nor
will it improve the lives of people in rural America.

With increasing corporate control of the food system, even those independent
producers with lower cost than the contract producers are finding it difficult to
compete. The corporations now control much of the new technology, particularly
biotechnology, to which farmers can gain access only through contractual
arrangements. Large corporate processors increasingly procure nearly all of their
raw materials through contracts, thus denying market access, or at least denying
competitive markets, to non-contract producers. The corporatization of
agriculture is now driven much more by the quest for increased market share and
greater market power than for increased production efficiency.

Family corporations are not all that different from individuals; their decisions reflect the basic values of the family. Even with “closely held” corporations, with few stockholders, decisions can still reflect the basic social and ethical values of the owners. However, once the number of stockholders becomes large, as in large publicly held corporations, and management is essentially separated from ownership, the motives for decision making become profits and growth. Most of the stock in such corporations is owned by mutual funds and pension funds, and the stockholders are concerned foremost, if not completely, with growth in the value of their investment. A corporately controlled agriculture is fundamentally different from the agriculture we have known in the past.

Americans are losing control over American agriculture. Increasingly, the decisions concerning what will be produced, how much will be produced, where it will be produced, how it will be produced, and who will produce it, are being made, not by American citizens, but by multinational corporations. The people who own the land and do the work may still be Americans, but someone else, somewhere else, is making the decisions. For the most part, contractual arrangements determine who makes the decisions, leaving “producers” as little more than landlords, tractor drivers, or hog house janitors, but certainly not with the traditional role of “farmer.”

The agribusiness corporations dictating the terms of these contracts are legal entities but they are not people. They have no families, no friends, no communities, and increasingly, no national citizenship. The people who work for these corporations are real people and are citizens of some nation – with families, friends, and communities. But, once corporate ownership is separated from management, as in the case of most publicly held corporations, the people within corporations have no choice but to serve the economic needs of the corporation for profits and growth. The multinational agribusiness corporations that increasingly control American agriculture have stockholders scattered throughout the world, and thus, have no citizenship.
Increasingly, the multinational corporations will find it more profitable to produce somewhere other than in America. Our land and labor costs are simply too high for America to compete with places such as South America, Australia, South Africa, or China in production of basic agricultural commodities – corn, soybeans, hogs, cattle, cotton, rice, etc. We have higher-paying employment opportunities for our labor and higher-valued residential uses for our land. Eventually, the agribusiness corporations, having no commitment to producing in America, will simply move their operations elsewhere – to somewhere that will give their stockholder a higher return on their investment.

In their struggle to stay competitive in global markets, American producers will feel compelled to accept contractual arrangements that result in the exploitation of both land and people. The industrialization of poultry and hog production, with large-scale confinement animal feeding operations, provides a prime example of such exploitation. These operations consistently pollute the rural environment with odors and waste, yield minimum returns at best for laborers and investors, and drive family farming operations out of business. Even so, many producers see contracting as the only means by which they can maintain access to markets. The same basic trend is already well underway in dairy; and with genetic patenting and biotechnology, corporate control of crop production will soon follow.

Before corporate agriculture abandons America, they will have turned much of rural America into a “third-world” wasteland. Polluted streams and groundwater, abandoned waste lagoons, eroded and depleted topsoil, depleted aquifers, rural crime, a de-skilled workforce, and decaying rural communities; these will be the legacies of the corporatization of American agriculture. Americans will fight back with more environmental rules and regulations, but eventually, short-run economic considerations will prevail. Ultimately, however, the corporations will find it cheaper to produce food and fiber elsewhere in the world. And with a global, “free market” economy, there will be nothing to keep them from moving their agricultural operations elsewhere.
We don’t need a lot of data, facts, or figures to understand what is happening to American agriculture; it’s just plain common sense. In making agriculture more efficient, we have chosen industrial technologies and methods, which have resulted in fewer, larger farming operations, and now, in corporate control of agriculture. In the process, we have lost both the security of our farms and the food security of our nation. These outcomes are the logical consequences of the objectives and strategies we have pursued. We have sacrificed our security for the sake of efficiency. It’s not all that difficult to understand; it’s just common sense.

Many economists, however, argue that we need not be concerned about becoming dependent upon the rest of the world for our food. They advise, it is only logical that America moves beyond farming in the new global era of economic development, that we have higher valued uses for our land and labor resources. We will be even better fed at a lower cost, they say, because food can now be produced cheaper elsewhere in the world. But in times of crisis, a nation that can’t feed itself is no more secure than is a nation that can’t defend itself. Perhaps we won’t abandon agriculture completely, but we could easily become as dependent on the rest of the world for our food as we are today for our oil. Perhaps, we can keep our food imports flowing, as we do for oil, but how large a military force will it take, how many “small wars” will we have to fight, and how many people will be killed.

Many consumers, members of the public, seem to agree with the economists. They don’t see anything wrong with a corporately controlled, industrial agriculture, and they are not particularly concerned. As long as the corporations can give them food that is quick, convenient, and cheap, they are not going to ask too many questions. They aren’t all that concerned about where their food comes from, who produces it, how it is produced, and what the consequences are for rural people and for the land. Many trust the competitive forces of a “global free market” economy to ensure that the needs of society are met.
However, a growing number of people are concerned about the corporate industrialization of agriculture. They are concerned about what it is doing to the lives of farm families who are losing control of land that has been in their families for generations. They are concerned about people in rural communities who have supported and been supported by those family farms. They are concerned about the low-pay and long hours in the food processing factories that have moved into some of these chronically depressed rural areas. They are concerned about the landfills, toxic waste dumps, and giant livestock feeding operations that pollute the once pristine rural environment with dangerous chemicals, biological wastes, and hazardous stench. They are concerned about the ability of the soil to continue to produce after the topsoil is eroded and it is saturated with chemicals and about the quality of water subjected to similar abuses. They are concerned about the safety of their food and safety of the people who work to produce it. They are concerned about the negative impacts of an industrial agriculture on the people who farm the land, who live in rural areas, who eat the food. They are concerned about those of future generations who will still be as dependent upon the land for their sustenance, their very survival, as we are today. They are concerned about the sustainability of agriculture.

This growing concern for agricultural sustainability is raising some “common sense” questions about our food system. It asks, how can we equitably meet the needs of people in the present, while leaving equal or better opportunities for those of the future – not just how can we make food quick, convenient, and cheap? It asks, how can we develop an agriculture that is ecologically sound, economically viable, and socially responsible – not just how can we make agriculture more economically efficient? It asks, how can we ensure our long run food security – not just our current abundance? Sustainability asks how can we sustain a desirable quality of human life on this earth, individually, socially, and ethically – both for ourselves and for those of future generations?

Sustainable farming systems must be ecologically sound, economically viable, and socially responsible. All three are essential; more of one cannot offset a lack
of either of the other two. The three dimensions of sustainability are not a part of some formal or legal definition, but instead, are a matter of common sense. If the land loses its ability to produce, the farm is not sustainable. If the farmer goes broke, the farm is not sustainable. And if a system of farming fails to support society, it will not be supported by society, and thus, is not sustainable. The economic, ecological, and social dimensions of sustainability are like the three dimensions of a box. All are necessary. A box that is lacking in height, width, or length, quite simply is not a box. A farming system that is lacking in ecological integrity, economic viability, or social responsibility, quite simply is not sustainable.

There is growing evidence that current concerns for the sustainability of agriculture are well founded – that a corporate industrial food system, in fact, is not sustainable. The threats to the natural environment and to the quality of life of farmers, rural residents, and members of society as a whole have continually risen as we have industrialized American agriculture. The same technologies that support our specialized, standardized, large-scale farming systems are now the primary sources of growing environmental degradation. Commercial fertilizers and pesticides – essential elements in a specialized, industrialized agriculture – have become a primary source of growing concerns for environmental degradation and food safety. And, industrialization has transformed agriculture, created for the fundamental purpose of converting solar energy to human-useful form, into a mechanized agriculture that uses more non-renewable fossil energy than it captures in solar energy from the sun.

No one set about intentionally to destroy the ecological integrity, social responsibility, or economic viability of American agriculture. We simply lost sight of the fundamental purpose of agriculture, to meet the needs of people – as consumers, as producers, as members of rural communities, and of society. In our preoccupation with making agriculture more productive, we have taken the thinking out of farming; we have degraded the occupation of farming, and diminished the intellectual, social, and economic rewards of being a farmer. In our preoccupation with increasing economic efficiency, to bring down the cost of
food, we neglected to monitor what was happening to the overall quality of life of people. In our preoccupation with increasing production today, we neglected to monitor the ecological legacy we were leaving those of future generations. We don’t need a lot of data, facts, or figures to understand what has happened to American agriculture; it’s just plain common sense.

This time of “great transition” is not unique to agriculture. A new era of development is beginning to emerge in virtually every sector of modern society. The old industrial era is dying and a new era of sustainability is struggling to be born. Agriculture is at a slightly different phase of transformation than is much of the rest of society. The corporatization of agriculture is the last gasp of a dying age. However, the same basic forces now emerging to create a new agriculture and a new rural America already are fundamentally transforming much of the rest of the world. And, those who expect to be successful in this new world of the future, in farming or in any other occupation, must be both willing and able to think.

Peter Drucker, a time-honored consultant to twentieth-century industry, says this in his book Post-Capitalist Society:

"Every few hundred years in Western history there occurs a sharp transformation. Within a few short decades, society rearranges itself -- its worldview; its basic values; its social and political structure; its arts; its key institutions. Fifty years later, there is a new world.... We are currently living through just such a transformation."

The thing most certain about the future is that it will be very different from today. The industrial era is behind us, and something fundamentally different lies ahead. Although agriculture is still caught in the grips of industrialization, corporatization is the final phase of the industrial process. Much of the rest of the developed world already is moving beyond industrialization. The giant global corporations of today are but an unfortunate remnant of this past era. They exist not because they are more productive or efficient than other forms of
organization, but only because of the economic and political power they were able to amass when industrialization was in its prime. Multinational corporations have lost their usefulness and value to society, and ultimately, must lose their economic and political power.

Noted futurist, Alvin Toffler, in his book *Powershift*, points out that many forecasters simply present unrelated trends, such as industrialization, as if they would continue indefinitely. But, by simply extending trends, they fail to provide any insight of how trends are interconnected or when and why trends might change. The agricultural press is filled with such forecasts for the future of agriculture – simply extending industrial trends into the indefinite future. Biotechnology and information technologies are presented as nothing more than new tools of industrialization. But, Toffler contends that the industrial model of economic progress is becoming increasingly obsolete, and he talks of a new knowledge-based era of development.

Drucker, in his book: *The New Realities*, talks of the "post business society." He states, "the biggest shift -- bigger by far than the changes in politics, government or economics -- is the shift to the knowledge society. The social center of gravity has shifted to the knowledge worker. All developed countries are becoming post-business, knowledge societies." Toffler agrees, "the most important economic development of our lifetime has been the rise of a new system of creating wealth, based on the mind." “Because it reduces the need for raw material, labor, time, space, and capital, knowledge becomes the central resource of the advanced economy,” he writes.

Robert Reich, former Secretary of Labor, addresses future trends in the global economy in his book, *The Work of Nations*. He identifies Symbolic-analysts as the "mind workers" of the future. They include all the problem-solvers, problem-identifiers, and strategic-brokers. They include scientists, design engineers, public relations executives, investment bankers, doctors, lawyers, real estate developers, consultants of all types, -- people who earn their living mostly by thinking. Like Toffler and Drucker, Reich believes that future human progress
will result from symbolic-analysis, from mind work, rather than routine production work or personal services.

Drucker points out an important, fundamental difference between knowledge work and industrial work. He states that industrial work is fundamentally a mechanical process, whereas, the basic principle of knowledge work is biological in nature. He relates this difference to determining the "right size" of organization required to perform a given task. "Greater performance in a mechanical system is obtained by scaling up. Greater power means greater output: bigger is better. But this does not hold for biological systems. There, size follows function. It would surely be counterproductive for a cockroach to be big, and equally counterproductive for the elephant to be small.” He concludes, that differences in organizing principles may be critically important in determining the future size and ownership structure of economic enterprises. Other things equal, the smallest effective size is best for enterprises based on information and knowledge work. According to Drucker, "'Bigger' will be 'better' only if the task cannot be done otherwise.”

But if the industrial era is ending, why are we seeing the rapid industrialization in some sectors of the agricultural economy, specifically in hog and dairy production? In Joel Barker's book: Paradigms, he points out that new paradigms tend to emerge while, in the minds of most people, the old paradigm is doing quite well. Typically, "a new paradigm appears sooner than it is needed" and "sooner than it is wanted." Consequently, the logical and rational response to a new paradigm by most people is rejection. New paradigms emerge when it becomes apparent to some people, not necessarily many, that the old paradigm is incapable of solving some important problems of society. Paradigms may also be applied in situations where they are not well suited, thus creating major new problems while contributing little in terms of new solutions.

American agriculture provides a prime example of over application of the industrial paradigm. The early gains of appropriate specialization in agriculture lifted people out of subsistence living and made the American industrial
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revolution possible. But, more-recent technological “advances” clearly have done more to damage the ecological and social resources of rural areas than any societal benefit they may have created from more "efficient" food production.

Industrialization of agriculture probably lagged behind the rest of the economy because its biological systems were the most difficult to industrialize. Agriculture by nature doesn't fit industrialization; it has to be forced to conform. Consequently, the benefits are less, the problems are greater, it is becoming fully industrialized last, and it likely will remain industrialized for a shorter period.

The increasing corporate control of agriculture today is no longer a reflection of greater efficiency or lower cost of production costs for industrial production methods. Instead, it is a reflection of the ability of the giant corporations to enhance their profits by controlling global markets for agricultural commodities. Corporatization brings a century of agricultural industrialization to its logical conclusion, spelling the impending end of the agricultural industrialization process. After corporatization will come something fundamentally new and different. The corporatization of agriculture, thus, creates an opportunity to develop a new and fundamentally better paradigm for farming, a sustainable agriculture.

Thankfully, a new breed of American farmer has emerged to develop this new and better paradigm for farming. They have emerged in response to growing concerns about the negative ecological and social impacts of the corporate, industrial model of agriculture. These new farmers are concerned about the ecological, social, and economic sustainability of agriculture. However, the success of this new type of farming also has important implications for food safety, food quality, food security, and for the future of family farms.

While there are no “blueprints” for the New American Farm[3], some basic characteristics are emerging. First, these farmers see themselves as stewards of the earth. They are committed to caring for the land and protecting the natural environment. They have a deep sense of respect and commitment to caring for
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The land. They work with nature rather than try to control or conquer nature. They fit the farm to their land and climate rather than try to bend nature to fit the way they might prefer to farm. Their farming operations tend to be more diversified than are conventional farms – because nature is diverse. Diversity may mean a variety of crop and animal enterprises, crop rotations and cover crops, or managed livestock grazing systems, depending on the type of farm. By managing diversity, these new farmers are able to reduce their dependence on pesticides, fertilizers, and other commercial inputs that squeeze farm profits and threaten the environment. Their farms are more economically viable, as well as more ecologically sound, because they farm in harmony with nature.

Second, these new farmers build relationships. They tend to have more direct contact with their customers than do conventional farmers. Most either market their products direct to customers or market through agents who represent them with their customers. They realize that as consumers each of us value things differently because we have different needs and different tastes and preferences. They produce the things that their customers value most. They have a strong sense of respect for people and appreciation for the value of human relationships. They are not trying to take advantage of their customers to make quick profits; they are trying to create long-term relationships. They market to people who care where their food comes from and how it is produced – locally grown, organic, natural, humanely raised, hormone and antibiotic free, etc. – and, they receive premium prices by producing foods their customers value. Their farms are more profitable as well as more ecologically sound and socially responsible.

These new farmers challenge the stereotype of the farmer as a fiercely independent competitor. They freely share information and encouragement. They form partnerships and cooperatives to buy equipment, to process and market their products, to do together the things that they can’t do as well alone. They are not trying to drive each other out of business; they are trying to help each other succeed. They refuse to exploit each other for short run gain; they are trying to build long-term relationships. They buy locally and market locally. They bring people together in positive, productive relationships that contribute to their
economic, ecological, and social well-being. They value people, for personal as well as economic reasons, and want to build and maintain good human relationships.

Finally, to these new farmers, farming is as much a way of life as a way to make a living. They are “quality of life” farmers. To them, the farm is a good place to live – a healthy environment, a good place to raise a family, and a good way to become a part of a caring community. Many of these farms create economic benefits worth tens of thousands of dollars, in addition to any reported net farm income. Their “quality of life” objectives are at least as important as the economic objectives in carrying out their farming operations. Their farming operations reflect the things they like to do, the things they believe in, and the things they have a passion for, as much as the things that might yield profits. They are connected spiritually through a sense of purpose and meaning for their lives. However, for many, their products are better and their costs are less because by following their passion they end up doing what they do best. Most new farmers are able to earn a decent income, but more important, they have a higher quality of life because they are living a life that they love.

Those who operate the new American farms may or may not fit the stereotypical image of the “farm family” of a husband, wife, and children – most probably do, but many obviously do not. However, in most important aspects, the new American farms are truly “family farms.” On a true family farm, the farm and the family are inseparable – they are parts of the same whole. On the new sustainable farms, the “family” may be an individual or two or more related or unrelated individuals, rather than the traditional family, but in any case, the “family” is inseparable from the land. To farm sustainably, the farmer must have a personal, caring relationship with the land – the farm and farmer must be connected.

On a true “family farm,” the farm organization – production activities, marketing methods, farm enterprises, etc. – must be consistent with the abilities and aspirations of the “family.” As the abilities and aspirations of the family change, the farming system changes accordingly. The farm is a reflection of the family.
On a true “family farm,” the family makes all of the important decisions and those decisions must be consistent with the ethical and social values of the family. The relationship of the farm with the community must be consistent with the relationship of the family to the community. The ethical principles by which the farm is operated must be consistent with the ethical principles of the family. The farm is a reflection of the family. A farm business that simply makes money for a family to spend is not a true family farm. On a true “family farm,” family, neighborliness, community, stewardship, and citizenship all matter. A true family farm is much more than just a business; it truly is a way of life.

The new sustainable American farmers are “family farmers,” in the truest sense. They are stewards of the land, they value relationships, and they are pursuing a more desirable quality of life – economically, socially, and spiritually. The new American farm is “the family farm on the cutting edge.”

There are literally thousands of these new family farmers. They are on the cutting edge of agriculture and society, creating new and better ways to farm and to live. They may label themselves organic, biodynamic, ecological, natural, holistic, practical, innovative, or nothing at all; but they are all pursuing the same basic purpose. They are on the frontier of a new and different kind of agriculture, an agriculture capable of meeting the needs of the present while leaving equal or better opportunities for those of the future – a sustainable agriculture. These new family farmers face struggles and hardships and there are failures along the way. Life is rarely easy on any new frontier. But, a growing number are finding ways to succeed.

Sustainable family farming is thinking farming. It requires an ability to translate observation into information, information into knowledge, knowledge into understanding, and understanding into wisdom. Agriculture has been characterized as the first step beyond hunting and gathering. But historically, farming was still considered a low-skill minimum-thinking occupation that almost anyone could do. Industrialization then was said to be the next step beyond agrarianism – beyond agriculture. Higher skilled factory work was
considered a step up from farming. Sustainable farming, however, is not the “first step beyond hunting and gathering.” Sustainable farming is a step beyond high-skilled factory work – it is “mind work.” Certainly, these new sustainable farming systems involve some hard work, but their success depends far more on thinking than on working.

Sustainable agriculture is very much in harmony with a post-industrial paradigm of economic and human development. Sustainable agriculture even goes beyond “knowledge-based” development – in that it requires understanding and wisdom. Sustainable farmers provide valuable personal services and societal benefits, which require a sense of ethics and social responsibility as well as intellect. The new family farmers are “thinking workers” – or “working thinkers” – as well as thoughtful, caring people. They combine the physical, mental, and spiritual dimensions of productivity. Some economists have suggested that America must logically abandon agriculture as it moves beyond industrialization. However, America simply needs to embrace this new kind of agriculture that brings with it a new vision for the future.

The sustainable agriculture paradigm of the new family farmers is completely consistent with the visions of Toffler, Drucker, Reich and others of a post-industrial era of human progress. It is holistic and integrative – not specialized or segmented. It is diverse, dynamic, and site specific – not standardized and routine. It is management intensive and interdependent – not management extensive and centralized in control. The sustainable model of farming is clearly biological rather than mechanical in nature – where size must conform to function. Targeted niche markets, less reliance on land and capital, knowledge-intensive management, hands-on management, size scaled to function, smaller is better – these visions of the future are all consistent with visions of a sustainable agriculture.

The survival and success of these new family farmers will depend on the farmers, not on the government or industry. Family farmers cannot preserve their independence by becoming increasingly dependent upon the government.
Farmers cannot preserve a farm way of life by becoming “hired hands” for agribusiness corporations. A farm is secure only when the farmer’s economic and social relationships are relationships of choice, not relationships of necessity. Once the survival of a farm becomes dependent on a contractor, a banker, a lawyer, or the government, there is no farm security. A nation is secure only when it is able to feed itself in a time of crises. Once the nation becomes dependent on multinational corporations for its food, there is no national security.

In fact, the long run food security of the nation rests in the hands of these new family farmers who have broken away from the global industrial food system. During some future global crisis, we may well be forced to rely on local farmers for our very survival. If so, we will need even more farmers on the land who know how to work with nature to produce more without relying on costly commercial inputs. If so, we will need even more farmers who have developed direct relationships with their neighbors and their customers – who have created value, as well as reduced costs by marketing more directly to local customers. We will even need more farmers who care about the land, care about people, and care about their country.

Can America depend on these new farmers? We can if we make it possible for them to remain true family farmers, sustainable farmers, instead of forcing them to exploit the land, their customers, and each other in vain attempts of economic survival. These new farmers are real people. Unlike multinational corporations, they have hearts, they have souls, and they have families, communities, and citizenship. They are not going to quit farming and move away from their family and friends, just because they could make more money elsewhere. They are rooted in the place where they grew up, where they have family, and would like their children to “take root” in those places as well. They are Americans. They love this country. They are not going to renounce their citizenship and leave this country just because they could make more profit farming in some other country.

What can the rest of us do to help? We can buy more of our food at our local farmers’ markets. We can join a Community Supported Agriculture group. We
can seek out and encourage local farmers who are willing to sell direct to customers. We can encourage local grocers and restaurateurs to buy from local farmers at every possible opportunity and patronize those who do so. And, we can encourage our friends, neighbors, and professional associates to buy local as well. We can become involved in local and national political issues that affect local farmers’ access to land, markets, capital, and appropriate technology. But equally important, we can do everything in our power to support the new American farmers. Ultimately, our food is no more secure than are our relationships with each other and our relationships with the land. And for most of us, our relationship with land is through the new family farmers – farmers on the cutting edge.

[2] John Ikerd is Professor Emeritus, University of Missouri, Columbia, MO – USA. E-mail: JEIkerd@AOL.COM  web site:  http://www.ssu.missouri.edu/faculty/jikerd
[3] For 50 real life examples, see “The New American Farmer – Profiles in Agricultural Innovation,” the SARE Program, USDA, Washington DC. ($10 US – call: 802-656-0484 or e-mail: sanpubs@uvm.edu , also available free on line at  http://www.sare.org/newfarmer )
“Good fences make good neighbors,” so the old saying goes. There are fewer opportunities for conflicts if you keep your livestock out of your neighbors’ fields and they keep theirs out of yours – the same goes for keeping pets in your own yard. But, truly good fences also have gates and are easy to “talk over.” Fences that completely separate people “don’t make good neighbors,” they create isolation, distrust, and dissention. Fences define boundaries. Good boundaries keep some things in and some things out, but also must let some things through.

I recall learning about good boundaries in a high school science class – they were called semi-permeable membranes. The walls of living cells let some things pass through, but keep other things in and out – so they are called “semi”-permeable. If the cells in our body were either permeable or non-permeable, rather than semi-permeable, they would not support life. If they didn’t keep anything in, we would dry up. If they didn’t let anything out, we would blow up. If they weren’t semi-permeable, they wouldn’t be able to retain moisture or minerals; they wouldn’t be able to metabolize food, release energy, or eliminate waste. We would die. All living things are made up of cells defined by semi-permeable boundaries.

This principle of good boundaries extends to many other aspects of life. Living organisms are defined by boundaries – skin, bark, leaf surface, scales, etc. – which give them form and identity. As with cells, the boundaries of organisms must be semi-permeable or selective with respect to what they allow to pass through and what they keep in or out.

Some boundaries are social or cultural rather than physical. Families are defined by boundaries. The relationships we have with people within our family are different from those with people outside our family. But members of healthy families have relationships with people both within and outside of their families.
Communities have boundaries, although typically less well defined than for families. But in healthy communities, people within the community share relationships that are different from their relationships with people outside the community. States and nations are defined by political boundaries, and again, the borders of states and nations are semi-permeable or selective, by design and by necessity. We Americans purposefully relate to other Americans differently than we relate to people of other nations.

Without personal, cultural, and political boundaries, human civilization, as we know it, could not exist. Without civilized human behavior, life on earth might well cease to exist. Good boundaries are necessary for life.

One of the fundamental characteristics of living things – plants, animals, insects, bacteria, etc. – is their ability to recreate and to reproduce themselves, and thus, to create new boundaries. In fact, the natural tendency of all living systems is toward the creation of greater biological diversity – meaning more different identities and forms of things, and thus, more boundaries. For example, after a field has been stripped of all vegetation, the first life to return to a field likely will be a single, or possibly a few, species of “weeds.” The weeds will mature, reproduce, and die, but their rotted residue will create a favorable environment for other plant species. As a succession of regeneration processes continues, an increasing diversity of plant species will create a favorable habitat for an increasing diversity of microorganism, insect, and animal species. And, this increasing diversity of form and structure is defined by a multitude of new boundaries.

Unlike living things, the natural tendency for “dead things” is toward the dissolution or destruction of boundaries. In physics, this is called a natural tendency toward “entropy.” Entropy is defined as “the ultimate state reached in degradation of matter and energy of the universe; a state of inert uniformity of component elements; absence of form, pattern, hierarchy, or differentiation.” Entropy is characterized by the complete absence of boundaries.
In the definition of entropy, “degradation of energy and matter” refers to the fact that boundaries are destroyed by the release of energy from matter and that new energy is required to rebuild boundaries. For example, when an oak log is burned, energy, in the form of heat, is released from the wood and the structure of the wood is turned to ashes. The boundaries that once defined the structure of the log are destroyed through the releasing of energy. In this case, the energy released is stored solar energy, but the sun helps grow new trees, which store new solar energy. The human body converts food to energy by a similar process of digesting or breaking down the structure of the things we eat. In both cases, the energy consumed is renewable because new energy can be captured from the sun by other living organisms.

Each time energy is released from matter some energy must be used to restore the boundaries of matter, leaving less “useful energy” than before. Lacking a new infusion of energy from “outside” – as from the sun – systems slowly lose their ability to restore the structural boundaries of matter, and thus, slowly lose their ability to store and release energy. This is the essence of entropy – the degradation of energy and matter, as systems lose their form, structure, and diversity through the destruction of boundaries.

This may all sound a bit esoteric; however, the concept of entropy is equally relevant to cultural, political, and economic systems. The dissolution of boundaries among cultures increases the efficiency of social and political processes, releasing the energy previously bound by cultural constraints. The dissolution of political boundaries, likewise, releases the energy bound by conflicting laws, regulations, and other political constraints. The dissolution of cultural and political boundaries removes obstacles of economic specialization, standardization, and consolidation, thus allowing maximum productivity and economic efficiency. Thus, strong social and economic incentives exist to remove all cultural and political boundaries.

On farms, we have seen tremendous gains in productivity and economic efficiency through the removal of boundaries. Farmers removed fences that had
A Question of Boundaries

separated fields, as they moved toward more mechanized and standardized systems of farming. The diversity of crops and livestock enterprises that once defined the structure of typical family farms was abandoned to achieve greater specialization. The “landscapes” of many farms were left without form, pattern, hierarchy, or differentiation.

These new “more efficient” farming methods have allowed farms to become larger, through consolidation, removing the boundaries of ownership and identity that once defined different farms within communities. As farms became larger, farmers reached beyond the boundaries of the local communities to market their products and purchase their inputs, because it was “more efficient” to do so.

This transformation, this industrialization of agriculture, has resulted in tremendous gains in agricultural productivity and economic efficiency. As with industrialization in general, it has released tremendous stocks of stored energy that were constrained by the boundaries that once defined different fields, enterprises, farms, and farming communities. The boundaries have been removed and the energy has been released. But, once the stored energy has been used up, where will we get new energy?

Industrialization is a “dead” system. It destroys boundaries in order to extract the stored energy from land, water, air, plants, animals, and people. However, it has no means of restoring boundaries, no means of recreating matter, and thus, no means of renewing sources of energy for the future. The amount of fossil energy – fuel, fertilizer, pesticides, etc. – used by today’s industrial farming operations far exceed the amount of solar energy they are able to capture from the sun. Industrial systems trend toward entropy – toward degradation of matter and energy; toward a state of inert uniformity; toward an absence of form, pattern, hierarchy, or differentiation. A lifeless desert is about as close to entropy as most of us have seen. It is without form, pattern, hierarchy, or differentiation – without boundaries. Such will be the ultimate result of agricultural industrialization.

Entropy is not just a physical phenomenon. The consolidation of production into
fewer and larger units and the consolidation of control under fewer and larger corporate entities are examples of organizational entropy. “Free trade,” defined as the removal of all national restraints to trade, exemplifies economic entropy. The forming of economic unions and the resulting loss of cultural identity reflect a loss of form, pattern, and diversity. All of these things result in increased efficiency, because they release the energy constrained by organizational, economic, and cultural boundaries. The problem is not that energy is released, but that nothing is done to renew and restore it.

Sustainable systems, on the other hand, are living systems – they are self-renewing, reproductive, regenerative systems of production. Living systems must have boundaries – not barriers that keep everything in or out, but semi-permeable boundaries that keep “some” things in and keep “some” things out. Living systems are dynamic. Boundaries are destroyed, through use and decay, but boundaries also are restored through regrowth and reproduction. Living systems are able to capture energy from the sun, either directly or indirectly, which offsets the natural entropy brought about by the inevitable death and decay. Living systems tend toward greater diversity of form, structure, and pattern, as they create new boundaries. The process of energy renewal and regeneration, this natural tendency of living systems, is our only means of offsetting the natural tendency of dead systems toward entropy.

We will need to build lots of new “good fences” to restore the sustainability to agriculture. We don’t need fences that create isolation, distrust, and dissention, but fences with gates that are easy to “talk over.” Sustainable agriculture is a holistic, diverse, dynamic, interdependent, “living” process. Sustainability requires boundaries.
Rural America is being “colonized.” Multinational corporations are extending their economic sovereignty over the affairs of people in rural places everywhere, including rural America. Rural people are losing control of their local public institutions, as outside corporate interests, previously alien to their communities, use their economic power to gain controlling influence over local governments. Irreplaceable precious rural resources, including rural people and rural culture, are being exploited to increase the wealth of investors and managers of corporations that have no commitment to the future of their “rural colonies.” This is a classic “colonization.”

Historically, a colony has been defined as a territory, acquired by conquest or settlement, over which a people or government, previously alien to that territory, has imposed outside control. A colonial relationship existed whenever one people or government extended its sovereignty by imposing political control over another people or territory. The only fundamental difference between the current colonization of rural areas and previous colonization of “lesser developed” countries is the nature of the entity carrying out the process – the source of power. Historically, colonization has been carried out by political entities, by governments. Today, colonization is being carried out by economic entities, by multinational corporations. However, the colonization process and its consequences are virtually identical, regardless of the source of power.

Rural people, whether in America or elsewhere, are being told that they must rely on outside investment to support local economic development. Outside investment will bring badly needed jobs and income, stimulate the local economy, and expand the local tax base. Economically depressed rural communities will be able to afford better schools, better health care, and
expanded social services, and will attract a greater variety of retail outlets – restaurants, movie theaters, and maybe even a Wal Mart. Their rural community will begin to look more like an urban community and local people can begin to think and act more like urban people. Rural people have been left behind, they are told, and outside investment is the only means by which they can advance fast enough to catch up with the rest of society.

These same basic arguments have been used by the powerful of all times to justify their colonization of the weak. Colonization was the only feasible means of improving the lives of the “natives” left behind in “primitive” societies – economically, socially, and morally. Since the indigenous people had no adequate means of developing their resources themselves, it was only fair they give up some of the benefits to the colonizing nation in order to acquire the outside investment needed for the development process. It was a “win-win” situation, so they were told.

Historically, the British, Spanish, Portuguese, French, Germans, and Dutch were among the great empire builders. They colonized much of North, South, and Central America, Australia, and Africa, as well as major regions of Asia. Through colonization, the “primitive” people already occupying these territories were given an opportunity to become a part of a modern society. After failing to gain cooperation through persuasion, the leaders of the indigenous “tribes” were invariably bribed, threatened, or coerced into colluding with the colonizing powers. After all, it was for the ultimate good of the “their people.” The 19th century empire builders, in particular, claimed they had a moral responsibility to help bring “backward people” some of the fruits of modern Western Civilization. And, if the “natives” continued to resist, they were subdued by force and their indigenous cultures destroyed – for their own good, of course.

Clearly, becoming part of a colonial empire brought numerous economic, health, education, and technological benefits to past colonies. In some cases, such as North America and Australia, the indigenous population was sufficiently small to be essentially eliminated by immigrants who shared the culture of their colonial
masters. Some colonies became strong enough to gain independence and a few are now more powerful than are their one-time masters. But, most colonies were not granted independence until well into the 20th century, when world opinion shifted against colonialism on ethical and moral grounds.

According to contemporary standards of international behavior, colonialism is inexcusable because it conflicts directly with the basic rights of national sovereignty and self-determination. The recognition of such rights, worldwide, ended political colonialism as a means of promoting economic and cultural development. Political colonialism was abolished worldwide, because it had obvious harmful effects on the people of colonized areas – socially, culturally, ecologically, and economically. Long established social life-styles were suddenly disrupted, complete cultures were destroyed, natural resources were depleted, and the natural environment was polluted with industrial chemicals and toxic wastes. And, after the colonizers had completed their exploitation, the local economy was left in shambles with no indigenous community structure or any other means of self-government to address the shameful legacy of colonialism. In spite of the obvious economic and technological benefits of colonization, the indigenous people of virtually every previously colonized country of the world, including the United States, still harbor a deep resentment of their former colonial masters. Political colonization is no longer morally or ethically excusable.

However, the “corporate colonization” of rural areas everywhere, including in America, continues virtually unchecked. The earliest colonial intrusions into rural America were motivated by exploitation of its abundant wildlife, vast forest lands, and precious minerals deposits – invariably leaving behind frontier “ghost towns,” after the wealth had been extracted from the land. More recently, intrusions have been motivated by the exploitation of cheap rural labor, by the textile and food processing industries, for example. But, once the corporations found people who would work even harder for less money in other countries, the textile industry moved on, leaving behind deserted factories and unemployable people. With the creation of the North American Free Trade Agreement, the food processing industry now seems likely to abandon North America to colonize rural
Mexico instead. However, corporate colonialism continues in rural America. Many rural areas are still being colonized to exploit remaining pockets of valuable rural resources, including an agricultural work ethic, trusting communities, and open spaces in which to dump various kinds of noxious wastes, which urban people have rejected.

Today, giant factory hog operations provide a prime example of corporate colonization of rural America. Local people are promised new jobs, more income, an expanded tax base, and an opportunity to “catch up” with the rest of American Society. Local leaders are courted or coerced, as necessary, to shape local policies to accommodate industrial hog production methods. Local farmers are told industrialization is the wave of the future for agriculture and they must embrace the new technologies to survive. Rural people are told that local regulations to protect the public health and natural environment will drive existing farmers out of business, will stifle economic development, and will doom their community to continued “backwardness.” These arguments are no different from past arguments used to support political colonization; only the source of power is different.

In reality, few local people will gain from such colonization. A few local officials and land speculators may line their pockets and a few local people may get relatively good paying jobs, for a time. But, nearly all of the profits and good paying jobs will go to corporate investors and managers who will remain outside the community. Most rural Americans eventually will refuse to work for exploitative employers, leaving most of the low-paying jobs to be filled by immigrant labor. Eventually, the colonizing corporations will move on, once local resources have been depleted or local resistance to their exploitation begins to affect their bottom line. Perhaps some post-colonial rural communities will be prosperous, but these so-called success stories will be limited to places with unique landscapes and climates deemed worthy of preserving for the enjoyment of affluent outsiders.

As in earlier times, the 21st century corporate empire builders claim they feel
some responsibility to help bring “backward people” of rural areas some of the benefits of the modern economy. However, rural people are not necessarily “backward,” just because they have not embraced the exploitative system of industrial development and have been reluctant to discard their traditional rural cultural values. After the corporations are gone, there is no reason to believe that rural Americans will be less resentful of their previous “colonial masters” than are indigenous people of previously colonized nations. They will resent the loss of rural culture, rural values, and their previous sense of connectedness to place. They will resent the loss of a once safe and healthy rural environment in which they had hoped to live and raise their families. They will resent the loss of their self-governing ability, as their communities will have been split apart by dissention during the colonizing process. They will resent the loss of their sense of community.

The threat of colonization is always present. The economically and politically powerful will always be tempted to dominate and exploit the weak. However, differences in economic and political power only make colonization possible – not necessary or inevitable. The powerful can be restrained from their natural tendency to expand their sovereignty over the weak, and even if they are not, the weak can always find ways to resist the powerful.

The strongest defense rural America has against the threat of corporate colonization is the knowledge of what is happening to their communities, why it is happening, and what are the consequences of their doing nothing to stop it. The colonization of rural America is not inevitable. But, rural Americans must stand together to preserve their priceless rural culture, to protect their valuable natural and human resources, and pursue a different strategy of “sustainable” rural economic development.
American farmers have been told they must specialize, mechanize, and manage their farms like a business – it’s the logical, reasonable thing to do. But, this logic and reason has led to fewer farms, larger farms, and increasingly, to corporate control of farming. Being logical and reasonable has brought the demise of family farms and now threatens the food security of the nation. Maybe it’s time to try something else. Maybe it’s time for farmers to rely on their *common sense*.

Our common sense is our *insight* into the true nature of things – into what Plato referred to as “pure knowledge.” Plato argued, around 400 BC, that one can never gain “pure knowledge” through observation. Anything that can be observed is always changing, he said, but pure knowledge never changes. He argued that we observe only imperfect examples of the true “form” of things – “form” being the order or architecture of pure knowledge. We can observe examples of “form” and we can visualize true “form” in our minds through insight. However, we can never actually observe “form” – or the true order of things – because it is intangible and exists only in the abstract.

The true nature, or “higher order,” of things never changes. Being “pure knowledge,” it is the part of the constant reality of the universe. We can see this higher order reflected in the world around us and in the lives of other people. However, our observations have meaning only because we may have some intuitive understanding of the true order from which things emanate. We can never gain an understanding of this higher order through observation, because we can observe only imperfect examples. Instead, true understanding must come about by other means – means
which may be referred to as insight, intuition, or better yet, by using our “common sense.”

Science, on the other hand, is based on logic and reason – not on insight and intuition. Today’s science has evolved from philosophies of more than four hundred years ago. Rene Descartes, Isaac Newton, John Locke, and others of that time, hypothesized that the world worked like a big, complex machine, with many intricate and interconnected parts. They reasoned that everything that happens, every effect, must have a discernable cause. Thus, if we formulate appropriate hypotheses concerning cause and effect relationships, and if we design appropriate experiments or observations, we can find the cause of every effect and acquire knowledge and understanding. The thinkers of this “age of reason” laid the conceptual foundation for today’s dominant notions of “science.”

Many scientists today believed that through logic, reason, and scientific observation, we can discover “truth” – we can find “true knowledge.” Many scientists today reject anything that cannot be “proven” empirically, through observation or experiment, as irrational superstition. If you can’t prove it, it simply is not true.

In relying on our common sense, we need not reject science as a means of gaining knowledge or understanding of the things around us. But we must reject the proposition that there is only one way of knowing or understanding. Thomas Huxley, a noted English botanist, once wrote, “All truth, in the long run, is only common sense clarified.” Albert Einstein wrote, “The whole of science is nothing more than a refinement of everyday thinking.” We must use science to “clarify and refine” our common sense, but not allow science to replace it. We must be willing to challenge the conventional wisdom that science is the key to all knowledge with a more enlightened concept of science that respects common sense as our only source of “true knowledge.”
Conventional wisdom is something fundamentally different from common sense – although the two are sometimes mistakenly used interchangeably. Both may represent widely held opinions, but the sources of those opinions are quite different. Conventional wisdom, like science, is rooted in logic and reason – in conclusions drawn from experimentation and observation. Sometimes the logic and reasoning are faulty, and thus, so are the conclusions. But even more important, “true knowledge” can never be observed – it exists only in the abstract.

Common sense is something that we know to be true, regardless of whether we have experienced or observed it ourselves or have been informed of it by others. Conventional wisdom may include some things that make common sense. However, things “make sense” to us only if we somehow know they are true – only if the truth of it is validated by the spiritual or metaphysical part of us rather than by the logical or reasoning part of us. Some people choose to deny their spirituality, and thus, their common sense, and instead rely solely on logic and reason. But, we all have access to common sense – we possess it in common. But, we are each free to use or not use it.

When the framers of the Declaration of Independence wrote, “We hold these truths to be self-evident, that all men are created equal, that they are endowed by their Creator with certain unalienable Rights, that among these are Life, Liberty, and the pursuit of Happiness,” they had no scientific basis for such an assertion. These truths were not derived by logic and reason, and this statement certainly did not represent conventional wisdom in those days. The truth of this statement was something they felt in their souls. They were relying on their common sense.

There is no logical, rational reason to accept the Golden Rule: do unto others, as you would have them do unto you. Yet, it is a part of almost
every organized religion and every enduring philosophy in the history of
the world. It’s just common sense. When Thomas Paine wrote of “the
rights of man,” and Jimmy Carter talked of “basic human rights,” they were
not relying on exhaustive scientific experiments. They relied instead on
their common sense. Common sense comes to all of us from somewhere
beyond our body and mind – from the spiritual part of us that allows us to
glimpse the realm of the higher order of things. We all have access to it,
but we must open our hearts and our minds to receive it. And we must
accept its reality.

Our common sense today tells us something is fundamentally wrong in
American agriculture. We are told we shouldn’t be concerned about the
current farm financial situation. The current crisis is just a normal
economic adjustment, and the free-market ultimately works for the good of
all, so they say. We are told we shouldn’t be concerned about the natural
environment, that we have no proof we are damaging the natural
ecosystem, and after all, we can find a technological fix for any ecological
problem. We are told we shouldn’t be concerned about what is happening
to family farms and rural communities, that rural people want the same
things urban people want, and thus, they must give up their rural ways of
life. But, our common sense tells us that something is fundamentally
wrong in rural America – economically, ecologically, and socially.

Common sense tells many farmers they would not be better off in some
other occupation, even if they could make more money. Common sense
also tells them they can’t continue to take from nature without giving
something back to nature, no matter what new technologies science may
bring. Common sense tells them that positive relationships with other
people, with their families and communities, make their lives better,
regardless of where they might choose to live.

Our common sense tells the rest of us that we must help farmers develop
farming systems that can meet the needs of the present while leaving
equal or better opportunities for the future. Our common sense also tells us that our food and farming systems must be ecologically sound, economically viable, and socially responsible, if they are to be sustainable over time. And, our common sense tells us that an industrial, corporately controlled agriculture is not sustainable.

Our common sense also tells us that we can and must find ways to live and work that nurture the personal, interpersonal, and spiritual aspects of our lives. We know that we must accept responsibility for ourselves -- that our individual well-being is important to our quality of life. But we know also, that caring for other people is not a sacrifice, but instead, that compassion for others adds to the quality of our own life. And, we know that taking care of the land is not a sacrifice, but instead, stewardship of the earth helps give purpose and meaning to our lives. We know the quality of our life is enhanced when we make conscious, purposeful decisions to care for the earth and for each other.

We need not condemn ourselves for having failed to rely on our common sense. Even the founding fathers of our country sometimes denied their common sense in favor of conventional wisdom. The *rightness* of owning slaves was conventional wisdom until well into the 19th century – it had always been done. Until the 20th century, women in the U.S. were denied the right to vote – the conventional wisdom: their husbands should vote for them.

Conventional wisdom today says that farms must become still larger and fewer if farmers are to survive economically. Conventional wisdom says that agribusiness corporations can take better care of the land than can family farmers and that “fee markets” will ensure that all are well-fed. Conventional wisdom says that family farms and rural communities are but nostalgic memories of a past that never was. But, the conventional wisdom concerning American agriculture is wrong. It’s time to reject the conventional wisdom. It’s time to use our common sense.
The last “Sustaining People through Agriculture,” article dealt with our interconnectedness, with each other and the earth, and with sustainable farming as a metaphor for sustainable living. Farming and living sustainably will require new ways of thinking – fundamentally different from the mechanistic, industrial thought processes that have dominated human thought for the past four centuries.

The industrialization of agriculture is the physical manifestation of a “mechanistic” worldview. This mechanistic way of thinking about the world goes back to the seventeenth century, to the “age of enlightenment” and the “birth of science.” Rene Descartes, a Frenchman, suggested that the world worked like a “big complex machine” – specifically like a big clock – with many interrelated but separable parts. Sir Isaac Newton, an Englishman, built upon Descartes’ ideas and developed many of the fundamental principles of modern mechanical physics.

At first, the then new principles of physics were used only in dealing with “dead things” – inanimate materials, such as water, minerals, gases – as Descartes had suggested was their appropriate use. Over time, however, scientists began to use the same principles to study and to manipulate “living things” – even “thinking things.” Today, modern science treats all things as if they were mechanistic, including living things -- plants, animals, and humans. Muscles and bones are nothing more than a complex system of levers and pulleys, the circulatory system a complicated plumbing system with pumps and valves, and the mind, a sophisticated computer with electrical circuits and connections.

This mechanistic worldview has led to the many marvels of today’s world
of science. It provided the conceptual foundation for the industrial era of human progress. Machines could duplicate, extend, and eventually replace the productive processes of nature. Factories could be built that would use machines, fossil energy, and human labor to transform various raw materials into useful finished products, such as nature uses plants and solar energy to transform minerals from the earth into food and fiber. People were no longer dependent on nature. They could “manufacture” the things they needed or wanted. They didn’t have to wait for nature to provide them.

The industrial era brought many benefits. It removed much of the drudgery from day to day life, it challenged the then constant specter of starvation, and it suppressed diseases and extended human life. Few would willingly choose to return to a pre-industrial society. However, in the past few decades, we have begun to realize that treating “living” things as if they were “dead” has inherent negative consequences. In fact, nearly every social ill of today can be traced to the separation of people, the destruction of family and community, the domination of the masses by the few – all consequences of a specialized, centrally-controlled, industrial economy.

Nearly every environmental problem confronting society today is a consequence of people becoming separated from the land, from the earth, and then treating inherently diverse and dynamic natural ecosystems as if they were specialized, standardized, controllable, machines or factories. The economic problems that today confront individually owned and operated small businesses are all direct consequences of corporate consolidation of economic power and control, which has characterized the industrial era. And, nowhere are the social, ecological, and economic problems of mechanistic thinking more evident than on American farms.

A farm is a living organism – soils, plants, animals, people, all are living, growing organs. The social, ecological, and economic problems of American agriculture today are all direct consequences of treating the soil,
plants, animals, and people as if they were separable, replaceable, mechanistic parts of some sort of sophisticated “biological factory.” The current “biotech craze” in the “life sciences” community is but the latest product of an outdated worldview that life is nothing more than a sophisticated mechanical process, which can be manipulated for economic gain. But, a farm is a living organism made up of microorganisms, plants, and animals. And, farmers are real living, breathing, thinking, caring, people. Solutions to the current problems of American agriculture will require new ways of thinking – a new “living” worldview.

Living things are “self-making” – they have the capacity to grow and reproduce; dead things cannot. Machines are manmade; they are designed to perform specific functions to achieve a specific purpose. They may be well maintained, but all machines eventually wear out. Worn out machines must be discarded and may or may not be replaced. Living things are conceived, born, germinate, hatch, or otherwise come to life. As they grow and mature, they learn to perform various functions to fulfill their purpose in life. They may be well nurtured, but all living things eventually die. Before they die, however, living things have the capacity to reproduce themselves.

Because they are self-making, living things are dynamic; they are ever changing. However, the pattern of a living thing, its DNA, remains unchanged throughout its life. A human is always a human all stages of life – whether it’s a bouncing baby, a strong mature adult, or a feeble “senior citizen,” it’s the “same” human, but ever changing in physical structure and appearance.

Living things are also holistic. If the various parts of our bodies were surgically separated and laid side by side on an operating table, our life, the essence of whom we are, obviously would have been destroyed. Our life would be gone. Dividing an elephant into a dozen pieces obviously
doesn’t result in a dozen little elephants. A living organism is more than the “sum of its parts” – living organisms are inseparable, i.e. holistic.

Farms are living organisms; they are regenerative, dynamic, and holistic. They are not machines or factories. If farming systems are to be sustainable, our ways of thinking about farming must reflect their regenerative, dynamic, and holistic nature. We must have the courage and wisdom to abandon the old, mechanistic worldview and adopt new, organismic ways of thinking about farming.

A farm represents a purposeful “organization” of resources – land, labor, capital, and management. The purpose of a sustainable farm must be multidimensional – including economic, ecological, and social dimensions. However, a sustainable farm is not multipurpose. Its purpose is holistic, and thus, is not separable into sub-purposes. A farm cannot make more money, for example, without affecting the land and the relationships among people on the farm and in the community. Nor can a farm reduce soil loss or protect water quality without affecting its economic performance and its contributions to society. So, every decision made on the farm has economic, ecological, and social implications. Every farm thus should be organized with a definite purpose in mind that considers its economic, ecological, and social potential.

The principles by which a sustainable farm is operated constitute its conceptual DNA. Just as DNA defines the nature of a living organism, principles define the nature of a farm. The principles followed in managing a farm will determine whether it is capable of fulfilling its purpose. The number of principles should be sufficient to insure that, if followed, the purpose will be fulfilled, but not more than necessary to ensure the purpose. As humans, we want all of the genetic material necessary to ensure that we are healthy humans, but we don’t want anything extra. The fundamental principles of sustainable farming are economic viability, ecological integrity, and social responsibility. The
specific principles by which individual farms are managed will be different, reflecting the uniqueness of the farm, the farmer, and the “community.” But to be sustainable, the principles of a farm must be consistent with the principles of sustainability.

The definition of purpose and principles represents the “conception” of a farm. Once conceived, the farm is free to “come to life” – to emerge, to grow, to mature, to regenerate, and to evolve. Creating a living farm is not like building a factory, to be used, worn out and discarded or rebuilt. A living farm is conceived, comes to life, grows, matures, reproduces, and evolves – like a living organism. As farming takes from the soil, it rebuilds the soil, as it earns money, it reinvests money, as it demands personal commitment, it contributes to quality of life. It is dynamic, ever changing in its structure and appearance, but is ever constant in its purpose and principles. Farms also may evolve forward into marketing and distribution or backward into production of inputs. As a farm grows and matures, the farming practices, methods, and enterprises may change, but the farm that remains true to its economic, ecological, and social principles will remain true to its purpose and will be sustainable.

Old farmers eventually must be replaced by younger farmers, sick and worn down farms may be nursed back to life and health, but life in the soil and life on the farm must go on. If we allow, “living farms” to die, they cannot be restored to life. A farm is not a machine that can be restarted or a factory that can be rebuilt. Once a life is gone, it is gone forever. Farming sustainably requires a different way of thinking about farming. We must have the wisdom to reject the old, mechanistic worldview, and the courage to challenge the conventional wisdom that a farm can be run like a factory. We must conceive new systems of “living farms” that will be capable of sustaining a regenerative, dynamic, holistic, living human society.
Our pursuit of narrow, economic self-interests is the root cause of virtually every threat to the sustainability of American agriculture today. To reduce the dollar and cent cost of food production, we have promoted industrial farming methods that have degraded the long-run productivity of the land and polluted the natural environment. Our farms have become larger, our farm families fewer, and our rural communities have suffered, because we wanted cheaper food. We have exploited both land and people in our pursuit of economic efficiency. If we are to restore sustainability to our food and farming systems, we must pursue a more enlightened concept of economics.

As individuals, our actions need not be motivated solely by our economic self-interest. We know that our lives are made better by positive relationships with other people, regardless of whether such relationships result in anything of economic value. We know that our lives gain meaning and purpose through acts of stewardship, regardless of whether such acts yield anything of economic value. But, to encourage such actions across the larger society, we need an economic system that rewards, rather than penalizes, acts of compassion and of stewardship. At the very least, we need an economic system that does not encourage and reward the exploitation of the very resources, both human and ecological, upon which the future of humanity depends. We need a new economics of sustainability.

The concept of sustainability is far broader than economics – at least the economics of today. Daly and Cobb, in their book, For the Common Good, refer to today’s economics as *chrematistics* -- the “manipulation of
property and wealth so as to maximize short-term monetary exchange value to the owner.” However, the root-word for economics, *oikonomia*, means “management of the household (community, society, humanity & biosphere) so as to increase its value to all members over the long run.” *Oikonomia* includes management of society and ecology as well as the economy, and is sufficiently broad to address the concept of sustainability.

An economics of sustainability must be multidimensional – with social and ecological dimensions, as well as the conventional individual dimension. The three dimensions must be considered as interdependent aspects of the same whole, with each making distinctive contributions to a “sustainable economy.” Thus, the individual economy, the social economy, and the moral economy are but three aspects of the same economy.

First, the individual economy typically is referred to as the private economy – it’s what comes to mind today when someone mentions “economics.” The individual or private economy will play an important role in a sustainable society – in meeting our needs as individuals. Whenever a decision has little effect, either positive or negative, on anyone other than the decision-maker, such decisions can legitimately be guided by the private or individual economy. A sustainable economy will have a large and legitimate private sector, because many decisions are fundamentally individual and private in nature.

However, in order for the private economy to function in the *collective* interests of society, we must restore competition to the economic marketplace. This can be done. The corporate monopolies of the early 1900s were brought under control by people working through their government. Once people understood the societal implications of a corporately dominated economy, they rebelled. They started the Progressive Movement, the “trusts were busted,” and competition was restored. However, even if private sector markets were functioning
perfectly, even if we had true competitive capitalism, the private economy could not meet all of the needs of society.

Those things most clearly belonging to the social or public economy are things to which all people have equal rights, regardless of their ability to pay. Our Declaration of Independence states, “all people are created equal” and have inalienable rights including “life, liberty, and the pursuit of happiness.” This doesn’t mean that all must succeed, but all must have an equal opportunity to succeed. The U.S. Constitution confirms this commitment. The purposes for forming the Union include: “to promote the general welfare, and secure the blessings of liberty to ourselves and our posterity” along with “to establish justice, insure domestic tranquility, and provide for the common defense.” The social economy is the means by which we make decisions for the good of all.

The public economy is not directed by dollars and cents, but instead is directed by the will of the people. In the private economy, the ability to have more, if you earn more, provides a powerful and necessary motivation for productivity and progress. However, in the public economy, everyone has an equal voice in the decision making process, regardless of income or wealth, since everyone has an equal right to benefit. In the public or social economy, all people are equal, and each person has but one vote, regardless of wealth. Social equality is our only means of building and maintaining positive, productive relationships among people of differing abilities and economic means. The social economy is our only means of encouraging healthy families, communities, and nations.

The social economy includes the legitimate institutions of government, but also includes all of the other private, nonprofit institutions that are committed to building a more civil society. Through the social economy, we make deliberate, purposeful decisions to build each other up so that we may all share a higher quality of life by being part of something greater than our collective individuality.
The third economy, the ecological economy, will be directed neither by dollars and cents nor by the vote of people, but instead by moral and ethical consensus. Eventually, we must realize that stewardship of the resources of the earth ultimately is a spiritual matter. The natural environment is not a commodity to be bought and sold in the marketplace, nor is it a public good to be negotiated and compromised in the halls of Congress. Future generations cannot compete for resources in the marketplace, nor can they vote in the political process. The natural environment is a sacred trust – a gift that must be conserved and preserved for all generations.

The ecological economy emerges from a process of consensus – the result of a community, national, or global dialog concerning what we people believe to be moral and ethical behavior. Ultimately, the stewardship ethics of people such as John Muir, Aldo Leopold, and Rachel Carson must be folded into a shared-vision of our ecological future. Once a consensus is reached, it can be encoded into the constitutions of nations, and into international treaties, with the expressed purpose of ensuring the long-run sustainability of human life on earth. But, such a consensus must first be achieved in the hearts and souls of people.

The necessary components of the new sustainable economy already exist. We already have a private economy through which to pursue our individual interests. We need only restore its competitiveness. We have a government through which to pursue our social interests. We need only restore its integrity. And, we have a constitution that could be amended to reflect more fully a national consensus of our ethical and moral values – including an environmental ethic. All we need is a shared vision concerning how the individual economy, the social economy, and the ecological economy should work together to sustain a more desirable quality of human life – and the courage to pursue it.
The three economics of agriculture must be built upon the three economies of sustainability. First, there is a legitimately large private sector of the agricultural economy. No other economic system can approach the efficiency of a free market economy in allocating the use of land, labor, and capital to meet the food and fiber needs of people. A primary downfall of communism was the failure of its “centrally planned” agriculture to meet the needs of its people. We must restore competition to the agricultural economy, if it is to benefit consumers rather than corporate investors. But, private markets have no equal in meeting the food and fiber needs of those who are able to pay.

However, a free market economy will not ensure that all people have sufficient food for survival or for physical growth and mental development. Free markets will not protect the land from degradation or the natural environment from pollution. Free markets will not ensure that all who choose to farm have an equal “opportunity” to succeed. In summary, the private sector will protect neither land nor people from economic exploitation. Thus, if agriculture is to be sustainable, it must rely on the public as well as the private sector of the agricultural economy.

Government provides the means by which we make public decisions. The fundamental purpose of government programs for agriculture should be to ensure that the important public functions of agriculture are performed – including food equity, food security, environmental protection, and employment opportunity. Private markets provide no incentives to perform these functions, yet they also are critical to our societal well-being.

The intergenerational issues in agriculture, including ecological and cultural stewardship, are ethical and moral issues. Eventually, we must develop a national consensus concerning the rights of future generations. Eventually, the rights of all future generations, including their rights to a
healthy environment and to healthy communities, will be encoded in our constitutions. Since those of future generations cannot participate in the process of rewriting our constitution, they must depend on the ethical and moral values of those of us who can. In the meantime, the moral economy, that must guide both our private and public economies, must be encoded in our hearts and our souls.
Farming for Profit and Quality of Life

John Ikerd


One outcome of the current morass is social inventiveness. Small farm units will not challenge the big on the latter’s terms. They will instead extend the niche or fringe principle more widely than has been dreamed to date. An ally may rise in the form of consumers’ search for stability in their food supply. As novice consumer groups link with inventive farm producers, sustainable agriculture will really come into its own.

Harold Breimyer, (Small Farm Today 10/2000)

For decades, American farmers have been told to either get bigger or get out of farming. Yet, most farmers have done neither. Most farmers have not gotten significantly bigger nor have they gotten out of farming. Certainly, the number of very large corporate farms in America is growing and the number of mid-sized, full-time family farms is shrinking, but the vast majority of America’s farms are still small.

Somehow, hundreds of thousands of small farmers have successfully defied the advice of the experts. They didn’t get big but they didn’t go broke and they didn’t get out of farming. Instead, they have found ways to survive and succeed. For years, we have been told that small family farms were “a thing of the past.” Today, they seem to be the only type of farm that has much of a future.

The Census of Agriculture indicates that more than 80 percent of all U.S.
farms generate gross sales of less than $100,000 per year – small farms, by most definitions. Admittedly, some of those U.S. Census entities counted as farms are hobby farmers and rural residences. But, many are not. The Census asks farmers to list their “primary occupation” – the occupation at which they spend more than half of their working hours. Recent USDA surveys also distinguish between active farmers and retired farmers. Small farmers are more likely than large farmers to have some occupation other than farming and are more likely to be retired. But even when considering only those whose primary occupation is farming, and who are not retired, more than half of all farmers would easily be classified as small farmers. Well over half of these “primary occupation” farmers have less than $100,000 in annual gross sales. Nearly half have gross sales of less than $50,000 per year – classified by U.S.DA as non-commercial farms. So most small farms are not hobby farms or rural residences; they are serious farming operations. And, most farms in the U.S. are small.

The farmers that followed the experts’ advice to get bigger, the full-time family farms, were the ones who have been forced out of farming. The first to fail during the farm financial crisis of the 1980s were farmers who had borrowed a lot of money – to reduce costs through large-scale, specialized production – during the 1970s. Those farmers who resisted the urge to expand – diversifying to cut input costs and improve profit margins and relying on off-farm income to supplement rising costs of living – weathered the crisis far better. These smaller farms became part-time family farms, became a different type of farm, and survived.

Today, big farmers who survived the crisis of the 1980s are being told that they will have to become contract producers for some agribusiness corporation or get out. They are told they will have to become part of a corporate “food chain” in order to have access to the technology, the capital, and the markets that they will need to survive. Getting bigger is no longer enough – it never was.
The future of conventional farming in the U.S. is in peril. Until a decade or so ago, few questioned the ability of American farmers to compete with farmers anywhere in the world, even if it did mean ever-lower prices and ever-tighter profit margins. We were the global leaders in agriculture. We had the most highly educated and efficient farmers in the world using the latest production technologies to cultivate the best agricultural land in the world. In recent years, however, the U.S. share of global agricultural exports has plummeted, destroying farm profitability, and shaking confidence in the American farmer’s ability to compete.

The U.S. share of global exports of soybean and soybean product, for example, shrank from 80 percent during the 1960s to just 35 percent in 1998-2000. Over that same period, the combined share for Argentina and Brazil grew from less than 10 to nearly 50 percent. Abundant land and favorable climates, coupled with low-cost labor and a favorable exchange rate, have given Argentina and Brazil a clear competitive advantage. Harvested acres of wheat in the U.S., a traditional high-export crop, are down more than one-third from the peak in 1981, as U.S. farmers have abandoned wheat for other more profitable crops. Corn acreage has remained relatively steady over the years, but only because of a strong domestic demand for sweeteners.

U.S. livestock producers face strong competition from Canada and Mexico in domestic livestock and meat markets, causing some livestock producers to question the wisdom of the NAFTA, which opened our markets to competition from the North and South. Threats by agribusiness to move their large-scale confinement animal feeding operations to Mexico or elsewhere, to avoid growing environmental and animal welfare concerns, also cast a shadow on the future of U.S. meat production. Large-scale animal feeding operations have been the primary source of the U.S. competitive advantage in production of grain-fed meat and poultry. South America and Australia are lower cost producers of range cattle, and countries such as Mexico and China could gain
competitive advantages in restructured global pork and poultry industries.

Declining exports have led American farmers into their fourth straight year of economic “emergency” – resulting in $5-$9 billion per year in “emergency” government payments, in addition to already generous farm program benefits. American farmers today are among the most heavily subsidized in the world, and Congress shows little inclination toward risking a return to free markets in the new farm bill. Without generous subsidies from taxpayers, American farm exports would be far less, and we would be in the midst of an American “farm financial crisis” at least as severe as that of the 1980s. Without continued large subsidies, American farmers quite likely will not be able to compete in a free market global economy, regardless of what the free market promoters may say.

America’s lack of competitiveness in farming is not just a short run phenomenon resulting from unfavorable exchange rates or a depressed global economy. As Steven Blank points out in his recent book, “The End of Agriculture in the American Portfolio”¹ rising costs of land and labor are destroying the traditional competitive advantage of American farmers in world markets. Growing demand for land in rural areas for residential purposes, as America’s affluent urbanites acquire more living space, will make even good farmland too costly to farm. Employment opportunities arising from the “new economy” will make the economic sacrifice of an occupation in farming too high. Cornfields can’t compete with condominiums for land and the Missouri Valley can’t compete with the Silicone Valley for labor.

According to Blank, Americans will choose their best economic alternatives and will leaving the farming to other countries. Americans will continue to be well fed, he says, we will simply import our food from other countries where it can be produced at a lower cost. It all makes “economic sense.” And, although Blank didn’t make an issue of it, if the multinational national corporations succeed in gaining control of global
agriculture, this whole scenario is even more plausible, if not inevitable. These multinational corporations have no sentimental ties to family, community, or even to any given country, because they are not real people. They will simply move their agricultural operations, including contractual operations, to wherever on the globe they can make the most money, and increasingly, that will be somewhere other than in America.

In the face of this global challenge to the profitability of America’s largest, most efficient farming operations, how can America’s *small farms* possibly expect to make the profits needed to survive? The best answers to this question can be found by looking at small farms that are making profits, surviving, and even prospering today – in the face of the current American farm financial crisis. Many small farmers *are* finding ways to succeed, and most are succeeding with little if any help in the form of direct government payments. They may claim the label of organic, low-input, alternative, biodynamic, holistic, permaculture, practical farmers, or just plain farmer. But they are all pursuing the same basic purpose by the same set of principles. They are trying to build farming systems that are ecologically sound, economically viable, and socially responsible. They are building systems of farming that will be sustainable over the long run. They are the New American Farmers².

Certainly, not all New American Farms are small, but many of the most successful are small farms. But, the even large “sustainable” farms tend to be smaller and more diverse than are their “conventional” counterparts that produce the same commodities. A “sustainable” cattle ranch, for example, is likely to be far larger than a “conventional” berry farm. But a “sustainable” cattle ranch is likely to be smaller than one that is managed strictly for the bottom line.

Large commercial farms make more money by managing more land, investing more money, and hiring more laborers. Even if their profit margins are small, they generate larger total profits by increasing the size
of their operations. A smaller farm, on the other hand, must be managed more “intensively.” A smaller farm has fewer resources and produces less than does a larger farm. Thus, a small farm must make a higher return per acre of land or per dollar invested to be economically competitive with a larger farm. But, by managing fewer resources more intensively, the small farmer is able to make more profit per unit of output, and thus, may make more total profits – even though total production or output is less than on a larger farm. By giving more time and attention to each acre of land and each dollar invested, the small farmer is able to generate a larger return from a smaller farm, and thus, to make the smaller farm more profitable.

There is no single blueprint or template for “The New American Farm” but some general characteristics are beginning to emerge.

First, these new farms tend to be more diversified than are conventional farms. These farmers are committed to caring for the land and protecting the natural environment. They work with nature rather than try to control or conquer nature, and nature is inherently diverse. They fit the farm to their land and climate rather than try to bend nature to fit the way they might prefer to farm. In most regions, this requires a variety of crop and animal enterprises. In some regions, however, diversity is achieved through crop rotations and cover crops – without livestock. In other regions, diversity means managing livestock grazing to achieve diverse plant species or with multiple species of grazing animals. Through diversification, these new farmers substitute management of on-farm resources for the off-farm inputs that squeeze farm profits and threaten the environment. Their farms are more economically viable, as well as more ecologically sound, because they farm in harmony with nature.

Next, the new farmers tend to have more direct contact with their customers than do conventional farmers. Most either market their products direct to customers or market through agents who represent them with their customers. They realize that each of us value things
differently, as consumers, because we have different needs and different tastes and preferences. They produce the things that their customers value most, rather than try to convince their customers to buy whatever they might prefer to produce. They market to people who care where their food comes from and how it is produced – locally grown, organic, natural, humanely raised, hormone and antibiotic free, etc. – and, they receive premium prices by producing what their customers value. Their farming operations are more economically viable, as well as ecologically sound and socially responsible.

In addition, these new farmers think for themselves and make their own decisions. Their farming operations reflect the things they like to do, the things they believe in, and the things they have a passion for, as well as the things that might make money. Their products are better and their costs are less because by following their passion they end up doing what they do best. These new farmers are able to earn a decent income, but more important, they have a higher quality of life because they are living a life that they love.

Finally, these new farmers build relationships, among each other and with their customers, as well as with their land. These relationships are interdependent, relationships of choice, rather than relationships of dependency or necessity. The new farmers freely share information. Some form partnerships and cooperatives to buy equipment, to process and market their products, to do together the things that they can’t do as well alone. They are not trying to drive each other out of business; they are trying to help each other succeed. They are not trying to take advantage of their customers to make quick profits; they are trying to create lifelong social and economic relationships. They buy locally and market locally, bringing people together around food and farming. They refuse to either exploit each other – or to exploit the land.

The economics of this new type of farming is fundamentally different from
the economics of large-scale production of bulk agricultural commodities – which characterizes “conventional American farming.” A conventional farmer’s net incomes generally run about fifteen to twenty percent of gross sales. Thus, a farm with $50,000 in gross sales would net only about $7,000 to $10,000 – certainly not enough to support a family. Thus, the USDA categorizes such farms as “non-commercial” farms. The only hope for those farms grossing even up to $100,000 per year, and netting $15,000 to $20,000, would seem to be to rely on non-farm sources for most of their income.

However, by managing more “intensively” the new farmers are able to net far more profit from each dollar of sales. They reduce their costs of purchased inputs through diversification, increase the value of their products through niche markets, focus on the things that they do best, and work together to do the things that they can’t do as well alone. As a result, their net return per dollar of sales may be 40 to 50 percent rather than the 15 to 20 percent for a conventional farm. Thus, the net returns on a farm with $100,000 in annual sales may be $40,000 to $50,000 and even a farm with $50,000 in annual sales may net $20,000 to $25,000 to support the small farm family. The bottom line is that 10 acres, intensively managed to produce high valued products, may generate more profits than 1,000 acres used to produce bulk agricultural commodities – corn, cattle, wheat, cotton, etc. Many small farms make some fairly big profits.

But, what about small farms that do not make profits? How do they survive and why would such farmers want to keep farming? The fact is, most small farms don’t make profits – at least they don’t report any net farm income at tax time. According to the latest USDA statistics, only 37 percent of small, “limited resource” farms and 30 percent of small, “lifestyle” farms reported positive net-cash incomes in 1995. For “primary occupation” small farmers (with less than $100,000 annual sales) only 55 percent reported positive net-cash incomes. For these three USDA small farm groups combined, only 45 percent made any profit from farming. So, most small farms lose money.
Obviously, some of these are “hobby” farmers or are simply “rural residents,” growing and marketing a few agricultural commodities. However, many farmers who consistently report farming losses are “primary occupation” farmers – they are not working for nothing.

A lot of the small farms that don’t report profits are “quality of life” farms – their primary purpose is to contribute to the quality of life of a farm family in ways other than by making money. Typically, one or more member of the family on such farms has an off-farm job to provide the family with necessary “cash” income. This allows their farming operation to focus on creating a highly desirable quality of life by other means. It would cost a lot of money for people living in cities to buy the quality of life benefits that are an inherent part of a good family farm. And, still other quality of life benefits of farming are “priceless.”

Ask farm families why they farm, and many will mention that they like the open spaces, fresh air, scenic landscapes, and the opportunity to live in a natural setting. How much money does a person have to earn in a city to live in a scenic, natural environment with fresh air and open spaces? Even small farms provide families very large “residential lots.” How much money does a person have to earn in a city to “buy” the open space, personal freedom, and privacy of a typical small farm?

Ask farm families why they farm, and many will mention that a farm is a good place to raise a family. A good farm is a place that nurtures life – plants and animals – and the lives of children can be nurtured as well by growing up on a farm. Farm parents also can have more influence on their children, because families have opportunities to spend more quality time together – work and family life happens at the same place. Children that grow up knowing they are valued, productive participants in the work of the family seem more likely to grow up with a healthy sense of self-worth. How much money does a family have to earn in a city to ensure
quality learning opportunities for their children, to create opportunities for
the family to grow together, to give their children opportunities to build self-
esteeem? How much time and money is spent by families in cities just to
keep the children “occupied” by “non-destructive” activities? The things
that build strong families just come naturally in day-to-day life on a good
family farm.

Ask farm families why they farm, and many will mention that they like
being part of a farming community. Farming communities may not be as close
as they were back in the days when farmers shared work, and when
the social life of farm families was pretty much limited to community
activities. However, many farming communities are still places where
everyone knows just about everyone else, and everybody has an
opportunity to pursue whatever community role they choose to pursue.
How much time and money does a person in a city have to spend to
develop and maintain a social network of friends? How much time and
money does a person in a city have to spend to develop name recognition
and credibility, if they decide to take on a leadership role in their
“community?” Farmers just naturally find a place to belong, in a
community with other farming families.

On a family farm, the open spaces, the place to raise a family, and the
community, all come as part of farming. Farmers don’t have to pay extra
for the extra space because they need the same space for the farm.
Farmers don’t have to pay extra for a place to raise a family, because the
place they raise the family is the farm. And farmers don’t have to pay
extra to be a part of a farming community, because they become a part
when they decide to live there and farm. These benefits are valuable, but
farmers don’t have to pay anything extra for them, they are just part of the
“quality of life” that comes with farming.

As a bonus, the costs of many such “quality of life” benefits are
considered as farming costs. The cost of owning farmland is a farming
cost, although the farm provides a place to live. Many food costs are also
farm costs, such as some of the costs of a vegetable garden and animals for meat, eggs, or milk. Some family transportation costs are farm costs – every farm needs a pickup truck. Many recreation costs, such as maintaining wildlife habitat for hunting and fishing, all-terrain vehicles for work and play, a stable for riding horses, pets that “work” on the farm, etc. also are farm costs. Many things that contribute to a desirable quality of life on a farm are legitimate farm costs, to the extent that they also contribute to the farm business.

What difference does this make whether something is a farm cost or family cost? If something is a business cost, it can be deducted from farm income, reducing farm income for accounting and tax purposes. Expenses of a purely personal nature cannot be deducted from income taxes. So, for each dollar spent for personal expense, a person has to earn anywhere from $1.35 to $2.00, depending on their federal and state income tax brackets and how much they contribute to social security. Farmers only have to earn a dollar to spend a dollar on legitimate farm expenses, including those that create valuable personal benefits. In addition, every dollar “lost” on the farm may save from $0.30 to $0.50 in reduced taxes on off-farm income.

So, many small farms that report “negative” net incomes still may be providing very valuable economic benefits to farm families. In fact, it’s conceivable that the costs of providing the same quality of life benefits that occur on many small family farms might require a $30,000 to $50,000 in off-farm income, or even more. Cost of such things as an acreage in an upscale gated community, enhanced private educational and recreational experiences for children, involvement in civic affairs, maintaining social relationships, membership in sport’s club, etc. don’t come cheap. So, a farm that just “breaks even” might be contributing as much to the quality of life of the family as a job that pays $30,000 to $50,000 in town.

Many people who have $30,000 to $50,000 jobs in town are able to do
little more than pay the “cost of living” of the family – the cost of their quality of life. And, many city families need more than one income, and sometimes more than one job per person, just to make ends meet. A farm that just breaks even is still making ends meet. Off-farm employment may be necessary only because some things that contribute to a desirable quality of life can’t be produced on the farm, and thus, require a cash income.

Some other aspects of life on a farm are simply “priceless.” Our quality of life cannot be measured in terms of income or wealth – although economic rewards are a part of it. Our quality of life also depends on the quality of our relationships with other people. And, our quality of life depends on whether we find purpose and meaning in the things that we do – whether we are living and working according to our moral and ethical principles. We can’t buy a life of quality; we must live it. The most important dimensions of our quality of life are truly “priceless.”

For many farm families, farming is the means by which they build positive relationships within their families and communities and by which they contribute to helping build a better society. For many farm families, being good stewards of the land, caring for the land for the benefit of current and future generations, gives purpose and meaning to their lives. Our quality of life is interdependent with our natural and social environment. This is an inherent aspect of being human. “In accordance with universal and inviolate laws of Nature and humanity, the quality and sustainability of life on Earth depends on harmonious relationships among all peoples and all nations, and between humans and our natural environment, both now and into the distant future.”3 The benefits of living a life of interdependence, on a “quality of life” farm, can be truly “priceless.”

What about the benefits of small farms to society; should it matter to the rest of us, we who are not small farmers, whether or not small farmers survive and succeed? You bet it does. The security of our nation is
dependent upon the strength of our agriculture, and the best hope for survival of American agriculture is the survival of America’s small farms.

Conventional commercial farming represents an industrial approach to agriculture that quite simply is not sustainable over the long run. Industrialization relies on specialization, but nature is inherently diverse. Industrialization relies on standardization, but nature is inherently site specific and individualistic. Industrialization relies on centralization of control, but nature is inherently decentralized and uncontrollable. Industrialization is driven by short run economic self-interest, it is exploitative of nature and it is not sustainable.

Successful small farming depends upon the principles of diversity, individuality, and decentralization – upon working in harmony with nature and with human society rather than exploiting either nature or people. Sustainability requires that our farms be ecologically sound, economically viable, and socially responsible – the same characteristics required for successful small farms. The quest for sustainability is driven by a more enlightened self-interest that recognizes the value of relationships and ethics, as well as economics, in our quality of life. The sustainability of American agriculture may well depend on the survival and success of its small family farms.

Small farms also matter to the rest of us because the sustainable small farm provides a metaphor for sustainable living. Our personal quality of life is not just about economics – it is about relationships and ethics as well. The personal, interpersonal, and spiritual dimensions of our lives are analogous to the economic, social, and ecological dimensions of sustainable farming. Like sustainable farmers, we need to find harmony and balance among the various dimensions of our lives. In farming, we can see more clearly our connectedness to the earth – the inherent dependence of all living things upon the health of the natural environment. Through the reconnecting of small farmers with their customers, through local markets, we can see more clearly the value of
our interdependence with each other throughout all aspects of human society. Through our concern for each other and for stewardship of the earth, we can reconnect with the essential spiritual dimensions of our lives. Our concerns for the sustainable agriculture provide a metaphor for concerns for the sustainability of human society.

Small farms matter to the rest of us, because there may come a time when the only farmers left in America are small, family farmers. At some time in the future, much of the large-scale production of agricultural commodities may be moved to other countries by the multinational corporations. Perhaps we won’t allow the multinational corporations to abandon agriculture in America completely. But Americans could someday become as dependent on rest of the world for food as we are today for oil. Perhaps we could keep the food imports flowing, as we maintain the inflow of oil today. But, how large a military force would it take? What new “Organization of Food Exporting Countries” might be formed to control the market? How many “small wars” would we have to fight to keep a “renegade country” from restricting our supply of food? How many terrorist attacks will we suffer at the hands of people who feel oppressed by future corporate American food policies?

In fact, the food security of the nation may well rest in the hands of small-scale family farmers who have broken away from the global industrial food system. During times of future global crises, we may well need to rely on local farmers for our very survival. If so, we will need more farmers who know how to produce more on less land -- who have reduced their reliance on purchased inputs through more intensive management of their land and labor and less reliance on commercial technologies. If so, we will need more farmers who have developed direct relationships with their customers – who have created value, as well as reduced costs by marketing more directly to local customers. As they have found ways to eliminate the 80 percent of food costs that currently occur in the industrial marketing system, they will have reconnected American consumers with
their basic food supply. The food security of America, one day, could depend on survival and success of our smaller, family farms.

Can America depend of its small family farmers? We can if we make it possible for them to remain true family farmers – quality of life farmers, sustainable farmers, instead of forcing them to farm for the bottom line. If the family and the farm remain inseparable, as they are on true family farms, the family will take care of the land – they will do whatever it takes to keep the land healthy and productive. “Quality of life” farmers will take care of the natural environment, because a healthy environment is important to their quality of life. “Quality of life” farmers will be good neighbors, because being a part of the community is important to their quality of life. “Quality of life” farmers will be sustainable farmers, because the same things that contribute to rural quality of life contribute to the long run sustainability of agriculture.

But even more important, small family farmers are real people. Unlike corporations, farm families have hearts, they have souls, they have communities, and they have nationalities. They are not going to quit farming and move away from their family and friends, just because they could make a few more dollars in profits somewhere else. As long as they can farm, they will, and as long as they can farm near their family and friends, they will. They are rooted in the place where they grew up and would like their children to “take roots” there as well.

Our small family farms are not some organizational mechanism designed to accumulate capital and generate profit and wealth. Family farmers are real people and they are Americans. They love this country. They don’t want to live anywhere else. They are not going to renounce their citizenship and leave this country just because they could make a few more dollars in profit by farming somewhere else.

America can depend on its small farmers because a successful small farm is about much more than profits. Quoting from the Declaration of
Interdependence, 4 “We hold these truths to be self-evident – that all things are interconnected, that all things of creation have inherent worth apart from their current or anticipated market value, and that the worth of all things is enhanced and enriched through the abundance of love, community, and trust that arises from honoring our interdependence.” America can depend on its small farms, because small farms epitomize this commitment to interdependence.

America “must” depend on its small farms because small farms are our best hope for sustaining humanity. Sustainable agriculture is about sustaining people through agriculture, not just about sustaining agriculture. Small farms are about sustaining a desirable quality of life for people, not just about production and profits. Again, in the words of Harold Breimyer: “Human beings are instinctively concerned about continuity into the longer culture. For if agriculture is not sustainable, neither is the society that rests upon it.” Human societies must defend and support their small farmers, because the future sustainability of humanity ultimately rests upon the sustainability of its small farms.

2 For 50 real life examples, see “The New American Farmer – Profiles in Agricultural Innovation,” the SARE Program, USDA, Washington DC. ($10 US – call: 802-656-0484 or e-mail: sanpubs@uvm.edu, also available free on line at http://www.sare.org/newfarmer)
3 Patrick Madden and others, “A Declaration of Interdependence” from the Looking Glass Inn Workshop, Kooskie, ID, June 27-29, 1998
4 Patrick Madden and others, “A Declaration of Interdependence” from the Looking Glass Inn Workshop, Kooskie, ID, June 27-29, 1998
The High Cost of Cheap Food

John Ikerd

Published in Sustaining People through Agriculture column, Small Farm Today, July/August, 2001 issue.

At a recent organic farming conference in Winnipeg, Canada, a woman in the audience stood up and said: “Organic foods are not going to become popular with mainstream consumers until they became quick, convenient, and cheap.” My immediate response was that true organic foods were not going to be quick, convenient, or cheap -- at least not for some time to come. Fortunately, more and more people are finding organic foods to be worth the time, effort, and money. The comment, however, has caused me to think further about the nature of our food system and about what we have done to try to make foods quick, convenient, and cheap for consumers.

First, at the farm level, our never-ending quest for cheap food is the root cause of the transformation of American Agriculture from a system of small, diversified, independently operated, family farms into a system of large-scale, industrialized, corporately controlled agribusinesses. The production technologies that supported specialization, mechanization, and ultimately, large-scale, contract production, were all developed to make agriculture more efficient – to make food cheaper for consumers. Millions of American farmers have been forced off the land, those remaining are sacrificing their independence, and thousands of small farming communities have withered and died – all for the sake of cheap food.

These were the consequences of progress, so we were told. The agricultural establishment has boasted loudly that ever fewer farmers have been able to feed a growing nation with an ever-decreasing share of consumer income spent for food. The increases in economic efficiency
have been impressive, but what about the human costs. Economists have totaled up tremendous savings for consumers from lower food costs, but they have never bothered to place a value on the lives of farm families that have been destroyed by the loss of their farms, their way of life, and their heritage. They have never bothered to consider the value of the lives of rural people – with roots in rural schools, churches, and businesses – who were forced to abandon their communities as farm families were forced off the land. The human costs of cheap food have been undeniably tremendous, but since they couldn’t be measured in dollars and cents, they have gone uncounted.

The ecological costs of cheap food, likewise not measurable in dollars and cents, also have gone uncounted, and thus, largely ignored. Today, only the most diehard industrialists bother to deny that we have degraded the productivity of the land through erosion and contamination, and that we have polluted the natural environment with agricultural chemicals – in our never-ending pursuit of cheaper food. Certainly, we had soil erosion in the “dust bowl” days, but we were making great strides in soil conservation, before the dawning of industrial agriculture in the late 1940s. In spite of stepped up soil conservation efforts of the 1990s, American farms still are losing topsoil at rates far exceeding rates of soil regeneration. Feeble efforts to control soil loss through reduced tillage leave farmers increasingly reliant on herbicides that pollute our streams and groundwater and that disrupt or destroy the biological life in the soil.

All life on earth is rooted in the soil. As farmers destroy the natural productivity of the land, they are destroying the ability of the earth to support life. We are destroying the future of humanity to make agriculture more “efficient.” What is the value of the future of humanity? Are we in fact willing to risk the future of human life on earth just so we can have cheap food?

With increasing corporate control of agriculture we may be approaching
an end of agriculture in America – at least agriculture as we know it. The globalization of agriculture, through “free-trade” agreements, means that food in the future will be grown wherever in the world it can be produced at the lowest economic cost. High costs of land and labor in the US – consequences of favorable employment opportunities and the urban-to-rural population migration -- may keep production costs in the US well above costs in other food producing regions of the world. The multinational food corporations that increasingly control agriculture are not people – they have no heart, no soul, nor citizenship in any particular country. They will produce or buy agricultural commodities wherever they can produce or buy at the lowest cost, without regard for national origin. Our continuing quest for cheap food could mean the end of American agriculture.

The US in the future could well become as dependent on the rest of the world for food as we are today for oil. Economists argue that it doesn’t matter where our food is produced. If producing food elsewhere in the world will be cheaper, we will all be better off without agriculture in the US. But how long will it be before an OFEC (Organization of Food Exporting Countries) is formed to restrict world food supplies causing our food prices to skyrocket – just as we have seen skyrocketing prices of gasoline. Perhaps we can keep food imports flowing -- through our military might, if economic coercion fails. But, what will be the real costs? How many small wars will we have to fight, and how many people will we be “forced to kill” – just for the sake of cheap food? Can we afford the real costs of cheap food?

The costs of making food quick and convenient probably are no less that the cost of making food cheap. Nearly eighty cents of each dollar Americans spend for food goes to pay for marketing services – processing, packaging, transportation, storage, advertising, etc. All of these costs are associated with making our food convenient – getting it into the most convenient form and package, getting it to the most
convenient location, at the most convenient time, and convincing us to buy it. So, we pay far more for the convenience of our food than we pay for the food itself. In fact, we pay more to those who “package and advertise” our food than we pay to the farmers who produce it. So by far the greatest part of the total cost of food is the cost of convenience.

Our addiction to convenience also is placing control of our food supply in the hands of a few giant, multinational corporations. As Dr. Bill Heffernan of the University of Missouri has pointed out previously in Small Farm Today, the global food supply today is dominated by a handful of giant agribusiness firms, allied by various means, forming three “global food clusters.” These firms influence and, in many cases, control nearly everything that happens to our food because they control the processes that make our food “convenient.” The price of convenient food is not just the eighty cents of each dollar we spend for food. The greatest cost of convenient food has been the loss of control of our food supply.

The costs of *quick* food are similar in nature to the costs of convenience food. Our growing addiction of “fast food” is evident in the ever increasing share of our food dollar spent at restaurants and other eating establishments – a share approaching half of total food purchases. And, “fast foods” places, such as McDonalds, Kentucky Fried Chicken, Taco Bell, and Pizza Hut, account for nearly half of all food consumed away from home. Erick Schlosser, in his recent best seller, “Fast Food Nation,” addresses the cost of our “love affair” with fast foods. He states that “fast food has triggered the homogenization of our society. Fast food has hastened the malling of our landscape, widening of the chasm between rich and poor, fueled an epidemic of obesity, and propelled the juggernaut of American cultural imperialism abroad.” He documents how *quick* food has lured us into choosing diets deficient in nearly everything except calories, supporting practices deceptive in every aspect from advertising to flavoring, and systems that degrade nearly everyone and everything involved in the process.
The fast food industry has lured low-income consumers, along with the affluent, into paying ridiculously high prices for low-quality meats, potatoes, vegetable oil, and sugar. However, the high dollar-and-cent costs are but the tip of the iceberg. The true costs of quick food must include the costs of poor health, lost dignity in work, degraded landscapes, and ethical and moral decay in business matters, including international trade and investment. We are paying a tremendously high price for the time saved by choosing quick food.

Thankfully, we still have alternatives – at least for many of the things we eat. We can buy from local farmers who are committed to producing foods by ecologically sound and socially responsible means – i.e. sustainable agriculture. We can locate such farmers through “community food circles,” which provide directories of local producers who sell direct to consumers. We can “shop” at farmers markets, join CSAs, seek out restaurants that buy from local farmers, or buy those few items in the supermarkets that are supplied by local sustainable growers.

The food we buy from these local people may not be as quick, convenient, or cheap as the food we could buy at a local fast food joint or supermarket. But, it may well be more than worth the time, effort, and money that we have to spend to get it. A friend of mine is fond of saying, “eating is a moral act.” It is. The food we choose has an impact upon the lives of other people, upon the earth, and upon the future of humanity. When all of the costs are counted, we simply cannot afford the high costs of cheap food.
Farming for Quality of Life

John Ikerd

*Published in Sustaining People through Agriculture column, Small Farm Today, November/December, 2001 issue.*

Talk with any farmer about why he or she is farming, and they will probably mention that they would like to make some money. Making money may not be at the top of their list, particularly for smaller, part-time farmers, but it will probably be somewhere in their top ten. Yet, many small farmers continue to farm, even though they lose money year after year. Why? because there are sound, logical reasons for farming other than making money.

According to USDA statistics, only 37 percent of small, “limited resource” farms and 30 percent of small, “lifestyle” farms reported positive net-cash incomes from farming in 1995. For “primary occupation” small farmers (with less than $100,000 annual sales) only 55 percent reported positive net-cash incomes. For these three USDA small farm groups combined, only 45 percent made any money farming. These latest detailed financial figures were similar to estimates for earlier years, and there’s no reason to believe that the situation has improved much since then.

Some people look at such statistics and conclude that small farmers aren’t serious about farming. For most of these small farmers, farming must be a hobby, they say, a serious farmer would either find a way to make money or get out. I suspect that every one of these small farmers would rather make a profit than a loss. But, I suspect also that they haven’t gotten out of farming because making money wasn’t the most important reason they were farming in the first place. And for most, farming is not a hobby; it’s a serious business. Many of these farmers are achieving what’s most important to many small farmers, but that isn’t making money.
A lot of small farms are “quality of life” farms – their primary purpose is to contribute to the quality of life of a farm family in ways other than by making money. Typically, one or more member of the family on such farms has an off-farm job to provide the family with necessary “cash” income. This allows their farming operation to focus on creating a highly desirable quality of life by other means. It would cost a lot of money for people living in cities to buy the quality of life benefits that are an inherent part of a good family farm. And, still other quality of life benefits of farming are “priceless.”

Ask farm families why they farm, and many will mention that they like the open spaces, fresh air, scenic landscapes, and the opportunity to live in a natural setting. How much money does a person have to earn in a city to live in a scenic, natural environment with fresh air and open spaces? Even small farms provide families very large “residential lots,” averaging more than 200 acres. How much money does a person have to earn in a city to “buy” this much open space, personal freedom, and privacy?

Ask farm families why they farm, and many will mention that a farm is a good place to raise a family. A good farm is a place that nurtures life – plants and animals – and the lives of children can be nurtured by growing up on a farm. Farm families also can have more influence on their children, because families have opportunities to spend more quality time together – work and family life happens at the same place. Children that grow up knowing they are valued, productive participants in the work of the family seem more likely to grow up with a healthy sense of self-worth. How much money does a family have to earn in a city to ensure quality learning opportunities for their children, to create opportunities for the family to grow together, to give their children opportunities to build self-esteem? How much time and money is spent by families in cities just to keep the children “occupied” by “non-destructive” activities? The things that build strong families just come naturally in day-to-day life on a good family farm.
Ask farm families why they farm, and many will mention that they like being part of a farming community. Farming communities may not be as close as they were back in the days when farmers shared work, and when the social life of farm families was pretty much limited to community activities. However, many farming communities are still places where everyone knows just about everyone else, and everybody has an opportunity to pursue whatever community role they choose to pursue. How much time and money does a person in a city have to spend to develop and maintain a social network of friends? How much time and money does a person in a city have to spend to develop name recognition and credibility, if they decide to take on a leadership role in their “community?” Farmers just naturally find a place to belong, in a community with other farming families.

On a family farm, the open spaces, the place to raise a family, and the community, all come as part of farming. You don’t have to pay extra for the extra space because you need the same space for the farm. You don’t have to pay extra for a place to raise a family, because the place you raise the family is the farm. And you don’t have to pay extra to be a part of a farming community, because you become a part when you decide to live there and farm. These benefits are valuable, but you don’t have to pay anything extra for them, they are just part of the “quality of life” that comes with farming.

As a bonus, the costs of many such “quality of life” benefits are considered as farming costs. The cost of owning farmland is a farming cost, although the farm provides a place to live. Many food costs are also farm costs, such as some of the costs of a vegetable garden and animals for meat, eggs, or milk. Some family transportation costs are farm costs – every farm needs a pickup truck. Many recreation costs, such as maintaining wildlife habitat for hunting and fishing, all terrain vehicles for work and play, a stable for riding horses, pets that “work” on the farm, etc.
also are farm costs. Many things that contribute to a desirable quality of life on a farm are legitimate farm costs, to the extent that they also contribute to the farm business.

What difference does this make whether something is a farm cost or family cost? If something is a business cost, it can be deducted from farm income, reducing farm income for accounting and tax purposes. Expenses of a purely personal nature cannot be deducted from income taxes. So, for each dollar spent for personal expense, a person has to earn anywhere from $1.20 to $1.45, depending on their federal and state income tax brackets. Farmers only have to earn a dollar to spend a dollar on legitimate farm expenses, including those that create valuable personal benefits. And, every dollar “lost” on the farm may save from $0.20 to $0.45 in reduced taxes on off-farm income.

Many small farms that report “negative” net incomes still may be providing very valuable economic benefits to farm families. In fact, it’s conceivable that the costs of providing the same quality of life benefits that occur on many small family farms might require a $30,000 to $50,000 in off-farm income. Cost of such things as an acreage in an upscale gated community, enhanced private educational and recreational experiences for children, involvement in civic affairs, maintaining social relationships, membership in sport’s club, etc. don’t come cheap. So, a farm that just “breaks even” might be contributing as much to the quality of life of the family as a job that pays $30,000 to $50,000 in town.

Many people who have $30,000 to $50,000 jobs in town are able to do little more than pay the “cost of living” of the family – the cost of their quality of life. And, many city families need more than one income, and sometimes more than one job per person, just to make ends meet. A farm that just breaks even is still making ends meet. Off-farm employment may be necessary only because some things that contribute to a desirable quality of life can’t be produced on the farm, and thus,
require a cash income.

Some other aspects of life on a farm are simply “priceless.” Our quality of life simply cannot be measured by our income or wealth – although economic rewards are a part of it. Our quality of life also depends on the quality of our relationships with other people. And, our quality of life depends on whether we find purpose and meaning in the things that we do – whether we are living and working according to our moral and ethical principles. We can’t buy a life of quality; we must live it. The most important dimensions of our quality of life are truly “priceless.”

For many farm families, farming is the means by which they build positive relationships within their families and communities, and by which they accept their responsibilities for helping build a better society. For many farm families, being good stewards of the land, caring for the land for the benefit of current and future generations, gives purpose and meaning to their lives. These “quality of life farmers” are sustainable farmers – they are economically viable, ecologically sound, and socially responsible farmers. And, many of these farmers on small family farms. For these farm families, and for society as a whole, the benefits of living and working on a “quality of life” farm are truly “priceless.”
In farming, the critical nature of the interrelationships among people and between people and the earth is perhaps more apparent than in any other form of human activity. The problems confronting agriculture and the problems confronting society in general share a common source – the dysfunctional nature of relationships among people and between people and the earth. The solutions to the problems of society are essentially the same as solutions to the problems of agriculture. It’s just that the nature of the problems and solutions in agriculture are more easily seen and understood. Thus, farming provides a useful metaphor for living. And more important, sustainable farming provides a useful metaphor for sustainable living.

The productivity of a farm clearly depends on the health and natural fertility of the soil. The fertility of soil depends not only on its mineral and chemical composition but also upon the millions of organisms that live in the soil, in a symbiotic relationship with the roots of plants. The productivity of farms clearly depend on the health and natural vigor of plants and animals, which in turn depend on soil, water, air, and sunlight – and upon the biological diversity of their natural environment. Healthy soils feed healthy plants and healthy plants feed healthy animals – including we humans who eat both plants and animals.

The profitability of a farm depends on the nature of relationships among people – between farmers and their customers and between farmers and their suppliers. A profitable farming operation must have good markets – someone somewhere must be willing and able to pay for things that...
Farming as a Metaphor for Living

farmers grow. A profitable farming operation also must have some control over its costs of production. No selling price is high enough if input suppliers simply raise their prices and absorb the farmer’s profits. The economic viability of a farm clearly depends on economic relationships, which in fact, are nothing more or less, than impersonal relationships among people.

The quality of life on a farm certainly is affected by farm income, but clearly depends at least as much on quality of relationships among those who live and work on farms and between farm families and their communities. Historically, family farms have involved the whole family in important farming decisions, as well as depended on all members of the family for labor. Historically, farm families have been more isolated by geography than have non-farm families, and thus, have relied more on each other for social, recreational, and emotional relationships. Likewise, many farming communities have remained isolated from the economic mainstream, making the interdependence between farm families and the social and political life of rural communities more clear. The same types of personal interdependence exist throughout society, but in farming, they have been easier to see and to understand.

The environmental, social, and economic problems confronting American agriculture today are symptoms of agricultural industrialization – specialization, standardization, and consolidation of control. The health and productivity of the soil is being destroyed by the commercial chemicals needed to support large-scale, specialized farming operations. The demise of family farms is a symptom of simplification, routinization, and mechanization of farming, which made it both possible and necessary for each farmer to farm more land and invest more capital. Get bigger or get out, they were told. As family farms failed, local businesses suffered, local schools were lost to consolidation, church pews were left empty, and rural communities withered and died. Specialization and standardization, which first led to fewer and larger farms, is now shifting control of farming
to a handful of multinational corporations. Under corporate control, American agriculture might well be moved to other countries with lower land and labor costs and fewer environmental regulations. The sustainability of American agriculture is in doubt.

Those same relationships between the industrial paradigm and sustainability exist for society in general. But, modern society is extremely complex and the relationships are not quite so clear. All of life, including human life, is dependent upon a healthy natural environment – water, air, sunlight, soil, and diversity of living species. Industrial systems of economic development degrade the health of the natural environment in general, just as they degrade the natural productivity of farms. Industrial systems threaten human health and well being, as they pollute the natural environment with chemicals and other industrial wastes.

Human civilizations depend upon healthy human societies, based on inviolate principles of healthy human relationships – such as respect, trust, freedom, justice, and equality of opportunity. Industrial systems, in facilitating ever-greater specialization, separate people from each other. Complex systems of markets separate buyers from sellers, consumers from producers, and corporate investors from managers. Relationships become defined by laws, rules, regulations, and contracts. Profits and growth take precedent over personal relationships and social responsibility. Exploitation of workers, consumers, and taxpayers becomes routine business practice. The degradation of American society is no different in concept from the demise of our family farms and the ecological, economic and social decay of our rural communities. The linkages between cause and effect are just easier to see in agriculture.

The keys to building a more sustainable human society are no different in nature from the keys to building a more sustainable agriculture. And, farmers all across America and around the world are finding ways to make agriculture more sustainable. A recent publication of the USDA
Sustainable Agriculture Research and Education program highlights fifty such farmers from across the United States. But, there are thousands more, each with a unique and different story, but each sharing a common vision for a more sustainable agriculture. While there are no blueprints for the new American farm, some fundamental principles are emerging.

The new farms tend to be more diversified than are conventional farms. These farmers are committed to caring for the land and protecting the natural environment. They work with nature rather than try to control or conquer nature, and nature is inherently diverse. They fit the farm to their land and climate rather than try to bend nature to fit the way they might prefer to farm. In most regions, this requires a variety of crop and animal enterprises. In some regions, however, diversity means crop rotations and cover crops. In other regions, diversity means managing livestock grazing to achieve diverse plant species or with multiple species of grazing animals. Through diversification, these new farmers substitute management for the off-farm inputs that squeeze farm profits and threaten the environment. Their farms are more economically viable, as well as more ecologically sound, because they farm in harmony with nature.

The new farmers tend to have more direct contact with their customers than do conventional farmers. Most either market their products direct to customers or market through agents who represent them with their customers. They realize that each of us value things differently, as consumers, because we have different needs and different tastes and preferences. They produce the things that their customers value most, rather than try to convince their customers to buy whatever they produce. They market to people who care where their food comes from and how it is produced – locally grown, organic, natural, humanely raised, hormone and antibiotic free, etc. – and, they receive premium prices by producing what their customers value. Their farming operations are more economically viable, as well as ecologically sound and socially responsible.
To these new farmers, farming is as much a way of life as a way to make a living. They are “quality of life” farmers. To them, the farm is a good place to live, a good place to raise a family, and a good way to be a part of a caring community. Their quality of life objectives are at least as important as the economic objectives in carrying out their farming operations. Their farming operations reflect the things they like to do, the things they believe in, and the things they have a passion for, as much as the things that might make money. However, for many, their products are better and their costs are less because by following their passion they end up doing what they do best. Most new farmers are able to earn a decent income, but more important, they have a higher quality of life because they are living a life that they love.

These new farmers, who are finding ways to farm more sustainably, are creating a metaphor of a more sustainable human society. If we are to sustain productivity, we must stop exploiting our natural environment. We should look again to the timeless principle of diversity in finding new means of sustaining human progress, economically and socially, while maintaining the health and integrity of our natural environment – not just in agriculture but all across society. If we are to sustain human civilization, we must stop exploiting each other. We should focus on providing people with the things they need and truly value rather than coercing and bribing people to buy ever more “cheap stuff” – not just in agriculture but all across society. We must not allow our pursuit of short-run, economic self-interest to diminish our overall quality of life – neither in agriculture nor elsewhere in society. We must seek and find balance and harmony among the economic, ecological, and social to find balance and harmony among the personal, interpersonal, and spiritual dimensions of our lives.

A sustainable agriculture must be ecologically sound, economically viable, and socially responsible. The sustainability of human society must be ecologically sound, economically viable, and socially responsible.
Sustainable farming is a useful metaphor for sustainable living, because the critical nature of relationships among people and between people and nature are easier to see on the farm.

Reference:

“The New American Farmer – Profiles in Agricultural Innovation,” the SARE Program, USDA, Washington DC. ($10 US – call: 802-656-0484 or e-mail: sanpubs@uvm.edu , also available free on line at http://www.sare.org/newfarmer)
Rethinking Government Farm Programs
From the Ground UP

John Ikerd

Published in Sustaining People through Agriculture column, Small Farm Today, September/October, 2001 issue.

The US Congress is hard at work writing the new 2002 Farm Bill. The last Farm Bill, the Freedom to Farm Act, was designed to phase out government farm programs. It was supposed to “get the government off the farmers’ backs.” By now, US farmers were to have been prospering from participation in the “new global free market.” Obviously, the Act didn’t live up to its early billing. Once farmers were “free to farm,” they flooded markets with production, global prices plummeted, and farmers were left “free to fail” instead. Washington has responded year after year with “emergency” payments for farmers. Instead of being phased out of farm programs, US farmers are now among the most heavily subsidized in the world. It seems a sensible time to rethink the whole concept of government farm programs, from the ground up.

Congress is not inclined to change things too much or too quickly, under any circumstances. And, those large farming operations that have been filling their bank accounts at the public trough are lobbying to make the generous “emergency bailouts” of recent years a permanent part of the new Farm Bill. I’m sure all farmers appreciate their government checks, but small farmers benefit relatively little from current farm programs. Small farmers hold a very small proportion of total “base acres” for the major crops – corn, soybeans, wheat, cotton, rice, sugar, etc. – on which most current government payments are based. So their government checks are proportionately small.

In addition, as most family farmers have discovered, when government payments are raised, their prices drop and their costs rise, leaving them
no better off than before. As one of my economist friends puts it, farmers have become the “bagmen” who launder government checks for the corporate agribusiness firms. Large landowners and agribusinesses don’t want things to change – at least not too much. So, it will be up to small farmers and taxpayers to demand radical changes in government farm programs.

First, government payments should go to those who produce things that benefit the public in general, but for which the private-market incentives are inadequate or do not exist. There was a time when government programs that helped farmers to increase their efficiency and to bring down food prices provided a legitimate public service. Today, however, farming accounts for less than a dime of each dollar spent for food. In addition, production is increasingly controlled by giant agribusiness corporations. These giant firms pass little, if any, of farm production cost savings on to food consumers. We can no longer make food cheaper by making farming more efficient. Government farm programs have become “corporate welfare” programs.

Second, farmers are in a position to provide legitimate and valuable “public benefits” to society, and society could benefit greatly from investing “public dollars” to create those benefits. Food security, food equity, environmental protection, and communality are but a few of those benefits that farmers could create, but for which private incentives are inadequate or non-existent.

Finally, farmers have a legitimate right to receive employment security benefits such as those provided to other workers through minimum wages, workers’ compensation, unemployment benefits, etc. Similar “public benefits” could be provided to farmers who are willing to produce truly “public goods and services” for society. This would require a rethinking of farm programs. But, using “public tax dollars” to create “public goods and services” is the legitimate role of government.
Rethinking Government Farm Programs

Subsidizing corporate investors is not.

In America, we believe that “all people are created equal, and that they are endowed by their Creator with certain inalienable rights, including life, liberty, and the pursuit of happiness.” We don’t believe that we can make everyone happy, but we do believe that everyone has an equal right to pursue happiness. This is the most basic of justifications for providing “public goods and services” – to ensure that everyone has access to those things to which we all have an “equal right.”

The private market does not provide things equally to all -- even if markets were perfectly competitive and free, which they are not. The markets provide things in relation to our willingness and ability to pay for them. We are not equally productive, and thus, are not equally able to earn money or equally able to pay. So, the government must ensure economic equity by providing those things that all deserve “equally” but for which many cannot pay.

For example, nearly everyone agrees that all people, regardless of their economic means, have a right to adequate food, clothing, and shelter to survive and grow. Most also agree that everyone has a right to military protection, some level of education, and some means of transportation. This certainly does not exhaust the list of legitimate public services, but there is little disagreement about these. The private sector will not provide these things, at least not equally to all, so we pay for them with our tax dollars, through government programs.

Why shouldn’t we use government programs to ensure that every American has some minimum level of food, clothing, and shelter, and simultaneously, provide employment security to those who provide them? Today, government programs provide such things. But, the government buys the goods and services from corporate suppliers and then ends up supplementing the incomes of minimum-wage corporate employees and
subsidizing the farmers and other independent suppliers that the corporations drive out of business. This doesn’t seem to make much sense. Why shouldn’t local governments buy to meet local needs directly from local suppliers? Why not provide employment security directly to those who produce the public benefits and cut out the corporate middlemen?

Why shouldn’t we use government programs to provide food security for all, and simultaneously, provide employment security to those who provide it? The government has held strategic reserves of various agricultural commodities in the past and we may well need such reserves in the future. With America becoming increasingly reliant on food imports, we could be as vulnerable to “food crises” in the future as we are to “energy crises” today. In the past, the government has purchased commodities through the open market, stored them in commercial facilities, and has ended up subsidizing farmers because large reserves depressed market prices. Why not purchase locally held strategic reserves of commodities direct from local farmers, and reward farmers who provide such reserves with employment security?

A safe, healthy, and productive natural environment is another “right” that many of us believe should be guaranteed “equally to all.” The Conservation Security Act, which has been introduced in Congress, proposes to link payments under the new 2002 Farm Bill to soil and water conservation and environmental protection. It is perfectly legitimate to use public tax dollars to provide incentives to protect the environment for the good of the public. I personally have reservations about paying people to do things that they already have an ethic and moral obligation to do. It seems a bit like paying people not to assault or rob other people. However, linking government payments to conservation benefits rather than past commodity production would certainly be a step in the right direction.
The Europeans are promoting a concept in international trade negotiations that would pay farmers for a variety of public benefits, including contributions of family farms to rural landscapes, rural culture, and stable communities, in addition to environmental protection. They propose to pay farmers for their “multi-functional” contribution to local communities as well as to society in general. This seems to me to be a perfectly sensible approach to using public tax dollars to provide public goods and services.

Why shouldn’t we combine the concepts of farmers as providers of “multi-functional” public benefits with farmers’ rights to employment security? Farmers would provide specifically identified public good and services, as directly and as locally as possible. Food equity commodities could come from local farmer and go to local recipients. Food security commodities would come from local farmers and go into local storage. Soil conservation and environmental stewardship would be a prerequisite for participation in any government program. Positive economic and ecological impacts would be local, and thus, would be supportive of safe, healthy, prosperous, and sustainable local communities.

Program benefits paid to farmers would be limited to those consistent with employment security – some minimum level of income year-in and year-out, the ability to continue farming for a living, access to affordable health care, disability benefits, etc. Huge government payments to giant agribusiness corporations would become a thing of the past. Benefits would be paid to individual farm families for their individual contributions of public services. Thus, small farmers would be eligible for the same benefits as large farmers; the maximum benefit would be employment security for one individual or one family, regardless of farm size.

In a sense, such a program would treat farming as a “public utility” and treat farmers as “public workers.” But, in what sense is this less defensible or desirable than farmers taking government handouts for
doing virtually nothing of true public benefit? Farmers would have the right to use production methods of their choice, as long the result was an acceptable “multi-functional” benefit. This is far more freedom than farmers have under most corporate contracting arrangements. And, farmers could still produce as much of any commodity as they wanted, for sale in the open markets. But, they would receive no government payment beyond employment security.

Sound a bit radical? Perhaps. But, such a program would leave farmers with far more “freedom to farm” than did the last Farm Bill.
Hope for the Future of Farming

John Ikerd

University of Missouri

Published in Sustaining People through Agriculture column, Small Farm Today, May/June, 2001 issue.

There is hope for the future of farming. Hope does not mean believing that things are going well for farmers. But rather hope means that farmers have the ability to work for success in spite of growing difficulties. To quote Vaclav Havel, writer, reformer, and president of the Czech Republic:

“Hope is not the same as joy when things are going well, or willingness to invest in enterprises that are obviously headed for early success, but rather an ability to work for something to succeed.”

Things are not going well in agriculture. In fact, farming is in crisis. People will continue to eat, and someone will continue to produce their food. But farming, as we have known it, almost certainly is coming to an end. Agriculture is becoming increasingly industrialized – specialized and standardized with decision-making centralized among a handful of large agribusiness corporations. As farms continue to become larger in size, fewer in number, and increasingly under corporate control, at some point farming is no longer farming but becomes agribusiness.

So what’s the difference between a farm and an agribusiness? First, farmers work with nature. They attempt to tip the ecological balance to favor humans over other species, but still work with nature. Farmers recognize that the laws of nature must prevail over the laws of “man.” Farmers depend on unpredictable weather and work with living systems
that they can never expect to completely control. Farming is as much a way of life as a way to make a living. A farm is a good place to raise a family and farming is a good way to be a part of a community. The benefits of farming are not solely, or even predominantly, economic in nature. Farming carries with it a set of beliefs, behaviors, and customs that distinguishes it from any other occupation. It’s the “culture” part of agriculture that makes a farm a farm and not an agribusiness. The culture part of agriculture is being systematically removed through the process of industrialization.

The agricultural establishment tries to deny the existence of a crisis. They say the demise of independent family farms is a sign of technological and economic progress. The experts enjoin family farmers to prepare for a place in the corporate contract labor pool as if this were their only option. The census definition of a farm has even been changed so as to hide the precipitous decline in numbers of true farmers. In spite of the tinkering, the 1997 Census of Agriculture showed a 9 percent drop in those who consider farming their primary occupation between 1992 and 1997. The true American farm continues to disappear at an alarming rate.

Crisis is chronic in agriculture, but the current crisis is different. This crisis is not just a matter of farms continuing to become larger and fewer, instead it is a matter of completing the transformation of agriculture into an industry.

With corporations firmly in control of the economic system, and seemingly in control of the political system as well, where is the hope for farming in the future? How can farming families hope to compete with the giant agribusiness firms? How can people who are committed to stewardship compete with corporations that have no choice but to exploit nature? How can people who are committed to being good neighbors and responsible members of society compete with corporations that have no choice but to exploit other people? Where is the hope for the future of farming?
The hope for the future of farming is found in those farmers who are committed to rediscovering ways to farm that make sense, regardless of how it all turns out. Hope arises from their conviction that real farming is the only right thing to do and from their commitment to finding ways to continue doing it.

“Hope is definitely not the same thing as optimism. It’s not the conviction that something will turn out well, but the certainty that something makes sense, regardless of how it turns out.”

Hope for the future is in farming, not in agribusiness. This does not mean that farmers should go back to technologies and methods of the past, although some may have merit for the future. Instead hope is in using technologies and methods that respect the fundamental nature of farming and that keep the culture in agriculture, regardless of whether they are old or new. Certainly, farming in the future must yield an acceptable economic return to farmers. But an acceptable economic return is not the same thing as maximum profits and growth. Farmers of the future must regain the realization of value that results from relationships among people – within families, communities, and nations. Farmers of the future must regain the realization of value that results from living an ethical and moral life – from being good stewards or caretakers of nature and of human culture. These are things that make sense regardless of how they turn out – they are the right things to do. In these things there is hope.

In reality, there is more reason to believe in the future of farming than in agribusiness. Agriculture has been around for centuries, while agribusiness is less than sixty years old. It’s only in the past half century or so that we have allowed the economics of individual self interest to dominate, degrade, and ultimate destroy the ethical and social values arising from farming. Farmers have been coerced, bribed, and brainwashed into believing that the only thing that really matters, or at
least the thing that matters more than anything else, is the economic bottom line. The hope for the future is that farmers are beginning to realize that their blind pursuit of profits is in fact the root cause of their financial failure.

The greatest source of hope for the future is among farmers who are seeking and finding new ways to farm. They may claim the label of organic, low-input, alternative, biodynamic, holistic, permaculture, practical farmers, or just plain farmer. But they are all trying to build farming systems that are ecologically sound, economically viable, and socially responsible. They are pursuing a higher self-interest – to satisfy the personal, interpersonal, and ethical self. They realize that quality of life is a product of harmony among the economic, social, and spiritual dimensions of their lives. They refuse to exploit other people or exploit the natural environment for short run personal gain. They are building an agriculture that is sustainable over the long run, not just profitable for today. These new American farmers are the hope for the future of farming.

“It is this hope, above all, that gives us strength to live and to continually try new things, even in conditions that otherwise seem hopeless.”

Hope gives these farmers the strength to continually try new things, even though they are working against seemingly insurmountable odds. They are the explorers, the pioneers, on the new frontier of farming in America. They suffer frustrations, hardships, and even failures – but such is the nature of being pioneers. These people are doing something that no one really knows how to do. They get relatively little help from anyone other than each other, yet they persevere. But increasingly, these new farmers are finding ways to succeed.

While there are no blueprints for the new American farm, some
fundamental principles are emerging. The new American farmers are creating new and better ways to make a living without abandoning the fundamental principles of farming.

These new American farmers focus on working with nature rather than against it. They utilize practices such as management intensive grazing, hoop house hogs, diverse crop rotations, cover crops, and inter-cropping. They manage their land and labor resources to harvest solar energy, to utilize the productivity of nature, and thus, are able to reduce their reliance on external purchased inputs.

These new American farmers focus on value rather than costs. They realize that each of us value things differently, as consumers, because we have different needs and different tastes and preferences. They market in the niches and increase value by more nearly meeting the individual needs of their customers. They market through farmers markets, roadside stands, subscription farming or CSAs, home delivery, or by customer pick-up at the farm. They market to people who care where their food comes from and how it is produced – locally grown, organic, humanely raised, or hormone and antibiotic free.

These new American farmers focus on what they can do best. They realize that we are all different as producers as well as consumers with widely diverse skills, abilities, and aptitudes. They may produce grass finished beef, pastured pork, free range or pastured poultry, heirloom varieties of fruits and vegetables, dairy or milk goats, edible flowers, decorative gourds, or dozens of other products that many label as agricultural “alternatives.”

In general, new American farmers focus on creating value through uniqueness-- among consumers, among producers, and within nature. They link people with purpose and place, and by so doing, they create unique systems of meeting human needs that cannot be industrialized.
Will these new American farmers succeed? No one can say for sure, but there’s no doubt that they could succeed. Hope is the possibility that something good could happen.

“Life is too precious to permit its devaluation by living pointlessly, emptily, without meaning, without love, and finally, without hope.”

There is hope for the future of farming. Human life depends of farming, and life is simply too precious to live without hope.
Sustainable Agriculture: It’s A Matter of People

John Ikerd
University of Missouri

Published in Sustaining People through Agriculture column, Small Farm Today, July/August 2000 issue.

Sustainable agriculture is not just a passing fad. It’s not going to go away. Sustaining agriculture ultimately is about sustaining people – not just agriculture. People are becoming increasingly concerned about today’s agriculture – about its ability to meet the needs of people today and still leave opportunities for people in the future. People are becoming increasingly concerned about the safety and healthfulness our food supplies as we increase our reliance on an impersonal, global food system. People are becoming increasingly concerned about the natural environment as agriculture moves into the final stages of corporate industrialization. People are beginning to realize that since corporations are not people they have no concern for farmers, for rural residents, or even for consumers -- in any other sense than as markets for their products. Corporations have no heart, they have no soul – their only concerns are profit and growth. People are becoming increasingly concerned about an agriculture that has no commitment to people.

Sustainable agriculture became a public issue because of the concerns of people about people. Sustainable agriculture first came to national attention during the farm financial crisis of the 1980s. Farmers were caught up once again in a reoccurring squeeze between declining prices for agricultural commodities and rising prices for fertilizers, pesticides, fuel and other farm inputs. The first USDA program was called Low Input Sustainable Agriculture, or LISA, because farmers were concerned about reducing their reliance on increasingly expensive inputs. Land Grant Universities were directed to help farmers find ways to reduce their purchases of off-farm inputs. The SA part of the LISA program was
supported by organic farming advocates – motivated by their concern for food safety and the environment. But, the LISA program was mostly about helping financially distressed farm families – about helping people keep and care for their land.

The corporate agribusiness community reacted to LISA with outrage. How could USDA and the Land Grant Universities even consider a program that might reduce the demand for agricultural inputs? They had worked hard to hook farmers on agricultural chemicals, and they weren’t about to give up their “junkies” or their “dealers” without a fight. So agribusiness, and their industrial agriculture allies, set about to discredit and destroy the LISA program. They used everything from making jokes about the name, to raising the specter of mass starvation, to phony “research plots” using “no fertility or pest management” to represent LISA farming systems. It was a disgrace, but it worked. USDA abandoned the LISA program and shifted the emphasis from reducing inputs to natural resource management through a new Sustainable Agriculture Research and Education (SARE) program.

SARE seemed less a threat to agribusiness than did LISA, but still met with great resistance from the agricultural establishment. The resistance was more passive than before but no less aggressive. The first reaction was to cry foul because agriculture was being singled out as a polluter – even though other industries had been “under the EPA hammer” for nearly two decades. The next strategy was for agribusiness to appear to stand by the side of farmers, as trusted stewards of the natural environment – but only so long as the defense included farmers’ continued use of commercial fertilizers and pesticides. Next, they promoted “wise use” of inputs by peddling costly, high-tech precision farming systems that often as not called for more, rather than fewer, inputs. Finally, agribusiness started capitalizing on environmental concerns in their marketing schemes – peddling first more costly high-tech inputs and then biotechnology as a means of protecting the natural
environment.

The agricultural establishment has not, and will not, embrace the social dimension of agricultural sustainability. A sustainable agriculture must sustain people – not just people as consumers, but people as farmers, rural residents, and members of a civil society. Ultimately, a society will not sustain an agricultural system that will not sustain its people – people as producers and citizens as well as consumers. We need look only to the communistic farming systems of the former Soviet Union for a prime example. A socially irresponsible agriculture can do great harm to society, as it did in communist Russia. A corporate dominated, vertically integrated agriculture, which looms over the American horizon, is a centrally planned agriculture – no different in concept from a communist economy. It is not a socially responsible system, and thus, quite simply is not sustainable.

Sustainable agriculture research and educational programs are being challenged today as never before. Funding for the USDA SARE program is challenged each budget year and stays alive only through the diligent efforts of politically active non-profit organizations and grass roots support groups. So far, SARE appears to be holding its own. However within the last year, several major Land Grant Universities have dropped their sustainable agriculture programs and others have integrated them into other less controversial program areas.

Public universities have become increasingly reliant on corporations to fund their research programs. In most cases, this means increasing emphasis on biotechnology. Biotechnology has not and will not be embraced by the sustainable agriculture movement. Biotechnology is a tool designed to manipulate and dominate nature, and sustainability ultimately will require that we instead farm in harmony with nature. The universities quite simply are not willing to jeopardize their chances for multimillion-dollar corporate funded biotech projects by protecting a few-
thousand-dollar publicly funded sustainable agriculture programs.

Perhaps even more important, public universities have lost faith in their ability to be of significant benefit to people – at least to people directly. They argue that they serve the public through their work with corporations – that scientific discoveries must be “commercialized” before the science becomes of use to the public. They seem to have forgotten that discoveries can be commercialized through individual decision-makers, through farmers and other independent business people, not just through corporations. It just easier and more comfortably for Universities to work with a large agribusiness than to work with a similarly large group of individual farmers or citizens.

The universities seem to have forgotten that tax dollars are not only to be used to support research that benefits the public, but to support only research “that the private sector will not adequately support.” Agricultural colleges were publicly funded because farmers were too small to do their own research, and agricultural research had clear public benefits. The giant agribusiness corporations are perfectly capable of funding their own research – all of it. In addition, these corporations don’t operate in competitive markets. Thus, most of the benefits will end up as corporate profits, not lower prices for consumers or higher prices for farmers. Why should the taxpayer be footing any part of the bill?

As public institutions worked less directly with people, for the direct good of people, they have lost the support of people, and their public funding has declined. Taxpayers were getting fewer benefits, and ultimately, they refused to pay for benefits they weren’t getting. They asked their legislators to hold the line or to cut funding for public research and education. So now the universities are turning to corporate support, because of lagging public support, and the public is getting even fewer benefits for their tax dollars. It’s a vicious circle from which there is no easy way out.
Sustainable agriculture will never be funded, or even tolerated, by agribusiness because it is fundamentally about reducing reliance on off-farm inputs, protecting the natural environment, and empowering people to free themselves from corporate domination. Sustainable agriculture will never be funded, or even tolerated, by large farm commodity groups, because it promotes diversification rather than specialization – it is about people rather than production. If sustainable agriculture research and education is to be funded, it will have to be funded publicly, by the people.

Sustainable agriculture promotes smaller, more-diversified family farms because of its focus on people. It seeks greater economic rewards to farmers, rather than more profits for input suppliers. It seeks ways to farm in harmony with nature, rather than to conquer nature. And it seeks to support farming as a quality way of life, as well as a way to make a living. If agriculture is to be sustainable, we must have enough farmers to sustain the productivity and ecological health of the land. Thus, sustainability will require more, rather than fewer, farmers – more who understand their particular parcel of land, who know how to take care of it, who are motivated to care for it, and who have the time and money to care for it well. In a sense, sustainability demands that farmers “love the land.” And, each farmer can “love” only so much land.

Sustainable agriculture promotes greater concern among people – people making conscious, purposeful decisions for the common good rather than relying on the impersonal forces of the marketplace. The invisible hand of theoretical economics that is supposed to transform individual greed into the common good has been mangled in the machinery of corporate consolidation. The markets will not ensure that the hungry will be fed. The markets will not ensure that people willing to work will have an opportunity to work. The markets will not ensure that future generations will have adequate resources for food, clothing, and shelter. The only way
to ensure that the needs of the present and future are met is to make conscious, purposeful decisions to care for the natural environment and to care for other people.

This is the mandate of sustainable agriculture – to care about people of this generation and for all generations to come. It’s a mandate that too few are yet willing to accept, but a mandate that ultimately cannot be denied. Sustainable agriculture must be about sustaining people through agriculture, not just sustaining agriculture.
Farmers are Fighting Back

John Ikerd
University of Missouri

Published in Sustaining People through Agriculture column, Small Farm Today, March/April, 2001 issue.

After decades of betrayal by the agricultural establishment, farmers are finally beginning to fight back. The nation's hog farmers have voted to abolish the national pork checkoff program, which supports the National Pork Producers Council. For decades, "producers' associations," such as the NPPC, have been promoting the industrialization of agriculture, and thus, contributed directly to the demise of the very producers who were paying for their programs. Over the past decade, for example, the Missouri Pork Producers Association has been promoting large-scale corporate hog operation through their support of industrial research and market development programs. During this same time, the number of hogs produced in Missouri has risen dramatically with the influx of large corporate operations, but the number of Missouri hog farmers has dropped to less than a third of previous levels.

The checkoffs are based on a percentage of the total sales value of hogs. Thus, the hog "producers" organizations are concerned about the total number of hogs sold, not about the number of hog producers. They cater to the large-scale corporate operations, and support their takeover of the hog/pork sector, because those operations sell more hogs and generate more checkoff dollars. So smaller family hog farmers end up subsidizing the same corporate operations that are driving them out of business. But, farmers are beginning to fight back. Cattlemen are following the hog farmers' lead, and are petitioning USDA for a vote on the beef checkoff program as well. Hopefully, farmers won't stop fighting back until they have eliminated all subsidies for these corporate operations that are destroying family farms and rural communities as they foul the natural
Farmers are Fighting Back

I heard the results of the pork checkoff vote while attending a meeting of farmers and rural activists who have been opposing corporate takeover of hog production. More than 500 people from all across the country attended the "Sustainable Hog Farming Summit" in New Bern, NC. It was sponsored by the Water Keepers Alliance. Under the leadership of Robert Kennedy, Jr., the Alliance has assembled a team of powerful law firms that are committed to forcing large-scale corporate hog operations to comply with the Federal Clean Water Act, and other federal laws protecting the natural environment. These are the same law firms that have successfully sued the asbestos industry, the tobacco industry, and the pharmaceutical industry for knowingly destroying the health of millions of people. These firms are now ready to take on the corporate hog industry for knowingly degrading the natural environment and threatening the health of millions of people who live "downstream or downwind" from factory hog operations.

Up to now, the grassroots family farm and rural advocacy groups have been no match for large agribusiness corporations, either in the courts or in the halls of Congress. Now, however, advocates for sustainable family farms and rural communities will be supported by a group of well-financed, committed advocates for a clean rural environment. The farmers who fight back now have a good chance of winning.

Many farmers, however, are still unwittingly supporting corporate agriculture when they oppose enforcement of environmental and health regulations. Farmers need to realize that these large-scale corporate operations would lose much, if not all, of their cost advantage over family farms, if they were forced to protect the environment by properly disposing of their wastes. It's far easier and less costly to handle wastes properly and to protect the environment in a smaller-scale, diversified hog operation. Perhaps some specific rules and regulations need to be
changed to reflect the smaller environmental risks from smaller, less concentrated animal production, but farmers who oppose enforcement of environmental protection laws in general are helping the corporations put family farmers out of business. The Water Keepers group is not just anti-corporate agriculture, they are pro-family farming, because they truly believe that family farmers want to be good stewards of the environment. The family farmers fighting corporate hog operations need help, rather than opposition, from their neighbors.

Farmers also are beginning to fight back on a number of other fronts. Many farmers are beginning to realize that their "farmers' cooperatives" have become virtually identical to the corporations against which they were supposed to protect farmers. These cooperatives no longer support farmers, but instead, support the industrialization process that is forcing farmers out of business. A true farmers' cooperative helps farmers make profits, instead of making organizational profits that rarely find their way back to farmers. The giant national dairy cooperatives, for example, have driven thousands of family dairy farmers out of business by using the same business tactics as agribusiness corporations. Farm supply and marketing cooperatives, such as Missouri Farmers Association, have abandoned the cause of family farmers and now openly promote and support agricultural industrialization. Too often, the new "closed membership cooperatives" turn out to be nothing more than ways for wealthy farmers to invest venture capital. But, more and more farmers are abandoning "farmers' cooperatives" that don't support farmers and are searching for ways to fight back.

Farmers are also beginning to fight back against general farm organizations, such as the Farm Bureau Federation, that support the industrialization of agriculture to the detriment of farmers. A farm organization cannot have millions of dollars invested in agribusiness corporations, such as Continental Grain, IBP, and Premium Standard Farms, and effectively represent the farmers who are routinely squeezed
Farmers are Fighting Back

out of business by these same corporations. The policy agenda supported by such "farm organizations" in Washington, DC is not an agenda designed to maintain family farms, but instead is an agenda to maximize agricultural production. Maximum agricultural production keeps farm-level prices depressed, weakens bargaining power of farmers, and maximizes profits of marketing and processing firms. Policies that have driven farmers out of business have been supported by "farm organizations" that claim to speak for farmers.

However, at least some farmers have begun to fight back. The National Farmers Union, an organization with a long history of advocacy of family farms, has begun to openly oppose the industrial agriculture policies of the Farm Bureau and the various farm commodity groups. The President of the National Farmers Union announced the defeat of the national pork checkoff at the Hog Summit in North Carolina and openly claimed it as a victory for family hog farmers. The Farmers Union is an old organization nationally, but has organized in Missouri only within the past few years. Their membership is growing as more and more farmers fight back.

Farmers are also are fighting back against USDA - against their support to industrial agriculture. A group of African American farmers recently won a multimillion dollar lawsuit against USDA for discriminatory practices in implementation of government programs -- including administration of government farm loans. The Organization of Competitive Markets is a newly formed group organized by commercial farmers and livestock feeders who are challenging USDA and the Department of Justice for failing to enforce antitrust regulations against corporate monopolization of agricultural markets. Organic farmers groups from all across the country forced USDA to withdraw and rewrite proposed standards for organic production that would have favored large-scale, corporate producers. Farmers of all kinds all across the country are beginning to fight back against government programs that support agricultural industrialization.
Farmers have not yet begun to fight back against their Land Grant Universities - at least not effectively. One after another, the major Land Grant Universities have sold out family farmers to agricultural industrialization. Publicly funded research and extension programs have supported and promoted specialization, standardization, and consolidation of decision making as means of making agriculture more efficient. As farms have become more specialized and standardized, management has been consolidated among fewer decision makers, meaning that farming operations become larger in size and fewer in numbers. Industrialization, by its very nature, forces family farmers out of business and promotes the eventual corporate control of agriculture. In recent years, however, universities have begun to even brag about the "partnerships" they are forming with the giant agribusiness corporations that are forcing family farmers out of business. Yet, most farmers continue to support their universities -- perhaps out of blind loyalty, or maybe in disbelief that "their university" could possibly betray them.

In the mid-1990s, several Land Grant Universities reluctantly recognized the legitimate demands of small farmers, organic farmers, and family farmers who had rejected the industrial model, by initiating small programs in sustainable agriculture. However, many of these universities are now downsizing or eliminating their sustainable agriculture programs. The University of Missouri is no exception. Universities seem to be afraid sustainable agriculture programs might tarnish their image with the corporate industries they have come to rely on for political and financial support. They have been told by their corporate supporters that biotechnology is the only way we can produce enough to feed the world. They have become so preoccupied with increasing production, or perhaps with maintaining corporate support, that they have forgotten about their responsibility for serving the people. Perhaps the universities will be forced to refocus when more farmers begin fighting back.

Farmers who now realize that an industrial agriculture destroys family
farms, rural communities, and the natural environment are fighting back. Farmers who realize that making money, while necessary, just isn't enough -- that they must care for the land and care about other people -- are fighting back. Farmers are fighting back because they now realize that the only way to truly sustain agriculture is to sustain people through agriculture.
The Tipping Point for Sustainable Farming

John Ikerd
University of Missouri

Published in Sustaining People through Agriculture column, Small Farm Today, May/June, 2001 issue.

For more than a decade now, I have been actively involved with the sustainable agriculture movement. Yes, I have begun to refer to sustainable agriculture as a movement – an organized effort to promote a particular cause. In the early days, I was optimistic. It seemed that developing a system of farming that was ecologically, socially, and economically sustainable was such a common sense thing to do that everyone would want to become involved with the cause. USDA had initiated a Low Input Sustainable Agriculture (LISA) program in the late 1980s and had reaffirmed and renamed it as the Sustainable Agriculture Research and Education (SARE) program in the 1990 farm bill. Missouri, with its diverse agricultural resource base and its thousands of small farms, seemed to be fertile ground for this new common sense approach to farming. However, my early enthusiasm was soon dampened by the staunch defenders of the industrial system of farming that had developed in America over the past 50 years.

To corporate agribusiness, a low input agriculture would mean shrinking profits from sales of commercial fertilizers, pesticides, and most of the other off-farm inputs that farmers have become hooked on over the past fifty years. They weren’t going to give up those profits without a fight. It wasn’t a matter of principle or ethics – it was strictly economics.

To the larger conventional farmers, sustainable agriculture seemed to be more a threat to the ego than to economics. They weren’t even willing to consider the possibility that the way they had learned to farm, and had been farming for years, might not be sustainable over the long run. To
them, the question of sustainability carried a presumption of their guilt. They were the survivors of years of struggle, when most of their neighbors had given up or had gone broke. They had been the winners – they didn’t want to change the game.

To most small farmers, sustainable agriculture has always made sense. It wasn’t all that different from the way most of them had been trying to farm for years. Perhaps there was more emphasis on environmental issues than they might have liked. But, most small farmers knew that they had to take care of the soil and water, and be good neighbors, if they expected their farms to stay productive and profitable over the long run. Sure, many small farmers were no more concerned about their land, their neighbors, or their communities than are the agribusiness corporations. But, most small farmers realized that the industrialization of agriculture had stacked the deck against them – they were more than willing to help change the game.

A lot more farms are small than are large, so one might still have expected strong public support for the sustainable agriculture movement. However, small farmers don’t have much influence in the economic or political arenas. The *agricultural establishment* – including USDA, Land Grant Universities, Farm Bureau Federation, and most farm commodity organizations – has effectively suppressed the potential ground swell of grassroots support for the sustainable agriculture movement. The USDA SARE program has more than tripled in size, from its humble $4 million beginning, but remains well below one percent of total USDA research and education budget. Most Land Grant Universities have at least “token” sustainable agriculture programs, but none have allowed such programs to detract from their primary agenda of promoting agricultural industrialization through biotechnology and other high-tech production systems. State Departments of Agriculture seem to be more supporting of sustainable agriculture programs, perhaps because they feel a need to be more responsive to voters. But, most mainstream farm organizations
openly promote the “agricultural industry,” while giving only token consideration to the impact of the ultimate corporate takeover of agriculture on the future of farmers.

In spite of powerful opposition, the sustainable agriculture movement continues. While progress has been slow and painful within the agricultural establishment, elsewhere, there is growing cause for optimism. I have the rare privilege of being able to attend numerous conferences and various other types of gatherings of people interested in the issue of sustainable agriculture – almost on a weekly basis during this past winter. I have crisscrossed the US from Montana to North Carolina, from Pennsylvania to California, and from Texas to Michigan. I have met with Canadians in Saskatchewan, Manitoba, Ontario, Nova Scotia, and Prince Edward Island. I am pleased to report that at the grassroots, the sustainable agriculture movement is alive and well.

Several “sustainable agriculture” conferences now draw more than 1,000 people each year – including the Upper Midwest Organic Growers Conference. The California Eco-Farming Conference in Monterey in January had over 1,200 pre-registered – probably closer to 1,500 attended for at least one day. Conferences drawing 400 to 500 people may not be commonplace, but neither are they rare. The Michigan Organic Farming Conference, for example, drew more than 400 people in early March and the Sustainable Hog Production conference in New Bern, North Carolina in January drew more than 500 people. The numbers of conferences routinely drawing 100-200 people are too many to count – including the Sustaining People through Agriculture Network (SPAN) conference in Columbia, MO in February. And, the numbers of people attending nearly all such conferences keep growing from each year to the next.

Sustainable agriculture has also become a featured theme at far larger gatherings of farmers, such as the Small Farm Today Conference and
Trade Show, which drew more than 3,500 people last year. The Sierra Club and other environmental groups have had numerous conferences across the country promoting sustainable agriculture as an ecologically sound alternative to industrial agriculture. And, I have participated in a series of conferences organized by Catholic Rural Life groups, Montana’s Association of Churches, and the Missouri Center for Rural Ministries advocating sustainable agriculture as a moral response to the current economic crisis in rural America.

Sustainable agriculture is no longer a novelty, and the people who attend these conferences include few idealists attending out of idle curiosity. Most of the people who attend are farmers, attending because they want to learn more about what they are already doing or are seriously seeking a better way to farm. The sustainable agriculture movement also has strength in its diversity. The people are young and old, male and female, well educated and uneducated, well-off and poor. They are a cross section of the “people” of rural America – although not representative of the existing rural community or agricultural power structure. These people are building the future of American farming and of rural America – with very little help from their government, their universities, or anyone else. These people deserve a lot more help than they are getting. But, I truly believe they are going to succeed, with or without help from the establishment.

Progress may seem slow, but I have hopes that we are nearing a “tipping point” in the sustainable agriculture movement. In a recent book by the same name, the author, Malcolm Gladwell, uses the analogy of a disease in explaining a “tipping point.” He describes it as the point at which an infection that has been lingering among the general population suddenly explodes into a full-blown epidemic. He suggests that “epidemics of ideas” reach their tipping points when three conditions are present. First, when people who are effective in spreading ideas to others become “infected” with the idea. Second, when people learn to express the idea in
a way that “sticks in the minds” of lots of people. And finally, when many people are searching for new ideas to replace the old ones, thus creating a hospitable environment for change.

I think all of these tipping point conditions are imminent, if not already present, in the sustainable agriculture movement. More and more people of influence are accepting sustainability as a fundamental guiding principle for life’s work. People like Bobby Kennedy Jr. of the Water-Keepers Alliance, Prince Charles of Great Britain, and Ralph Nader are but a few examples of people of prominence who are openly supporting the principles and practices of sustainable agriculture.

More and more people are beginning to understand that sustainability is not about sacrifice, but is about helping people achieve a higher quality of life – realizing a higher concept of self-interest. For example, Paul Hawkins, author of “Ecology of Commerce” and “Ecological Capitalism,” recently said that he no longer talks about environmental protection. Instead, he talks about enhancing our quality of life through attention to community and stewardship. Hopefully, quality of life is a “stickier” way to describe the ultimate purpose of sustainability.

And finally, more and more people are realizing that industrialization is destroying our civil society and natural ecosystem, and that today, corporatization is destroying our democracy and our national sovereignty. We are in the midst of a great transition that is changing the ways people are thinking about everything. More and more people are realizing that there is something very wrong in America and they are ready for fundamental change. This great transition of thought creates a hospitable environment for fundamental change.

Perhaps the sustainable agriculture movement is still at the stage of a “low grade infection.” But, the “disease” is spreading and infecting more people all across rural America. As we join forces with other sustainability
movements, we are helping to infect American society as a whole with the desire for change. At some point in the not too distant future, we will reach the “tipping point.” The movement will become an “epidemic of change” sweeping like a virus across American society, infecting all whom it touches with a common sense commitment to a sustainable future.
Serving the Small Farm
Through Federal Farm Loan Programs

John Ikerd


Over the decades, U.S. farms persistently have grown larger in size and fewer in numbers. They have substituted capital and off-farm technology for labor and management, making it possible for fewer farmers to farm more acres, utilizing more hired labor and more capital. Thus, access to low-cost capital has been a key factor in supporting the trend toward fewer and larger farms. And historically, USDA Farm Loan programs have been an important source of capital for American farmers, and thus, have subsidized the trend toward larger and fewer farms. Now, large family farming operations are being taken over by gigantic multinational agribusiness corporations, mostly through contract production – continuing the trend toward few and larger farming operations.

Somehow, small farmers have found ways to survive and succeed, in spite of outdated public perceptions and misguided government programs that have created tremendous obstacles to their survival and success. For decades, farmers have been told that they will have to either get bigger or get out of farming – that small family farms were “a thing of the past.” Understandably, it may have been hard to get very enthusiastic about promoting a way of farming that was supposedly doomed for extinction. Government programs targeted to small farms, such as small farm loans, beginning farmers, direct marketing, and 1890 Land Grant Extension, are considered by many to be little more than programs to prolong the agony of a dying way of life. But, small family farms have survived, at times even
prospered, without much help from anyone else.

Large-scale, industrial agricultural enterprises are growing in America, both in numbers and in proportion of total agricultural production. These large, industrial operations have been the recipients of huge government subsidies, not only in the form of direct government payments, but also in public services such as government subsidized loans, research and extension services, and export promotion. The traditional mid-sized, full-time family farm is on the brink of extinction in America. They have neither the political clout of the large agribusiness enterprises, nor the resilience, resistance, or regenerative capacities of small farms. While undoubtedly well intentioned, government farm programs have been major contributors to the demise of full-time family farms.

Small farms, on the other hand, have succeeded in the past, and can succeed in the future, even without a “level playing field” from the government or public understanding. But, the odds of success for any individual farmer could be considerably enhanced if current misperceptions concerning the imminent demise of small farms were replaced with the new realities of small farm opportunities.

The outdated perceptions concerning small farms are deeply rooted in the institutional culture of USDA, the Land Grant Universities (LGUs), and other public agencies, as well as in the minds of the public in general. In addition, there are powerful economic and political interests opposing any change in the public agenda toward better serving the needs of those currently without economic or political power – which includes small farmers. These groups work hard to reinforce the outdated perceptions in order to protect their own special interests – to keep their place at the public trough. It won’t be easy to change these misperceptions. Only when these outdated perceptions are forced to confront today’s realities will the full measure of opportunities for small farms be realized.
One general perception is that small farms are not really a significant part of agriculture. Agricultural programs for the past several decades have been driven by concerns for production rather than people. The underlying assumption was that the public would benefit most by focusing on improving the efficiency of farming, ultimately bringing down the cost of food and fiber to consumers. This focus on efficiency is the root source of the trend toward larger, more specialized, farming operations. As large farms accounted for an increasing share of total production, the remaining small farmers had a diminishing impact on overall food supplies and prices, and thus became less important to the agricultural institutions.

Today, USDA and the LGUs are promoting high-tech and biotech production methods for the same reason – cheap food for consumers. The natural environment is viewed as a constraint, not an asset. And, it doesn’t seem to matter whether there will be any farmers left in this country in a decade or two, or whether rural communities survive or die. They see their public mandate as ensuring that agriculture is as efficient as possible, so consumers have an abundant supply of food at minimum cost. Small farmers are simply not relevant to that mission.

The general perception is that “small farms” are not “real farms.” Most small farms are part-time farms; many are nothing more than rural residences with a garden or a few head of livestock. Others are considered strictly hobby farms, not intended to earn an income from farming. Some “farmers” actually are urban residents who own land in the country. When the 1997 census definition was changed to include entire farms that are in the CRP program and other non-farming farmers, the ranks of small farmers was expanded considerably. While living in the country or owning land may be important to these “farmers,” there is little if any income derived from their actual farming operation.

It is simply not realistic for farmers to depend on a small farm for a significant part of their living. There is no way that a farm with gross sales of less that $50,000 a year can be a serious commercial operation.
Farmer’s net incomes generally run about fifteen to twenty percent of gross sales, even on well managed small farms. Seven to ten thousand dollars a year certainly won’t support a family. In fact, the USDA categorizes such farms as “non-commercial” farms. The only hope for those grossing even up to $100,000 per year is to rely on non-farm sources for most of their income. Minority farmers are even less important, because they make a very small percentage of those farmers who have little if any chance to survive and succeed in farming. Those farms grossing between $100,000 and $250,000 are mid-sized, not small farms. These farms have a shot at surviving, but only if they get larger.

The lack of income for those who are actually trying to make a living on small farms is a public welfare issue, not an agricultural issue, the policy experts say. Government farm programs were never intended to be rural welfare programs; most small farms are not “real farms,” they claim.

_The general perception is that technologies developed for larger, commercial farming operations are equally useful on small farms – that agricultural research and technology transfer programs are scale neutral._

After all, the only way for a small farm to survive and succeed is for it to get larger – to grow into efficient technologies. And for those who can afford to farm as a hobby, they surely want access to the best technology available. What difference does it make to a cow whether she is in a herd of ten to ten thousand; her needs still are the same. What difference does it make to a corn plant whether it is in a field of ten or ten thousand acres; its needs are still the same. If the scale of technology doesn’t matter to the animal or plant, it is of no consequence to the farmer.

_The general perception is that needs of small farmers are being met by existing government policies and services for agriculture._ If anything, small farmers get more than their share of government services. After all, some programs are designed specifically to meet the needs of smaller, family farms, and total government payments per farm are limited for some
commodity-based programs. Studies have shown that small farmers tend to get a slightly larger proportion of government payments than their proportionate contribution to total agricultural production. After all, program benefits have to be focused on those who produce the bulk of agricultural commodities if they are to have the most impact on production and prices.

Those who complain about inadequate attention to small farm in public research and education are simply living in the past when small farms were actually economically viable. Progress in the agricultural economy, by necessity, has left small farmers behind. There is little government could do to roll back, or even to slow, the technological advances supporting large-scale agriculture, even if it could justify doing so. Small farm advocates are simply out of touch with reality. Small farmers are citizens and thus worthy of attention and indulgence by those in public institutions, but there is really not much that government can do for them. To the USDA and LGUs the small farm issue is a public relations issue, not a legitimate public policy and research and education programming issue for agriculture.

Realities
The realities of small farms are very different from these perceptions. In some cases, prevailing perceptions are simply out of date, but in others, they are simply “wrong headed.”

The reality is that small farms are a significant part of American agriculture. While a focus on agricultural production may have been a legitimate orientation in the past, there is no longer any significant societal benefit to be gained from continued public programs designed to enhance the productive efficiency of agriculture. First, the American consumer no longer spends 40-50 percent of their income for food, as they did when USDA and the LGUs were established, but instead spend a little more than ten percent – a dime each dollar. In addition, the farmer only gets about a penny from that dime to pay for value added on the farm. Even if
farming were perfectly efficient, if the farmer got nothing, consumers would only save a dime from each dollar spent at the grocery store. Government programs simply cannot make food much cheaper. And it certainly no longer makes sense to try to make food cheaper by making farms bigger.

In addition, government can no longer justify subsidizing those who produce the bulk of the nation’s food – the 17 percent or so of the producers who account for 80 percent of total production. These are the larger agricultural enterprises, operated by those with higher incomes and far greater wealth than the average taxpayer. While relatively few are listed as non-farm corporations, many of these larger operations are contract producers for large, multinational agribusiness corporations. The corporations make the profits from such operations. The “farmers” are little more than contract laborers and landlords, receiving little more than minimum wages and rents.

The original USDA and LGU mission was to support agriculture because it was fundamentally different from industry – farmers confronted different economic forces than did industry, and farmers weren't large enough to carry out their own research and technology development. This was the justification for “public” support for farming. Agricultural commodity production today is simply another industry – giant agribusiness needs no government protection. Instead, the public needs protection from them. Agribusiness firms are large enough to do their own research and development. They don’t need help in driving small farmers out of business. There is no longer any justification for using taxpayers’ dollars to subsidize agri-industry.

The primary “public issues” related to agriculture today are ecological and social in nature. We must have people on the land who care about the land, if we expect our land and other natural resources to be cared for, so that agriculture can sustain American society in the future. The people who farm, the farmers, are still the backbone of many rural communities and the keepers of America’s rural culture. Farmers, the people who farm,
are more important to American agriculture today than is the quantity and price of agricultural production. And, most of the people who farm in America are on small farms.

The reality is that most “real farmers” are small farmers. Admittedly, some of those census entities counted as farms are hobby farmers and rural residences. But, many are not. The census asks farmers to provide their “primary occupation” – the occupation at which they spend more than half of their working hours. Recent USDA surveys also distinguish between active farmers and retired farmers. Small farmers are more likely than large farmers to have some occupation other than farming and are more likely to be retired. But even when considering only those whose primary occupation is farming and who are not retired, more than half of all farmers would easily be classified as small farmers. Well over half of these primary occupation farmers have less than $100,000 in annual gross sales. Nearly half have gross sales of less than $50,000 per year – classified by USDA as non-commercial farms. One’s primary occupation should not be called “non-commercial.” Most real farmers are small farmers.

How do these small farmers earn a living, or at least a significant portion of their living, on such small farms? First, successful small farmers also pursue a fundamentally different approach to farming. They are low-input farmers; they reduce their reliance on purchased inputs by substituting management of their internal resources, land and labor, for commercial technology. In general, they substitute labor and management for capital and purchased inputs. They also focus on creating value, as well as reducing costs. They are niche-marketers, many marketing direct to local customers, and gaining a share of the 80 percent of food value that usually goes to middlemen. They give individual consumers what they want, rather than produce bulk commodities for mass markets. These farmers build relationships with their customers, and thus, are far less vulnerable to the ups and downs of commodity markets than are
conventional farmers. Because of these things, many small farmers earn far greater income per dollar of sales than do conventional large farmers. A farm with $50,000 gross sales, for example, may well contribute $25,000 or more to support a family.

Second, many small farmers live simply. This does not mean that they live in poverty, but it does mean that their economic standard of living may not be as high as that of their urban neighbors. To them, the primary product of their farm is a desirable quality of life. The farm provides them with a home, much of their food, a place for raising a family, an aesthetically pleasing place for recreation and relaxation, and a place for learning and teaching, as well as a place to work. Many of these smaller farms are not obligated to report a net income from farming because many of the “costs of living” on a small farm qualify as “farm costs.” Many of these farms, particularly if they are part-time farms, need not earn an income from farming. The “non-market” value of the farm to the family is sufficient to justify the farm being the primary occupation of at least one adult family member.

In general, the most successful small farms are following many of the philosophies and practices of sustainable agriculture. They are balancing the ecological, economic, and social aspects of their farming operations to support a desirable quality of life for themselves, their families, and their communities. They are exploiting neither their natural resources nor other people in their pursuit of profits. By doing what makes sense to them, economically, socially, and ethically, they are building a more sustainable system of food and fiber production for the future. These small farmers are the real farmers of the future.

The reality is that the technologies developed for larger, commercial farming operations are not appropriate for small farms. Successful small farms must be management intensive – they must earn more returns per acre, per dollar invested, per dollar of production. The higher net returns on intensively managed farms comes from the efficiency with which
various practices, methods, and enterprises are integrated together – not necessarily from the efficiency of each individual practice, method, or enterprise. A cow plays a very different role in a complex integrated farming system than in a specialized beef or dairy herd. Corn plays a very different role in a complex integrated farming system than in a specialized corn or row crop farm.

Small farmers need research and technology that will enhance the human capacity to manage things – to understand, to think, to learn to “integrate things” more effectively. They don’t need technologies that require them to follow specific practices and procedures or restrict their options – which in effect restrict their ability to manage.

Technologies are not scale-neutral. Agricultural technologies of the past have provided means of simplifying and controlling production processes, and thus, have constrained the farmer’s ability to manage. In fact, USDA and LGU technology development and transfer has fueled the industrialization of agriculture and has forced farmers to move toward ever larger and increasingly specialized farming operations. Small farmers need technologies that enhance the productivity of management. Small farmers need new ways to earn a better income with less land and less capital, not new ways to manage more land and more capital.

The reality is that existing government policy and services are not meeting the needs of small farmers. Government policy has been focused on enhancing efficiency of agricultural production, not “saving the family farm.” Now that subsidizing productivity has no social justification, agricultural programs should be focused on the needs of people, not production. The public now has a greater stake in farmers protecting the natural environment and supporting viable rural communities than in providing unnecessary subsidies for giant agribusiness corporations. There is no more justification for subsidizing industrial agriculture than for industrial textiles, construction, steel, chemicals, or computers. The giant corporations have a profit incentive to develop all of these industries,
including agriculture, without government subsidies. The new role of the government should be to protect society, and the natural resource base for society, from corporate exploitation.

Without the pretext of serving society through productivity, public programs for agriculture should be directed on a one-person-one-vote basis. Each person has an equal claim to public goods and services, no matter how rich or how poor they may be, no matter large or how small their economic contribution, no matter what their race or ethnicity. In addition, each person is entitled to certain fundamental rights and privileges and has certain fundamental responsibilities, no matter how much or little political power they possess. This is the nature of a democracy. In the private sector, we vote with dollars – the more dollars, the more votes. But in the public sector, everyone is equal – those with more dollars, still get just one vote. If USDA and LGU functioned truly as “public” institutions, each farmer would be given the same importance and attention, no matter how small. If these institutions functioned as purely public institutions, small farm programs would receive well over 90 percent of all program benefits. At a minimum small farms deserve over half of all public resources, because over half of those who consider farming their primary occupation live and work on small farms.

Small farm advocates are in touch with the reality of today, but perhaps more importantly, they are looking to the future. They are not opposed to technology; they simply want technology that is consistent with long run sustainability as well as short run profitability. They are not living in the past, but instead, are preparing for the future. The future of human civilization depends not only on food, but also on a healthy environment and a civilized human society. There can be no greater public priorities. There is no better means of sustaining human life on earth than to have people of the land who are intellectually capable, socially responsible, and ethically committed to meeting both the needs of the present and the future through farming. There is no better investment of public dollars
than investments in keeping the land in the hands of ecologically and socially responsible small farmers.

**Strategies for Successful Small Farms**

How have those on small farms managed to succeed – in spite of the misperceptions? And, what are the keys to the success of small farms in the future? *First, successful small farmers must think for themselves.* Very few people really understand how to make a good living on a small farm. Most of the so-called “experts” have been taught how to help small farmers manage like large farmers, not how to manage a small farm. Most “best management practices” and “farm business strategies” are designed to tell farmers how to make more money by *managing more* land and capital, rather than how to make more money with less land and less capital, by *managing better*.

The best source of outside advice for small farmers is other small farmers, or those who have learned from other small farmers. But, every successful small farm will be fundamentally different from every other small farm. So ultimately, small farmers must think for themselves and make their own decisions.

*Successful small farmers also must think like a small farmer – not like larger farmers who don’t have enough land or capital.* I am frequently asked how I define a “small farm.” My typical answer has become, “the difference between large and small is in farmers’ heads, not in how many acres they farm or in the size of their bank account.” A farmer who is farming 40 acres, but feels that he or she needs to have more land to make a decent living, is a large farmer – i.e. thinks like a large farmer. A farmer who is farming 3,000 acres, but feels that he or she needs to find some way to make a better living by farming less land, is a small farmer – i.e. thinks like a small farmer. A successful small farmer is one who finds ways to do more with less, while a large farmer always needs more. Successful small farmers are those who “think” like small farmers.
Successful small farmers know when they have “enough.” The fatal flaw in the traditional American way of farming was that farmers never knew when they had “enough.” They always wanted more – more land, more livestock, or more money. So, they succeeded only in driving each other out of business, as each had to have the other’s land in order to succeed. Eventually, however, even the survivors will be forced out of business by the large corporations. A farmer that defines success as “when I have more land, more livestock, or more money” will never be successful. He or she will never have enough. A farmer who defines success as “being able live a good life” has a far better chance for success. It doesn’t take a large farm to make a good life, but it does take knowing “how much is enough.”

Successful small farmers will be “quality of life” farmers. “Quality of life” is not something you acquire or accomplish; it is something you are – a “state of being.” It is not a product but a process. You don’t “possess” a life of quality; you “live” a life of quality. Our quality of life is not determined solely by how our income or wealth – although we do have economic needs that must be met. The quality of our life depends on the quality of our relationships with other people – within families and communities. A life of quality is a life of purpose and meaning – a life lived according to moral and ethical principles. When our pursuit of income and wealth degrades our relationships with others, it diminishes, rather than enhances, our quality of life. When our pursuit of income and wealth causes us to compromise our moral and ethical principles, it diminishes, rather than enhances, our quality of life.

If our goal is to have more land, more livestock, or more money, we will never have enough. We won’t have enough time for our family or community, because we will be too busy trying to get more. We will compromise our ethical and moral principles, because that’s what we eventually will have to do to get more. We will never find happiness because we will be too busy pursuing success.
How Can Government Loan Programs Better Serve Small Farms?

The actions of agricultural lenders will continue to be important in shaping the future of American agriculture. Currently, the industrialization of American agriculture is being promoted by agricultural lenders who insist that farmers follow industrial farming methods – specialization in specific enterprises, standardized production systems, and large-scale centralized control – in order to qualify for loans. An industrial agriculture is inherently tied to production of basic, low-value, agriculture commodities, in which the U.S. is least likely to maintain a global competitive advantage. Integration of farmers into value-adding “food chains” does not free the “farmer” from being a producer of low-value, raw material to which someone else will add value and someone else will reap the profit. More than 30 percent of all U.S. agricultural production is already produced under corporate contracts. Ultimately the “value added” sectors of American agriculture will be completely controlled by large corporations, not farmers or even by groups of farmers.

The future of farming in America is at risk. We must shift the emphasis on farming from greater economic efficiency and global competitiveness to greater environmental integrity and national food security. America’s small farmers will continue to plant another crop or keep cattle on pastures for as long as they can scrape together enough money to do it. It doesn’t really matter all that much to most if they could make more money doing something else or if they could make more farming in another country. As long as they can get enough money to buy seed and fertilizer they are going to grow something, even if they are “free not to farm,” if they choose. They have roots in their communities, they are not going to leave their families; they are committed to farming in America.

Multinational corporations have no such commitment to America and certainly not to farming in America. Corporations will help their contract growers get loans to buy buildings and equipment, but they will abandon those growers if the contractual arrangement becomes unprofitable for the
Serving the Small Farm

They will borrow money in the U.S., but will invest it wherever on the globe they can minimize costs and maximize profits. It doesn’t matter if lower costs elsewhere are the result of exploitation of the land or the people of another country. Lenders who demand such complete “economic rationality” from those to whom they make loans are supporting the ultimate abandonment of American agriculture.

American taxpayers should not be asked to support Federal Loan Programs that subsidize the exploitation of the natural environment for the sake of cheap food. American taxpayers should not be asked to support Federal Loan Programs that subsidize the exploitation of people – neither contract growers in the U.S. nor peasant farm workers in other countries. Government loan programs should be restricted to independently owned and operated family farms – to farmers who will pledge their commitment to protecting the environment and to treating all living things, including other people, with dignity and respect. Government loan programs should not support the “global race to the bottom,” to see who can minimize economic costs by imposing environmental and social costs on the rest of society. If government loan programs adopt such rules and guidelines for supporting farm loans, nearly all such loans would go to farmers on small farms.

Sustainable agriculture offers a viable alternative to corporate industrialization. A sustainable agriculture seeks to work in harmony with nature – to restore, renew, regenerate, and sustain the productivity of the natural environment. A truly sustainable agriculture would support humanity using only the inflow of solar energy, with enough surpluses to sustain the integrity of the resource base. A truly sustainable agriculture would empower people to enhance their social and ethical quality of life, thus, eliminating their need for continual economic exploitation of the earth and of each other. A sustainable agriculture is based on the belief that there are fundamental laws of nature, including human nature, that we humans violate only at our own peril. And, a truly sustainable agriculture is easier to achieve on small farms.

Thousands of American farmers are already trying to find ways to farm sustainably, and these farmers sometimes need to borrow money to finance their efforts\(^1\). These farmers are trying to build fundamentally different farming operations than are conventional commodity producers. They are more likely to be trying to reduce their reliance on off-farm inputs through more intensive management of on-farm resources. They are more likely to be trying to develop their own marketing channels, to market direct to customers, to market in the niches, rather than sell bulk commodities to processors. They are more likely to be involved with alternative enterprises – something other than corn, soybeans, wheat, cattle, or hogs. They are more likely to be working together with other farmers and with their customers to develop profitable relationships. And these farmers are more likely to be living and working on smaller farms.

Obviously, those who administer Federal Farm Loan Programs are not in a position to rewrite the policies and rules they must follow in carrying out their work – they don’t make the laws; they just carry them out. However, in many cases, the means by which government programs are administered are just as important as the authorizing legislation. An agency worker who is preconditioned to view a loan application for a large-scale, specialized farming operations as a good risk can almost always find a “legal reason” to approve the application. And, an agency worker who is preconditioned to view the loan application of a small, diversified farming operation as a poor risk can just as easily find a “legal reason” to deny the application. Perceptions of administrators can be as important as policy.

Those who administer Federal Farm Loan Programs need to be made aware that the fundamental nature of agriculture in America is changing. Today, large-scale, specialized producers of basic agricultural commodities are the ones most likely to fail. They will not have the access to the technology or markets they will need to compete with corporate
agriculture in the future. Those who survive by becoming corporate contract producers will be forced to assume far more economic and environmental risks than can be justified by the meager rewards of “contract farming.” The smaller, diversified, part-time farmers are far more likely to be able to service and repay their loans in the future than are the large, specialized producers. They are not competing with corporate agriculture; they are doing something fundamentally different. However, many potentially successful small farmers quite likely will be denied an opportunity to succeed because of outdated perceptions on the part of those who decide who gets access to capital.

Polluted water, fouled air, mistreated animals, oppressed workers – are symptoms of an agriculture that has focused only on the economic bottom line. Chronic farm financial crises, declining exports, loss of security – are symptoms of an agriculture that is being shaped by a global, corporate economy. Broken farm families, decaying rural communities, and “worn out” farm land, are all symptoms of farmers trying to be successful by getting bigger so they can be more economically efficient and more globally competitive. Those who create these problems are not bad people; they have simply believed the outdated perception that they had to either get big or get out.

Federal Loan Programs, along with other government programs at the state and federal level, have important roles to play in shaping the future of American agriculture. They can’t determine who will succeed and fail but they can affect the balance of opportunity. They can continue to support the trends of the past or they can help find the way to a better future for American agriculture.

The future of farming in America is in a “new type” of farming, in farming that balances the personal, the interpersonal, and the moral and ethical dimensions of life, in farming that balances ecological integrity, economic viability, and social responsibility. These new farmers know that bigger farms haven’t resulted in better lives – not for farmers nor for society in
general. Instead, the trend toward *bigger farms* has threatened the sustainability of American agriculture. The future of farming in America is linked very closely with the future of America’s *small farms*.

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1For 50 examples of sustainable farming, see “The New American Farmer – Profiles in Agricultural Innovation,” the SARE Program, USDA, Washington DC. ($10 US – call: 802-656-0484 or e-mail: sanpubs@uvm.edu, also available free on line at http://www.sare.org/newfarmer)
American agriculture is in crisis. Until recently, the crisis had been a quiet one. No one wanted to talk about it. Thousands of farm families were being forced off the land, but we were being told by the agricultural establishment that their exodus was inevitable – in fact, was a sign of progress. Those who failed were simply the victims of their own inefficiency -- their inability to keep up with changing times, their inability to compete. But in fact, it’s not inefficiency or resistance to change that is forcing families to leave their farms. It’s our collective obsession with our short-run, self interests. It’s our worship of markets as the only true arbitrators of value. It’s our acceptance of corporate greed as the only road to true prosperity. This crisis was neither inevitable, nor was it a sign of progress. The people of America need to know the truth. The time for quietness has passed.

With farm prices at record low levels for two years running, the agriculture establishment has finally begun to take notice. Congress has passed emergency farm legislation. But even now, the farm crisis is being blamed on such mundane things as "exceptionally good" global weather, problems in Pacific Rim financial markets, European trade restrictions, and an inadequate government "safety net." The crisis is a simple matter of supply and demand, they say. The only solutions they propose are to tinker with government policy or, better yet, to simply wait for markets to recover. The only alternatives farmers are being offered are to get big enough to be competitive, get a corporate contract to reduce risks, or get out of farming. But, getting big, giving in, or getting out are not the only alternatives. There are better alternatives for farmers and for society. The people need to be told the truth. The time for quietness has passed.

Chronic Crisis in American Agriculture

Crisis in agriculture is a chronic symptom of the type of agriculture we have been promoting in this country for the past fifty years. Reoccurring financial crises are the means by which we allow farms to become larger and more specialized so consumers can have more cheap food – and the means by which we free people from the "drudgery of farming" to find better occupations in town. Or from another perspective, reoccurring crisis is the means by which we force farmers off the land.

The promise of profits lures farmers to buy into new cost cutting and production enhancing technologies, but the resulting increases in production cause prices to fall, eliminating previous profits for the innovators, and driving the laggards out of business. This technology treadmill has been driving farmers off the land for decades. But, the current crisis has an added dimension. The current crisis reflects a brazen attempt by the giant corporations to take control of agriculture away from family farms, to move beyond specialization and standardization, to centralize command and control – to complete the industrialization of agriculture. This final stage of industrialization is not only destroying the lives of farm families; it's polluting the natural environment, depleting the natural resource base, and destroying rural communities. The industrialization of agriculture is not good for America. The people need to be told the truth. The time for quietness has passed.
As I recall the creed of the Future Farmers of America begins with the words "I believe in the future of farming with a faith born not of words but of deeds." For years I believed that creed and have spent much of my life trying to live by that creed, but I simply can no longer believe it is true. There is no future of farming – at least not farming as we have known it – not if the current industrialization of agriculture continues. Every time the average farm size goes up, the number of farmers left goes down. Every time a farmer signs a corporate production contract, an independent farmer becomes a "corporate hired-hand." With every corporate merger in the global food system, the future of farming in America grows more dim.

The food and fiber industry most certainly has a future, people will always need food, clothing, and shelter, and someone will provide them. But there will be no future for farming – not true farming – not unless we have the courage to challenge and disprove the conventional wisdom that farmers must get bigger, give in to corporate control, or get out. But there are better alternatives for farmers and for society. We must find the courage to challenge the conventional wisdom. People need to be told the truth about the future of farming. It’s time for a revolution in American agriculture. The time for quietness has passed.

Roots of Crisis – Economics of Self-interests

What’s happening in agriculture today is no different from what has already happened in most other sectors of the economy – at least not in concept. We are told that industrialization is the inevitable consequence of human enlightenment and technological progress. But, the industrialization of agriculture is neither enlightened nor progressive. It is being driven by the same force that now threatens the integrity of our democratic society and the health of our natural environment – a blind faith in the economics of narrow, short run self-interest. Industrialists have a deeply held faith that the promise of more profits, no matter how small, is the best means of allocating resources – whether it is allocation of people among alternative occupations, land among alternative uses, money among investments, or people among communities. All things that are possible and profitable are done in the name of economic progress.

However, the science of economics was never meant to be limited to the pursuit of the narrow, short-run self-interest of individuals. Adam Smith, proclaimed more than 200 years ago, in his The Wealth of Nations, that each person pursuing their individual self-interests, results in the greatest good for society as a whole -- "as if by an invisible hand." Smith’s words revolutionized economic thinking and remain the foundation for conventional economic thought. But, Smith certainly did not claim that only the narrow, self-interests of individuals were important. Instead, he simply observed that the broad interest of society in general seemed to be well served in the process of individuals pursuing their own short-run self interest. Pursuit of self-interest seemed but a convenient means to a far nobler end.

Smith’s invisible hand probably worked reasonably well 200 years ago – given the economy and society of that time. Most economic enterprises were small, family operations. For such operations, land, labor, capital, and management often resided in essentially the same entity. Farming was still the dominant occupation. Few enterprises were large enough to have any impact on the marketplace as a whole. It was fairly easy for people to take on a new enterprise that seemed profitable and to drop one that seemed to be losing money. Thus, profits were quickly competed away and losses didn’t persist for long in highly competitive local markets. In general, communications between individual producers and consumers were clear back then because their connections were simple and often personal. All of these things were essential in the transformation of pursuit of self-interests into societal good.

In Smith’s times, human populations were small enough and technologies were sufficiently benign that people
could have little permanent impact on their natural environment – at least not on a global scale. Back then, strong cultural, moral, and social values dictated the norms and standards of "acceptable" individual behavior. Smith could not conceive of a society in which the welfare of the poor and hungry would not matter, or where people in general would behave in unethical or immoral ways. "No society can surely be flourishing and happy, on which the far greater part of the members are poor and miserable" (p 36).

In the environment of 200 years ago, when conventional economics was born, pursuit of self-interest might have served the interests of society reasonably well. But, the world has changed over the past two centuries. Today, most sectors of the U.S. economy are dominated by large corporate enterprises. Corporations are inherently non-human entities -- regardless of what the Supreme Court has said and regardless of the nature of their managers and stockholders. The resources of land, labor, capital, and management are now separate, sometimes divided even among nations. And, corporate profits are far larger than any concept of "normal" profit envisioned in classical economics. Producers and consumers have become disconnected, geographically and conceptually, as a consequence of industrialization. Consumers no longer have any personal knowledge of where their products come from or of who is involved in their production. They must rely on a complex set of standards, rules, and regulations for product information, and today’s advertising consists of "disinformation" by design.

In today’s society there are no logical reasons to believe that pursuit of self-interests is the best means of meeting the needs of society. But, powerful economic and political interests have tremendous stakes in maintaining the belief in an "invisible hand." It justifies their selfishness and greed. It legitimizes their endless accumulation of economic wealth. Thoughtful economists know the assumptions which must hold for truly competitive markets no longer valid. But, few have the courage to speak out. The economic assumptions of 200 years ago no longer adequate. It’s time to rethink the economic foundation for our society. We need to face up to the truth.

In addition, human activities are no longer ecologically benign -- if they ever really were. The pressures of growing populations and rising per capita consumption are now depleting resources of the land far faster than they can be regenerated by nature. Wastes and contaminants from human activities are being generated at rates far in excess of the capacity of the natural environment to absorb and detoxify them. Fossil fuels, the engine of twentieth-century economic development, are being depleted at rates infinitely faster than they can ever be replenished. Human population pressures are destroying other biological species, upon which the survival of humanity may be ultimately depend. The human species is now capable of destroying almost everything that makes up the biosphere we call Earth, including humanity itself. The economics of Adam Smith didn’t address environmental issues, and neither do the free market economics of today. We need to face up to the truth.

Social and ethical values no longer constrain the expression of selfishness. The society of Smith’s day was weak on economics – hunger, disease and early death were common -- but it had a strong cultural and moral foundation. However, that social and ethical foundation has been seriously eroded over the past 200 years – by glorification of greed. Civil litigation and criminal prosecution seem to be the only limits to unethical and immoral pursuit of profit and growth. Concerns of the affluent for today’s poor seem to be limited to concerns that welfare benefits may be too high or that they will be mugged or robbed if the poor become too desperate. Smith’s defense of the pursuit of self-interest must be reconsidered within the context of today’s society – a society that is now strong on economics but weak on community and morality. We need to face up to the truth.

The economic theories of two centuries are no longer relevant to the world of today. The pursuit of greed not longer creates societal good – it simply encourages more greed. The greedy now have control of the economy
and of much of society. And, they won’t give up without a fight. It’s time for a new revolution in America. A revolution that will free people from the tyranny of the economics of short run self-interests. The new revolution will require a rethinking of and a direct challenge to the fundamental principles that underlie conventional economic thinking – line by line, row by row, from the ground up. Any effort that fails to attack the problem at its root cause ultimately is destined to fail. The root cause of the current crisis in agriculture is the same as the root cause of ecological degradation and of social and moral decay of society in general – a society that blindly accepts the economic bottom line as if it were the word of God. It’s time to face up to the truth in America. The time for quietness has passed.

Sustainability – The New Revolution

This new American Revolution is being fomented under the conceptual umbrella of "sustainability." In farming, we talk about the sustainable agriculture movement, but there are also movements in sustainable forestry, sustainable communities, sustainable development and sustainable society in general. The sustainability movement presents a direct challenge to conventional economic thinking. Sustainability includes concern for self-interests, but it goes beyond to protecting interests that are shared with others, and the interests of future generations in which we have not even a share. All of the sustainability movements share a common goal, to meet the needs of the present while leaving equal or better opportunities for those to follow – to apply the Golden Rule across generations.

There is a growing consensus among those marching under the banner of sustainability that for anything to be sustainable it must be ecologically sound, economically viable, and socially responsible. All three are necessary and none alone or no pair of two is sufficient. Economic viability is about self-interest, social responsibility is a matter of shared interest, and ecological soundness ultimately is an ethical or moral responsibility that we choose to accept for purely altruistic reasons. Self-interest, shared interests, and altruistic interests are all considered positive and worthy of pursuit. Thus, the pursuit of sustainability is a pursuit of "enlightened self-interests." Without this enlightenment, we will not choose long run sustainability over short run greed.

The sustainability revolution is not one that will be fought on the battlefield, in the streets, or even necessarily in the halls of Congress. Instead, it’s a battle for the hearts and minds of the American people. We need to tell people the truth about what is happening in America today and why. We need to tell them the truth about the need for a new economics of sustainability – an economics that will sustain people and protect the environment, not just promote industrial development and economic growth. And we need to give them common sense reasons why the old system cannot be sustained, and why a new sustainable system is not a luxury but an absolute necessity. We need to talk boldly about the need for a new economics of enlightenment. The time for quietness has passes.

Sustainability and Small Farms

Agriculture may well be the field upon which the battle for the hearts and minds of Americans is fought – at least initially. The best hope for building a sustainable society may be to begin by building a more sustainable agriculture – for without a sustainable agriculture, human life on earth is not sustainable. The best hope for building a more sustainable agriculture may be to begin by ensuring the future of smaller farm families – for without farmers, agriculture cannot be sustained. Corporate hired hands may be good people, fully deserving of dignity and respect, but they are not farmers. A corporately controlled, large-scale, industrial agriculture simply is not sustainable.
Sustainable farms will not only be independently owned, but they will be smaller farms as well. Sustainable farming is a product of balance, or harmony, among the ecological, economic, and social dimensions of a farming system. A smaller farm lacking this harmony is less likely to be sustainable than a larger farm that is more in harmony. But there are logical reasons to believe that balance and harmony will be easier to achieve with, if not absolutely require, a large number of smaller farms rather than a small number of large farms.

Nature is inherently diverse. Geographic regions are different, watersheds are different, farms are different, and fields are even different -- both among and within. Industrial agriculture treats fields, farms, watersheds and even regions as if they were all pretty much the same. Certainly, industrial systems can be fine-tuned a bit here and there to make production practices of one region fit another. Each state has a bit different set of best management practices, and some further adjustments are made from farm to farm and field to field. But, the fundamental systems of conventional production are all pretty much the same.

The same breeds and varieties, fertilizers and feeds, pesticides and antibiotics, machinery and equipment, and business and marketing strategies are used across fields, farms, and watersheds, in all regions of the country. The goal of research is to find universal solutions to common problems -- to find ways to twist, bend, and force nature to conform to some universal production and distribution process. Industrial, large-scale mass production requires this type of uniformity. Biotechnology is but the latest in a long string of futile efforts to force uniformity upon nature.

But nature is diverse. Large-scale production creates inherent conflicts with this diverse nature – and inherently threatens sustainability. Farms that conform to their ecological niches avoid such conflicts. Some ecological niches may be large, but most are quite small. Current concerns for agricultural sustainability are based on strong and growing evidence that most farms have already outgrown their ecological niches and could be more sustainable if they were smaller.

Sustainable farms must also be of a size consistent with their markets. Conventional wisdom is that most markets are mass markets, and thus, farms must be large – or if not must market collectively. The conventional wisdom is wrong. Markets are made up of individual consumers, and as consumers – as people – we are all different. We don’t all want the same things. In fact, each of us actually prefers something just a little bit different, and thus, values the same things a bit differently.

Mass markets are created by lumping together a lot of people who are willing to accept the same basic thing – even though they might not prefer them. If mass markets can be created, the food system can be industrialized, and dollar and cent food costs will be lower. The lower price is a bribe to consumers to accept something other than what they actually would prefer. Typically, they must be coerced as well as bribed to accept what the industrial system has to offer. That’s why Americans spend more for advertising and packaging of food than they pay the farmer to produce it. It costs more to convince people to buy industrial food products than it does to produce them.

Eighty cents of each dollar spent for food goes for processing, transportation, packaging, advertising and other marketing services. One key to economic sustainability of small farms is to capture a larger share of the consumers' food dollar by performing some, and bypassing others, of these marketing services. Farmers currently get only about ten cents of each food dollar as a return for what they contribute to production, the other ten cents goes for purchased inputs. By tailoring production to consumer niche markets, and selling more directly to consumers, small farmers have an opportunity to make more profits without becoming big farmers.
The conventional wisdom is that niche-marketing opportunities are limited and can support only a handful of farmers. Once again, the conventional wisdom is wrong. Since all people want something slightly different, the ultimate in niche marketing would be to give every individual precisely what they want. All consumer markets are made up of individuals – totally, not just in part. Thus, all markets in total are made up of niche markets. The question is not how many niches exist, but instead how many different niches does it make sense to serve? The relevant answer, at least at present, is that more than enough market niches exist to support as many small farmers as might choose to direct-market to consumers. A lack of niche markets need not place a lower limit on the size of farms. Farms can be as many and as small as needed to accommodate the ecological niches of nature.

The most compelling argument in support of sustainable farms being smaller is that sustainable farms must be more "intensively" managed. Wendell Berry puts it most succinctly in his book, What are People For, "...if agriculture is to remain productive, it must preserve the land and the fertility and ecological health of the land; the land, that is, must be used well. A further requirement, therefore, is that if the land is to be used well, the people who use it must know it well, must be highly motivated to use it well, must know how to use it well, must have time to use it well, and must be able to afford to use it well (p. 147)." Intensive management is possible only if farmers have an intensive relationship with the land – if they know it, care about it, know how to care for it, take time to care for it, and can afford to care for it – only if they love it.

Industrialization degrades and destroys the relationship between the farmer and the land. Industrialization is management "extensive." Specialization, standardization, and centralization allow each farmer to cover more land, supervise more workers, and handle more dollars. Industrial management is "extensive" in that each manager is able to manage more resources. Extensive management makes it possible for each farmer to make more profits in total, even if profits per unit of production are less. But, as the attention of each farmer is spread over more land, more laborers, and more capital, each acre of land, each worker, and each dollar receives less personal attention. The relationship of the farmer with the land, and with the people of the land, is weakened. If the large farmer no longer knows the land, no longer cares about it, forgets how to care for it, doesn't have time to care for it, or can't afford to care about it, how well will the land be used? How can it remain productive? How can a large farm be sustainable?

A small farm can be managed "intensively." Intensive management allows a farmer to manage less land, using less labor, while handling fewer dollars. By managing fewer resources more intensively, the farmer is able to make more profit per unit of output, and thus, make more total profits – even if total production or output is less. As the farmer has more time and attention to give to each acre of land, each worker, and each dollar, the farmer’s relationship to the land and the people of the land is strengthened. The small farmer has an opportunity to know the land, to care about it, to learn how to care for it, has time to care for it, and can afford to care about it. The land on a small farm can be used well and can remain productive. A small farm can be sustainable.

The fundamental purpose of farming is to harvest solar energy – to transform sunlight into food and fiber for human use. It might seem that even God favors the larger farmer because a large farm covers more space, thus, catching more sunshine and rain. But, God also has given us a choice of making either wise or foolish use of the gifts of nature with which we are entrusted. Our industrial agriculture currently uses more energy from fossil fuels than it captures in solar energy from the sun. This can hardly be deemed wise and efficient use. But as a consequence, a small farmer can be more economically, socially, and ecologically viable than a large farm, simply by being a more effective harvester of the solar energy. In essence, a more intensive manager is a better harvester of the sun.
Some ecosystems and farming systems are easier to manage effectively than are others, and thus, require less attention per unit of resources to manage sustainably. Those requiring less intensive management can be larger without sacrificing sustainability. For example a sustainable wheat/forage/cattle farm may be far larger than a sustainable vegetable/berry/poultry farm. But the sustainable wheat/forage/cattle farm is likely to be far smaller than the typical specialized wheat farm, forage farm, or cattle ranch. And the sustainable vegetable/berry/poultry farm is likely to be far smaller than the typical specialized vegetable farm, berry farm, or poultry operation.

Sustainable farms need not be small in terms of acres farmed or total production, but they will need to be managed intensively. And intensively managed farms will be smaller than will otherwise similar farms that are managed extensively. Neither land nor people can be sustained unless they are given the attention, care, and affection they need to survive, thrive, and prosper. That attention, care, and affection can be more easily given on a smaller than larger farm.

The best alternatives for American farmers are neither to get bigger, give in to corporate control, nor to get out. The best alternative for American farmers and for society in general, is for farmers to find ways to farm more sustainably -- to balance economic, ecological, and social concerns, to find harmony among self interests, shared interests, and altruistic interests, to pursue their "enlightened" self-interests instead of greed. American farmers need to be told the truth about their alternatives. Farms of the future must be smaller, not larger. It's time for a revolution in American agriculture. The time for quietness has passed.

It's Time for a New American Revolution

About a year and a half ago, I found myself recovering from unanticipated open-heart surgery. I was fortunate enough to have previously checked out a book, The life and major works of Thomas Paine. Thomas Paine, as you may recall from your history lessons, was a writer during the American Revolution. He was credited with articulating the ideas of the revolution in terms that could be understood by the "common man." In fact, he signed his early writings with the pen name "Common Sense." Paine's pamphlets were distributed widely throughout the colonies, and invariably regenerated public support for the cause of democracy – saving the revolution from failure on more than one occasion. The writings of Thomas Payne provide some valuable insights into how to keep a revolution from failing – at least when the cause makes common sense.

First, Paine gave no quarter to the enemy of freedom and democracy – the British monarchy. Nothing in Paine’s writings could be mistaken for impartial objectivity when he was critiquing the sins of the monarchy. He stuck with facts and stated the truth, but he bothered with only one set of facts and one side of the truth. He left out some of the facts, the other side of the truth, and the lies to be told by his opponents – the Loyalists who opposed the revolution.

Second, Paine’s papers always went beyond criticism. He always went on to extol the great benefits that would be realized by the colonies once they had shed the yolk of Great Britain. He painted a vision for the future of a free and democratic America. He countered each British claim of what the colonies would lose with a counter-claim of what the colonies would gain once they had won the revolution.

Finally, Paine’s writings never gave so much as a hint of doubt that the American colonists eventually would win their war for independence. When the British army occupied Philadelphia, for example, Paine called it clear and convincing evidence that the British could never win the war. If half of their army was required to hold just one town, how could they possibly control all of the vast regions of the American colonies? It was just plain
"common sense" -- the cause of the revolution could not be denied.

We need a Thomas Paine approach to the new movement to revolutionize American society. I am not talking about gradual, incremental change in practices and methods of doing business; I am talking about a fundamentally different philosophy of life. The differences between the industrial and a post-industrial society will be as great as the differences between monarchy and democracy.

The current enemy is not a misguided monarchy, but instead is a misguided economy. The tyranny is not a kingdom, but instead is the marketplace. The epitome of the economics of greed is the publicly-held industrial corporation. The publicly-held corporation has no heart, it has no soul, and it is motivated solely by profit and growth. Corporations pollute and waste natural resources and they degrade and use up people -- and they will corrupt any political process that attempts to keep them from doing either. Anything that has no value in the marketplace is worthless to the corporation. The people who work for corporations have no choice but to feed the unending corporate hunger for every greater profits and ever faster growth.

Corporate industrialization will do for agriculture as it has done for other sectors of the economy. It will pollute the natural environment -- the water, the soil, and the air. Farmer and farm workers, like factory workers, will suffer ill health, low pay, and eventual abandonment -- as agri-industries find other people in other places who will work even harder, in more dangerous environments, for even less pay. The safety and healthfulness of the food supply will continue to deteriorate as a consequence of the inevitable race to the bottom, to see which corporation can produce the most stuff cheapest, so they can drive the competition out of business and raise prices to whatever level they choose.

But, the industrial era is over. The era of information and knowledge is upon us. Knowledge and information is quickly replacing capital as the source of new productivity and wealth. Potential productivity is now embodied in the unique ability of people to think and create, not in raw materials and factories. The main reason corporations continue to consolidate and grow is to gain greater economic and political power -- to exploit workers, tax payers, and consumers so they can continue to show profits and grow. In the industrial era, bigger seemed to be better. But, in the new post-industrial era small may be smarter. We are living in a new era of human and economic development.

Small businesses allow people to express their individuality and creativity -- to use their unique abilities to think and create. The good paying new jobs in the general economy are being created by small businesses, while the old industrial giants continue to downsize and lay off workers by the thousands. If the future is to be better than the past, it must belong to the small, not the large. The future of farming belongs to the small farms, not to the large. The people need to be told the truth.

Small farms allow people to fit their uniqueness to their ecological niche and to the unique tastes and preferences of consumers. Small farms are management intensive -- they allow farmers to rely more on themselves and less on borrowed capital and rented land. Intensive management allows farmers to break away from chronic crisis -- to get off the treadmill of larger and fewer which requires the survivors to run faster and faster just to stay in the same place. Small farms can be real farms -- where farmers have the time and the money to take care of their families, their land, and their communities. Small farms allow people to live in harmony again -- with themselves, their neighbors and the things of nature. Small farms can be farmed sustainably -- benefiting farm families, rural communities, the natural environment, and society in general.

There is a better way to farm and a better way to live. It’s time for a revolution in American agriculture. The time
for quietness has passed.

Sustainability requires diversity, flexibility, site specificity, and decentralized decision making. Farms of the future must as small as the ecological niches to which they must conform to be in harmony with the diversity of nature. Farms of the future must be as small as the market niches to which they must conform to be in harmony with the diversity of human nature. The only farms with a future will be farms that are sustainable – that are economically viable, ecologically sound, and socially responsible. Thus, farms of the future will be smaller farms. The inevitability of the industrialization of agriculture is a lie. Sustainable small farms are a better alternatives than getting bigger, given in, or getting out. The American public must be told the truth. It’s time for a small farm revolution in American Agriculture. The time for quietness has passed.
Small Farms: Their Role in Our Farming Future

John Ikerd

University of Missouri

We are at that very point in time when a 400-year-old age is dying and another is struggling to be born – a shifting of culture, science, society, and institutions enormously greater than the world has ever experienced. Ahead, the possibilities of the regeneration of individuality, liberty, community, and ethics such as the world has never known, and a harmony with nature, with one another, and with the divine intelligence such as the world has never dreamed. (Dee Hock, founder of VISA)

Will Farming be a Part of Our Future?

As I recall the creed of the Future Farmers of America begins with the words "I believe in the future of farming with a faith born not of words but of deeds." For years I believed that creed and have spent much of my life trying to live by that creed, but I simply can no longer believe it is true. There is no future of farming – at least not of farming as we have known it – not if the dominant trends of today continue into the future. Every time the average farm size goes up, the number of farmers goes down. Every time a farmer signs a corporate production contract, an independent farmer becomes a "corporate hired-hand."

The food and fiber industry most certainly has a future, people will always need food, clothing, and shelter, and someone will provide them. But there will be no future for farming -- not unless we have the courage to challenge and disprove the conventional wisdom that farmers must either get bigger or get out.

A continuing trend toward fewer and larger farms is evident in the 1997 Census of Agriculture. The total number of farms was reported down less than 1 percent from 1992. However, farmers who consider farming their principal occupation dropped nearly 9 percent from 1992 — an even larger fall than between 1987 and 1992. Politicians who were afraid of losing federal funds because of lower farm numbers got the census definition of farms changed. For example, a "farmer" in 1997 included people living in town whose only farm income was a CRP payment and or had as few as 5 horses stabled somewhere on a farm. The result was a 17 percent increase in farms with less than $10,000 in annual sales. Farms reporting $1 million or more in sales increasing by more than 63% in the five-year period. In general, farms with more than $250,000 and less than $10,000 in annual sales increased in numbers, but farms of all other sizes in between continued to decline. Thus, the trend toward fewer, larger farms continues.

This trend toward larger farms is driven by the industrialization of agriculture. The tools of
industrialization are specialization, simplification, mechanization, and standardization. A fundamental principle of industrialization is centralization of command and control. Industrialization allows fewer farmers to control more land and labor by using more capital – more machinery and equipment and more commercial inputs. So, industrial farms are larger than their traditional counterparts.

Consumer demand for food grows at a "snails pace" in comparison with overall growth in the economy. Thus, as farms get larger there are inherently fewer opportunities for farmers. As some farms get larger, other farmers are forced to either leave the farm or become someone else's "hired hand." As farms grow larger and fewer, the future of farming grows ever dimmer.

That farming has no future is not a popular view among those in the agricultural establishment. Conventional farming publications are filled with visions of a new high-tech future for farming. Technology is seen as the key. Bio-technology, genetically modified organisms of all sorts; precision farming, farming by computer-driven robots guided by global positioning systems -- these are hailed as the keys to the future of farming. In a sense, the agricultural establishment is right. Bio-tech and Info-tech are the keys to the future of farming – specifically to the end of the future of farming.

Agriculturist brag that precision farming will allow a farmer to plan and program everything so that each crop in each section of a field gets precisely what it needs to grow at all times. The "work" of farming can be done by a "tractor driver" -- allowing the farmer to spend his or her time at a computer analyzing data and working out a better plan. Crop production of the future will work a lot like the "animal factories" of today. The work will be done by "hired hands."

Agriculturists brag that bio-technology will allow the most desired genetic traits -- for both production and consumption -- to be designed into the genetic code of crops and livestock. With new designer genes, plants and animals will protect themselves from pests and disease and will grow at optimum rates to an optimum quality with a minimum of commercial inputs. The farmer need only plant the seed and wait for the crop to grow to harvest. Those farming with precision-farming robots won't even have to plant and harvest.

But, if precision farming can be done from the farmer’s office, it can just easily be done from someone's corporate headquarters. The computer operates from a data bank linked with a satellite. It doesn’t need to see either the land or the crop. Genetic engineering most certainly will take place in a corporate laboratory somewhere – possibly on a university campus. The "gene jockeys" don’t need to see the crop or livestock, they just manipulate their genes. In the world of high-tech farming, the thinking part of farming will no longer take place on the farm. So what’s the farmer going to do?

High-tech production may produce lots of food and fiber, at least for a while. But, there will be no place for the farmer – the worker who also thinks, and the thinker who also works. One
fundamental rule of life is that those who expect rewards must do something to deserve them. Sure, some people may do well for a while without doing anything, and a few people get by without doing much for much of their lives. But, most of us know that we have to do something productive if we expect to be rewarded. It’s just common sense. If farmers of the future only sit and watch, they better not count on making many profits. The folks who program the computers and manipulate the genes – not the farmers -- will be the ones who are doing something creative, and they -- not the farmers -- will reap the profits for their efforts.

With genetics and marketing controlled by the large multi-national corporations, the "farmer" also may become corporately controlled. Some farmers are counting on contracting as a means of staying in business in the high-tech future. But they should realize that when they sign a comprehensive production contract, they have given up the right to make important decisions on their farm. Someone else will be calling the shots; deciding how much they get to produce, when to plant or place animals on feed, what to feed, how to control pests, when to harvest, and where to deliver. It no longer matters what the producer thinks is best. The fact that farmers may provide buildings, equipment, or land does not empower them, but instead enslaves them – particularly if they need contract payments to pay off loans. They are no longer a farmer, but have become a corporate "hired hand." There is nothing wrong with being a hired farm worker – it’s an honorable occupation. But, it’s just not farming. If contract farming were the only alternative, there would still be no future in farming.

Is Organic Farming Sustainable?

Many farmers are seeking alternatives to industrialization, high-tech quick fixes, and corporate contracting. They are searching for a way of farming that has a future. The recent rapid growth in organic markets – reportedly 25 percent per year over the past several years -- makes organic farming a prime candidate for consideration. Growing organic markets and organic price premiums also have attracted attention from the giant corporations. The Hudson Institute’s Dennis Avery and a few other high-input junkies not withstanding, organic production has gained in both interest and credibility. The "o-word" -- a curse word in the agricultural establishment a few years ago -- has become almost an "in-word."

Unfortunately, the "S-word" remains a curse word in the vocabulary of most folks in the agricultural establishment – including many university people. Sustainability is OK if it means a profitably, environmentally sound agriculture. Even Monsanto and DuPont have their "sustainable agriculture" programs. But, once you start bringing in the social issues – family farms, rural communities, quality of life, ethics and values – the establishment abandons sustainability. They have grudgingly accepted the fact that an agriculture that uses up its resource base and pollutes its environment is not sustainable. But, they claim industrial systems can be environmentally friendly. They balk at accepting the social dimension of sustainability, because any claims of being socially responsible they make quite simply are not credible. They want to sustain agriculture, and their own profitability, but feel no responsibility to sustain people through agriculture. They reject the mandate for a socially responsible
agriculture, because industrial systems are simply not socially responsible.

Up to this point in time, organic farming and sustainable agriculture have generally traveled the road of enlightenment and progress together. Organic farming is as old as agriculture. But, history indicates that organic – in and of itself – does not ensure sustainability. Civilizations have risen from fertile lands only to fall when the nutrients were depleted or crops destroyed by pest -- under farming systems that were organic by necessity. Thus, organic systems are not inherently sustainable. However, many still believe that ultimately all sustainable systems must be organic, even if all organic systems are not sustainable.

The sustainable agriculture movement evolved out of the organic community a decade or so ago. The evolution was an attempt to widen the circle of people involved in the search for systems of farming that will last, and thus, will be sustainable over time. The early organic advocates of sustainable agriculture probably still believe that all sustainable systems will be organic, but they have been willing to accept those taking alternative means in hopes of reaching a common end.

Advocates of organic and sustainable have generally agreed on purpose and principles, even if not always on means or methods. The generally accepted purpose of sustainable agriculture is to meet the needs of the those of the present while leaving equal or better opportunities for those of the future – to apply the Golden Rule across all generations. General agreement also exists concerning the principles of sustainability. Most agree that sustainable systems must be ecologically sound, economically viable, and socially responsible – that all are necessary, and none alone or in any pair is sufficient. Up to this point, organic and sustainable have been held together by purpose and principles, but their continuing in harmony may be in jeopardy.

Many of the new organic farmers, or would-be organic farmers, see organic mostly, if not purely, as a matter of economics. Some conventional farmers have land coming out of the Conservation Reserve Program (CRP). Much of this land has not had pesticides or inorganic fertilizer applied to it in more than three years, and thus, could qualify quite easily for organic farming. Other conventional farmers are going broke producing basic commodities and are looking for any profitable alternative. Large-scale, corporate farming operations see organic as a growth market to be exploited for as long as it lasts. Organic standards debates over use of biotechnology, sewage sludge, and irradiation were all reflections of conventional and industrial interests in organic farming. Thus, many conventional farmers and corporations alike may be looking at the organic production as an immediate, short-run economic opportunity. They may not see organic as a means to the end of a more sustainable agriculture.

Even the traditional "organic community" is no longer of one mind. Most agree that they want to protect their markets from industrialization. But they don’t necessarily agree on whether organic markets should remain niche markets or become mass markets. If organic markets become mass markets, they eventually will become industrialized markets. And industrial production is
inherently unsustainable – regardless of the inputs and practices approved or used. The materials and methods may be organic but the paradigm for production will be industrial. Allowable materials and methods will be changed over time, if necessary, to accommodate the industrial paradigm. It makes little difference whether "industrial organic" systems emerge as existing organic producers become corporate giants or as current corporate giants capture the market. Neither will be sustainable.

Some see wisdom in keeping organic markets as niche markets -- preventing their industrialization -- but still see no particular relevance in linking niche markets with ecological niches for production. Organic farming, to them, is defined by a set of rules they must follow to exploit various niches of eco-conscious consumers. Niche markets to them represents opportunities to sustain profitability by offering something unique – something that can’t be mass-produced and for which there are no close substitutes. As long as they maintain their uniqueness, they can sustain their profits.

But, can they sustain production? For production to be sustainable, the system must be ecologically sound as well as profitable and socially responsible. The process of production must be compatible with the ecology of the place of production. Niche markets will be sustainable only if the means of production are tailored to conform to their ecological niches. Those who violate the ecological principles of sustainability will not be able to sustain their uniqueness, and ultimately will not be able to sustain profitability. Examples abound of highly successful enterprises, serving niche markets by means compatible with their places, failing miserably when they attempted to expand outside of their niches. Some expanded beyond their market niches, but others failed because they moved outside of their unique ecological places of production.

Those organic farmers who continue to pursue organic farming as a means for sustainability will continue to travel the road of enlightenment and human progress. They will help build an agriculture that is ecologically sound and socially responsible, as well as economically viable. Those who exploit current economic opportunities for short run self interest will travel a different road to the future – a road that most certainly dead-ends beyond some near or distant curve.

National organic standards will almost certainly put a substantial portion of organic production on that dead-end road to the future. National standardization will allow those who can meet the minimum standards at the lowest "dollar and cent cost" to prevail -- which almost certainly will be the industrial, mass producers. Of those outcomes of the certification debate still in doubt, the most critical is that state and non-government entities be allowed to maintain their own certification programs, and that individuals be allowed to truthfully label whatever they offer for sale. Without those rights, all organic markets will become industrial, mass-markets. But, even the maintenance of organic niche markets does not ensure the sustainability of organic production. Those who are driven mostly, or solely, by the promise of profits from niche markets – ignoring their ecological niches or places of production – also will threaten its sustainability.
Are Small Farms More Sustainable?

How big are the ecological niches? How large, or small, must a farm be to be sustainable? The National Commission on Small Farms stated as one of their major policy goals that USDA "Emphasize Sustainable Agriculture as a Profitable, Ecologically and Socially Sound Strategy for Small Farms." A farmer testifying before the committee said "Small family farms have kept our water pure, our environment clean, for over a hundred years. Factory livestock farming and corporate farming could end all of that." The committee report proclaimed that sustainable agriculture held promise for small farms, but didn’t address directly the question of whether small farms held promise for agricultural sustainability.

Are smaller farms more sustainable? Sustainability is a product of balance, or harmony, among the ecological, economic, and social dimensions of a farming system. A smaller farm lacking this harmony is less likely to be sustainable than a larger farm that is more in harmony. But there are logical reasons to believe that balance and harmony will be easier to achieve on smaller farms rather than large farms – other things similar if not equal.

Nature is inherently diverse. Geographic regions are different, watersheds are different, farms are different, and fields are even different -- both among and within. Industrial agriculture treats fields, farms, watersheds and even regions as if they were all pretty much the same. Certainly, industrial systems are fine-tuned a bit here and there to make production practices of one region fit another. Each state has a bit different set of best management practices, and some further adjustments are made from farm to farm and field to field. But, the fundamental systems of conventional production are all pretty much the same.

The same breeds and varieties, fertilizers and feeds, pesticides and antibiotics, machinery and equipment, and business and marketing strategies are used across fields, farms, and watersheds, in all regions of the country. The goal of research is to find universal solutions to common problems -- to find ways to twist, bend, and force nature to conform to some universal production and distribution process. Industrial, large-scale mass production requires uniformity.

But nature is diverse. Large-scale production creates inherent conflicts with this diverse nature – and inherent threatens sustainability. Farms that conform to their ecological niches avoid such conflicts. Some ecological niches may be large, but most are quite small. Current concerns for agricultural sustainability are based on strong and growing evidence that most farms have already outgrown their ecological niches and could be more sustainable if they were smaller.

Sustainable farms must also be of a size consistent with their markets. Conventional wisdom is that most markets are mass markets, and thus, farms must be large – or if not must market collectively. The conventional wisdom is wrong. Markets are made up of individual consumers,
and as consumers – as people – we are all different. We don’t all want the same things. In fact, each of us actually prefers something just a little bit different, and thus, values the same things a bit differently. Mass markets are created by lumping together a lot of people who are willing to accept the same basic thing – even though they might not prefer them. If mass markets can be created, the food system can be industrialized, and dollar and cent food costs will be lower. The lower price is a bribe to consumers to accept something other than what they actually would prefer. Typically, they must be coerced as well as bribed to accept what the industrial system has to offer. That’s why Americans spend more for advertising and packing of food than they pay the farmer to produce it. It costs more to convince people to buy industrial food products than it does to produce them.

Eighty cents of each dollar spent for food goes for processing, transportation, packaging, advertising and other marketing services. One key to economic sustainability of small farms is to capture a larger share of the consumers’ food dollar by performing some, and bypassing others, of these marketing services. Farmers currently get only about ten cents of each food dollar as a return for what they contribute to production, the other ten cents goes for purchased inputs. By tailoring production to consumer niche markets, and selling more directly to consumers, small farmers have an opportunity to make more profits without becoming big farmers.

The conventional wisdom is that niche-marketing opportunities are limited and can support only a handful of farmers. Once again, the conventional wisdom is wrong. Since all people want something slightly different, the ultimate in niche marketing would be to give every individual precisely what they want. All consumer markets are made up of individuals – totally, not just in part. Thus, all markets in total are made up of niche markets. The question is not how many niches exist, but instead how many different niches does it make sense to serve? The relevant answer, at least at present, is that more than enough market niches exist to support as many small farmers as might choose to direct-market to consumers. A lack of niche markets need not place a lower limit on the size of farms. Farms can be as many and as small as needed to accommodate the niches of nature.

The most compelling argument in support of sustainable farms being smaller is that sustainable farms must be more "intensively" managed. Wendell Berry puts it most succinctly in his book, What are People For, "...if agriculture is to remain productive, it must preserve the land and the fertility and ecological health of the land; the land, that is, must be used well. A further requirement, therefore, is that if the land is to be used well, the people who use it must know it well, must be highly motivated to use it well, must know how to use it well, must have time to use it well, and must be able to afford to use it well (p. 147)." Intensive management is possible only if farmers have an intensive relationship with the land – if they know it, care about it, know how to care for it, take time to care for it, and can afford to care for it – only if they love it.

Industrial agriculture degrades and destroys the relationship between the farmer and the land. Industrialization is management "extensive." Specialization, simplification, standardization, and
mechanization allow each farmer to cover more land, supervise more workers, and handle more dollars. Industrial management is "extensive" in that each manager is able to manage more resources. Extensive management makes it possible for each farmer to make more profits in total, even if profits per unit of production are less. But, as the attention of each farmer is spread over more land, more laborers, and more capital, each acre of land, each worker, and each dollar receives less personal attention. The relationship of the farmer with the land, and with the people of the land, is weakened. If the large farmer no longer knows the land, no longer cares about it, forgets how to care for it, doesn’t have time to care for it, or can’t afford to care about, how well will the land be used? How can it remain productive? How can a large farm be sustainable?

A small farm can be managed "intensively." Intensive management allows a farmer to manage less land, using less labor, while handling fewer dollars. By managing fewer resources more intensively, the farmer is able to make more profit per unit of output, and thus, make more total profits – even if total production or output is less. As the farmer has more time and attention to give to each acre of land, each worker, and each dollar, the farmer’s relationship to the land and the people of the land is strengthened. The small farmer has an opportunity to know the land, to care about it, to learn how to care for it, has time to care for it, and can afford to care about. The land on a small farm can be used well and can remain productive. A small farm can be sustainable.

The fundamental purpose of farming is to harvest solar energy – to transform sunlight into food and fiber for human use. It might seem that even God favors the larger farmer because a large farm covers more space, thus, catching more sunshine and rain. But, God also has given us a choice of making either wise or foolish use of the gifts of nature with which we are entrusted. Our industrial agriculture currently uses more energy from fossil fuels that it captures in solar energy from the sun. This can hardly be deemed wise and efficient use. But as a consequence, a small farmer can be more economically, socially, and ecologically viable than a large farm, simply by being a more effective harvester of the solar energy. In essence, a more intensive manager is a better harvester of the sun.

Some ecosystems and farming systems are easier to manage effectively than are others, and thus, require less attention per unit of resources to manage sustainably. Those requiring less intensive management can be larger without sacrificing sustainability. For example a sustainable wheat/forage/cattle farm may be far larger than a sustainable vegetable/berry/poultry farm. But the sustainable wheat/forage/cattle farm is likely to be far smaller than the typical specialized wheat farm, forage farm, or cattle ranch. And the sustainable vegetable/berry/poultry farm is likely to be far smaller than the typical specialized vegetable farm, berry farm, or poultry operation.

Sustainable farms need not be small in terms of acres farmed or total production, but they will need to be managed intensively. And intensively managed farms will be smaller than will otherwise similar farms that are managed extensively. Neither land nor people can be
sustained unless they are given the attention, care, and affection they need to survive, thrive, and prosper. That attention, care, and affection can be more easily given on a smaller than larger farm.

Are Small Farmers Real Farmers?

Small farms may be more sustainable, but are small farmers really farmers? Conventional wisdom is that small farmers are not "real" farmers – they are part-timers, sundowners, hobby-farmers, and such. Among Webster's definitions of the word "real" are found authentic, permanent, practical, and independent. And in these terms, it can easily be argued that small farmers may be the only real farmers.

Real farmers care about people – their families and communities – not just production and profits. Real farmers care about the land – the things of nature. They realize that farming somehow is a sacred trust – to take only what they need and leave as many and as good opportunities for those who follow. Certainly, real farmers must make a profit and they have as much right as anyone to the American Dream. But real farmers know, intuitively, that they must balance the economic with the social and ecological – the personal with the interpersonal and the spiritual -- not only for others but also for their own happiness and peace of mind.

Many small farmers may be small because they have balanced their self-interest with concerns for others and with some felt need to be in harmony with a higher order of things. A conventional, industrial farmer can no longer grow large enough, fast enough to survive, without sacrificing virtually everything else – including personal relationships and natural resources. Getting bigger faster is no longer a reasonable or viable option. The only farmers with a future are those who depend more on doing the "right things" rather than doing "things right" and on doing "better things differently" rather than on doing the "same things better." Farmers simply don't have time to be "real" farmers while they are preoccupied with becoming "big" farmers.

The difference between big and small among farmers is not a matter of the size of their fields or their bank accounts, but in what's taking place in their heads. A farmer who thinks that the only way to survive and prosper is through more technology, bigger equipment, more land, and more money is a big farmer no matter how small their farm. A farmer who thinks that the only way to survive and prosper is to find ways to get more out of what they already have – to learn to live better while using less land and less capital – is a small farmer no matter how large their farm. For the big farmer, farming is a bottom-line business. For the small farmer, farming is business but much more – it 's also a way of life.

Small farmers, by necessity, are practical. They can afford to be independent because they do it mostly themselves. They are authentic – the farmer and the person are one in the same. And if sustainable, their farms will be permanent. Small farmers are real farmers.
One of the greatest challenges in being a successful small farmer is the same challenge faced in being a successful human being – knowing how much is enough. Any small farmer who doesn’t know how much is enough, will never feel that they have enough, will always be striving to get more, and really is a big farmer at heart -- no matter how small their farm. Enough is not some future size or amount -- that will ensure success and happiness. Enough is about "right now." "Do you have enough right now?" If the answer is no, then what would it take to be enough right now? If you don’t know, then how can you really know whether you have enough right now? If you never feel that you have enough, you’ll spend the rest of your life always wanting more. The farmer who doesn’t know how much is enough will never be satisfied on a small farm.

Organic farmers in particular are confronted with the question; "how much is enough for me?" Organic farming is changing, markets are growing, and national standards are coming, bringing new and different producers. So, what should organic farmers do? Should they expand, move into new markets, contract with corporations? Or should they stay small, try to benefit from the changes that could help, and guard against those that could hurt. The most important prerequisite to making these decisions is to know how much is enough? Those who can answer this question are more likely to remain of a size that will sustain their production and sustain a desirable quality of life. Those who don’t know how much is enough, are more likely be to lured with the promise of more, will grow ever larger, and may well become a part of the problem they think they are trying to solve.

Will Small Farms have a Place in Our Future?

Do small farmers, organic or otherwise, really have a place in the future, or is this just some idealistic dream? Peter Drucker, a time-honored consultant to twentieth-century industry, says this in his book Post-Capitalist Society:

"Every few hundred years in Western history there occurs a sharp transformation. Within a few short decades, society rearranges itself -- its worldview; its basic values; its social and political structure; its arts; its key institutions. Fifty years later, there is a new world.... We are currently living through just such a transformation." (p. 1).

The thing most certain about the future is that it will be very different from today. The industrial era is behind us. Something fundamentally different lies ahead. Even as agriculture continues to industrialize, industrialization is already slowing, stopping, and even reversing in much of the rest of the economy.

Alvin Toffler, in his book Powershift, points out that many forecasters simply present unrelated trends, as if they would continue indefinitely, without providing any insight regarding how the trends are interconnected or what forces are likely to reverse them. The agricultural press is
filled with such forecasts for the future of agriculture – simply extending industrial trends into the foreseeable future. But, Toffler contends that the forces of industrialization have run their course and are now reversing -- that the industrial model of economic progress is becoming increasingly obsolete. He contends that mass production is no longer a symbol of "modern" business operation. The new "modern" model is to produce customized goods and services aimed at niche markets, to constantly innovate, to focus on value-added products and specialized production.

Drucker, in his book: The New Realities, talks of the "post business society." He states, "the biggest shift -- bigger by far than the changes in politics, government or economics -- is the shift to the knowledge society. The social center of gravity has shifted to the knowledge worker. All developed countries are becoming post-business, knowledge societies." (p. 173). Toffler agrees that "the most important economic development of our lifetime has been the rise of a new system of creating wealth, based.. on the mind" (p. 9). He contends that "the conventional factors of production -- land, labor, raw materials, and capital -- become less important as knowledge is substituted for them" (p. 238). "Because it reduces the need for raw material, labor, time, space, and capital, knowledge becomes the central resource of the advanced economy "(p. 91).

Robert Reich, former Secretary of Labor, addresses future trends in the global economy in his book, The Work of Nations. He identifies Symbolic-analysts as the "mind workers" of the future. They include all the problem-solvers, problem-identifiers, and strategic-brokers. They include scientists, design engineers, public relations executives, investment bankers, doctors, lawyers, real estate developers, consultants of all types, -- people who earn their living mostly by thinking. Like Toffler and Drucker, Reich believes that future human progress will result from symbolic-analysis, from mind work, rather than routine production work or personal services.

Drucker points out an important, fundamental difference between knowledge work and industrial work. He states that industrial work is fundamentally a mechanical process, whereas, the basic principle of knowledge work is biological in nature. He relates this difference to determining the "right size" of organization required to perform a given task. "Greater performance in a mechanical system is obtained by scaling up. Greater power means greater output: bigger is better. But this does not hold for biological systems. There, size follows function. It would surely be counterproductive for a cockroach to be big, and equally counterproductive for the elephant to be small. As biologists are fond of saying, 'The rat knows everything it needs to know to be a successful rat.' Whether the rat is more intelligent than the human being is a stupid question; in what it takes to be a successful rat, the rat is way ahead of any other animal, including human beings" (p. 259).

He concludes, that differences in organizing principles may be critically important in determining the future size and ownership structure of economic enterprises. Other things equal, the smallest effective size is best for enterprises based on information and knowledge work. According to Drucker, "'Bigger' will be 'better' only if the task cannot be done otherwise"
The sustainable agriculture paradigm is consistent with the visions of Toffler, Drucker, Reich and others of a post-industrial era of human progress. It is management intensive, individualistic, site-specific, and dynamic. The sustainable model is clearly biological rather than mechanical in nature. For biological systems, size and form must follow function and individual elements must conform to their ecological niche. Targeted niche marketing, less reliance on land and capital, knowledge intensive management, thinking workers and working thinkers, size scaled to function, smaller is better – these visions of the future are all consistent with visions for a small-farm, sustainable agriculture.

But if all this is true, why are we currently seeing the rapid industrialization in some sectors of the agricultural economy, specifically in hog and dairy production? In Joel Barker's book: Paradigms, he points out that new paradigms tend to emerge while, in the minds of most people, the old paradigm is doing quite well. Typically, "a new paradigm appears sooner than it is needed" and "sooner than it is wanted." Consequently, the logical and rational response to a new paradigm by most people is rejection (p. 47). New paradigms emerge when it becomes apparent to some people, not necessarily many, that the old paradigm is incapable of solving some important problems of society. Paradigms may also be applied in situations where they are not well suited, thus creating major new problems while contributing little in terms of new solutions.

American agriculture provides a prime example of over application of the industrial paradigm. The early gains of appropriate specialization in agriculture lifted people out of subsistence living and made the American industrial revolution possible. But, more recent technological "advances" clearly have done more to damage the ecological and social resources of rural areas than any societal benefit they may have created from more "efficient" food production.

Industrialization of agriculture probably lagged behind the rest of the economy because its biological systems were the most difficult to industrialize. Agriculture by nature doesn't fit industrialization; it has to be forced to conform. Consequently, the benefits are less, the problems are greater, it is becoming fully industrialized last, and it likely will remain industrialized for a shorter period of time.

Sustainable agriculture is the new post-industrial paradigm for American agriculture. The sustainable agriculture paradigm has emerged to solve problems created by the industrial model, primarily pollution of our environment and degradation of our natural resource base. However, this new paradigm also addresses social degradation brought about by industrialization -- by creating opportunities for greater creativity, integrity, responsibility, dignity, and equity in work.

Sustainable agriculture is fundamentally about people – not production and profits.
Industrialization initially was about creating a better life for people, but somewhere along the line the people part of industry got lost. People have become little more than small cogs in giant corporate machines producing and consuming lots of "stuff" that nobody really wants or needs. We're afraid to quit producing and consuming all this "stuff" for fear the giant machine might stop and we wouldn't know how to survive without it.

But, the big machine is running out of steam, and people are beginning to wake up to the fact that what we are doing simply is not sustainable. We are beginning to understand that the environment cannot absorb all the waste we're producing, that our greed will leave nothing for future generations, that corporations are not people, and thus, can have no feeling or concern for people. We are beginning to realize that manufactured is not better than natural, synthetic is not better than organic, and bigger is not better than smaller. We are becoming interested in sustainability because they know, down deep, that the current system that is good for people.

The future will not be about more and better industrial technology; the future will be about people. Returning to Peter Drucker's Post Capitalistic Society:

"In the knowledge society into which we are moving, individuals are central. Knowledge is not impersonal, like money. Knowledge does not reside in a book, a databank, a software program; they contain only information. Knowledge is always embodied in a person, carried by a person; created, augmented, or improved by a person; applied by a person; taught by a person, and passed on by a person. The shift to the knowledge society therefore puts the person in the center."

People are at the center of sustainable agriculture. People are at the center of "true" organic farming. People are at the center of "real" small farming. In the society of the future -- the society that puts people at the center -- there will be a place of honor for sustainable small farms.

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What is a small farm? When we talk about small farms, do we mean small in acreage, small in production or value of sales, small in income, or what? There isn’t any one universally accepted definition of a small farm. So we have to begin any discussion of small farms by defining what we mean by a "small farm."

In the process of defining small farms, we need to consider how important farms of various sizes are in terms of acreage, value of production, and numbers of people who rely on farms for incomes. We who work with families on small farms are concerned primarily with what we can do to help families on small farm lead successful, productive lives rather than how many acres they farm or how much they produce. And extension work with families on small farms is mostly one-on-one work with individual families. But, if we have a better understanding of small farmers as a group, we may be better able to explain why we believe that working with families on small farms is important and why small farms deserve far more attention than they are given in most public research and education programs.

First, let’s consider farm size in terms of numbers of acres. The 1992 U.S.D.A. Census of Agriculture is the last comprehensive assessment of Missouri’s farms and farmers. That Census indicated that more than one-fourth of Missouri’s farms were less than 70 acres in size. A 70-acre cow-calf or row crop farm would be considered small. However, 70 acres of blueberries would be considered a large blueberry farm. Since, there are lots more cows and corn than blueberries, most 70-acre Missouri farms would be considered small. If farms up to 140 acres were considered small, that would include nearly one-half of Missouri farms. More than two-thirds are less than 260 acres in size, and 85 percent are less than 500-acre farms.

However, most would probably agree that acreage is not a very good indicator of farm size in any terms other than occupying space that cannot be used for other purposes. For example, a 500-acre farm may not be big enough to make a decent living for a family. A 500-acre farm in row crop production may not be big enough to support a family. On the other hand, a 5-acre market garden may be large enough to provide a good living for a family. The question of how many acres it takes to provide a good living all depends on what the farm is used for and how effectively it is used.

Next, let’s consider farm size in terms of value of production – market value of farm products sold. More than half of Missouri farms reported total sales of less than $10,000 in 1992, and more than two-thirds reported sales of less than $20,000. Most would agree that farms of this size are small farms. Total farm acreage may be up in the 200-acre range on some of these farms, but the farming operation still isn’t producing much if they are selling less than $100-worth of product per acre.

More than 80 percent of Missouri’s farms sold less than $50,000 in total value of products in 1992.
Farms of this size are small enough to be considered as "non-commercial" by U.S.D.A. Certainly in traditional crop and livestock enterprises, such farms would not seem to be economically viable and thus not true commercial ventures. But, 80 percent of Missouri farms fall into this category. Does this mean that 80 percent of Missouri’s farmers are hobby farmers, rural residents, or something other than real farmers?

If $100,000 in annual sales is considered to be a small farm, nearly 90 percent of Missouri farmers are small farmers. Is a farm with total sales of $100,000 large enough to provide a decent living for a family? The answer depends on how, and how well, the farm is used. Four hundred acres of 100-bu./per acre corn at $2.50 per bushel will generate total sales of $100,000. However, at a return over direct costs of $50 per acre, only $20,000 in total, will be generated to cover debt payments, taxes, depreciation and other fixed cost. This may leave far less than $20,000 as a return to labor, management, and the family’s equity in the farm – the return that family living expenses will have to come from. On the other hand, a market garden or U-pick operation may yield a return over direct costs equal to 50 percent, or even 75 percent, of total market value of sales. Thus, a $100,000 market garden might generate $50,000 to $75,000, with less land and less capital costs than a row crop farm. So a $100,000 market garden may generate a very good family income.

So what is a small farm? There is no good answer to the question. However, let’s proceed using the U.S.D.A definitions that "small farms" are farms with less than $100,000 in value of annual production and "non-commercial" farms sell less than $50,000 per year. Thus, 90 percent of Missouri’s farms are "small" farms and 80 percent are classified as "non-commercial" farms. So there are a lot of small farms in Missouri – one of the highest number of any state. For the U.S. in total, 75 percent of all farms are considered to be "small" and 70 percent are classified as "non-commercial." But, are small farms really important? There may be a lot of them, but they are not all that big, and even those with moderate acreage don’t grow all that much.

If we are concerned primarily with production, we may be able to pretty much write off small farms, or at least justify not accrediting them with much importance. Small farms account for just over 25 percent of total value of U.S. farm production, even though they accounted for over 75 percent of U.S. farms. Only about half of that amount, 13 percent of total sales, were accounted for by the 70 percent of farms called "non-commercial."

Small farms are more important in terms of land and farm assets. Farms with less than $100,000 in sales controlled 40 percent of all farmland and more than 50 percent of all farm assets – money invested in farming. Thus, small farms are more important in terms of land ownership and total value of assets, than in terms of value of production, but are still less important in land and assets than in terms of total farm numbers.

From an overall financial stability position, small farms are about as financially secure as are large farms. The small farms have less farm income, which makes them vulnerable form a standpoint of financial liquidity or ability to meet cash flow requirements. However, small farms have only 43 percent of all
farm debt while holding 53 percent of all assets, leaving them less vulnerable from the standpoint of financial solvency or risk of bankruptcy.

Overall, are small farms really very important? Are small farms real farms? We would probably have to conclude that they are not all that important, that they may not be real farms -- if we were concerned primarily with production and profits. But, what if we are concerned about people – specifically the people who farm? If more people depend on small farms for a living, shouldn’t that be given more weight than production and profits in determining the importance of small farms? Many might agree, but the typical response is that small farmers really don’t depend on small farms, farms are just the places where they live, or they depend on off-farm jobs, or they are retired. So, let’s take a look at the "conventional wisdom" that families on small farms really don’t rely on farming.

First the farm census takers asked farmers to specify their principal occupation. Principal occupation was defined as the job at which they spend over one-half of their working hours. Only one-half of all farmers in the U.S. considered farming to be their principal occupation. Obviously, a larger proportion of small farmers than large have a principal occupation other than farming – spending more than half of their working hours off the farm. But, there are also a lot more small farmers than there are larger farmers. So about 80 percent of all farmers who called themselves farmers – rather than something else – were "small farmers" – the operated farms with $100,000 in total sales. But, even that number has been discounted by many because it included farmers who are "retired" as well as active farmers. In other words, a farmer might be retired and still spend more than half of his or her working hours farming.

The 1993 U.S.D.A. Farm Cost and Return Survey included a critically important question, for the first time in it’s 15 year history. This national survey asked farmers to classify their principal occupation as farmer, hired farm manager, other occupation, or retired – using the same definition for farmer as described above. They also asked for the same farm size information as in the 1992 Census of Agriculture. The results indicted, as expected that nearly all of the retired farmers were in the "small farm" category. Retired farmers made up about 17 percent of all farmers, but of course were a much larger percentage of all "small" farms. However, even after taking out all of the retired farmers from the small farm category, more than one-half of all U.S. farmers who consider farming to be their principal occupation operated small farms.

Are farmers who spend more than half of their working hours farming, who are not retired, "real farmers?" If so, real, small farmers made up 54 percent of all farmers responding to the Farm Cost and Return Survey. Thus, over half of all real farmers may be small farmers. In fact, 47 percent of the real farmers responding to the survey were operating "non-commercial" farms. A person doesn’t spend over half of their "working" hours on a hobby farm. A person doesn’t spend over half of their working hours on a sideline or supplemental activity. If nearly half of the active farmers in the U.S. spend more than half of their working hours on "non-commercial" farms, perhaps U.S.D.A. needs to rethink the name for this category.

Survey data including the retirement occupation category was not readily available for Missouri.
However, as about 62% percent of Missouri’s "real farmers" may be "small farmers," if we assume the same percentage of retired farmers by size category for Missouri as for the nation. Regardless of the specific percentage, the percentage of "real, small" farmers in Missouri would be expected to be larger due to the greater proportion of small farmers in Missouri. In fact, in Missouri, well over half – an estimated 57 percent – of all "real" farmers may be classified as "non-commercial."

The conclusion – most real farmers are small farmers. Small farmers produce a much smaller proportion of total production than do large farmers. Large farms are important in terms of providing for the food and fiber needs of society. But, farm families are a part of society also. Consumers, on the average spend about 10 cents of each dollar for food, and the farmer only gets one penny of that dime. The rest goes for marketing, transportation, processing, packaging, etc. and for farm inputs. We need to weigh the well being of the smaller number of people who rely on farming for a large part of their livelihood against the small percentage that a far large number of consumers spend for food and fiber. Certainly we cannot ignore the responsibility to provide for the food and fiber needs of people, but neither can we ignore the needs of the majority of those who rely on farming for a living.

Small farms provide less income for families than do large farms. However, for many on small farms, the farm is more than a place to earn money. It is a place to live – a house and space to move about – much of which is provided by the "farm." The farm provides fresh produce, meat, other foodstuffs, clean water, fresh air, outdoor recreation, and a host of other things of great value that come at reduced cost or no cash cost from a farm. A person in the city, or on a strictly commercial farm, might use a significant part of their income to "buy" the good things of life that come with a small, family farm – many of which are free.

Small farmers do rely more on non-farm income than do large farmers. But, even "large" farmers report that over 45 percent of their income as coming from non-farm sources. There are relatively few households, on farms or in cities, that rely on only one source of income, farming or otherwise, for their livelihood these days. In addition, the reliance on farms of small farmers who are real farmers -- after we take out retired farmers and those with other occupations – may not be much less than for large farmers. That question can’t be answered from available survey data. Even if small farmers get a greater proportion of their income from non-farm sources, does that mean that they need what they earn from their farms any less than to the large farmers? Which one would qualify for food stamps quicker if their farm income started to fall?

The bottom line: most people who really depend on farming for an important part of their livelihood quite likely are on small farms.

Finally, how can we best help families on small farms achieve and sustain successful, productive lives? First, we must recognize that small farms must be different from large farms if they are to provide for the needs of the family. They must generate more dollar sales and more net income per acre of land and per dollar of invested. Small farms, by any common sense definition, have less land and less capital, so they have to earn more per acre of land and dollar invested to have a comparable return. This means they have
to earn more from their labor, and particularly more from their management ability than do large farms.

To earn a higher return to management, small farms must be more management intensive. Small farm systems must be more diverse and thus more complex, they must be planned and designed to fit the specific soils, climate, and geographic location. They must fit the unique production abilities of the farmer and meet the specific needs of available markets. But, complexity can lead to disaster as well as success. So, strategies must be developed to simplify the complexity – to make complex systems more easily managed.

This can be accomplished by dealing with general principles rather than trying to manage every detail of the system. For example, farms with healthy soils have fewer specific fertility and pest management problems. Small farms can focus on building healthy soils – a general principle – rather than being an expert in nutrient and pest management practices for every crop they raise. Another example, farmers can build relationship with specific customers to whom they market a wide variety or products directly. By focusing on relationships and meeting the needs of specific customers, farmers need not learn the "ins and outs" of marketing every product they grow. Holistic management, sustainable agriculture, and integrated farming systems are all approaches that rely on principles rather than specific practices to manage complex systems.

Most successful small farms will need to be "family" farms. There are as many different ways to define family farms as there are for small farms. But, a true family farm is one where the family and the farm are inseparable. For these families, farming may be considered as a way of life, a critical part of life, or life itself. A family farm is not a business or job that can be separated from the life of the family – the family without the farm would be fundamentally different.

Successful small, family farms must value and use "all" resources of the family. Kids can make important and valuable contributions to the economic and social quality of family life on farms – if the farm is designed to make kids useful rather than vulnerable. Kids that are productive – who contribute to the success of the farm – would seem more likely to grow up with self-esteem and self-confidence. "Women’s work" likewise needs to be valued, regardless of whether it is done by a male or female member of the family. Raising children is not a routine task that can easily be farmed out to someone else. With farm value of food an average of 20 percent of each dollar spent for food at retail, home food preparation can contribute significantly to a family’s total real income – particularly for low income families who spend a large share of income for food.

Everything produced on the farm that can be utilized on the farm reduces the need for non-farm income. Many spouses seek off farm employment more because they want to "do something of value" to earn additional income. In fact, the net increase in household income may be very small after paying for childcare and everything else that must be bought after the spouse with primary family responsibilities enters the job market. If "non-market" family work was truly valued, family farms might be far less dependent on non-farm income.
Finally, successful small farms will be those that recognize, rely on, respect, and reward people. Most real farms are small farms – in Missouri and in the U.S. What makes them real farms is what they do for people. Small farms may be small in terms of production, but they are big in terms of people.
Crisis and Opportunity
In North American Agriculture

John Ikerd
University of Missouri


North American agriculture is in crisis. Until recently, the crisis had been a quiet one. No one wanted to talk about it. Thousands of farm families were being forced off the land each year, but we were being told by the agricultural establishment that their exodus was inevitable – in fact, was a sign of progress. Those who failed were simply the victims of their own ineffectiveness – their inability to keep up with changing times, their inability to compete. We have no more reason to be concerned about the demise of the “family farm” than we were about the “mom and pop” grocery story or the “family restaurant” – you can’t stand in the way of progress.

With farm prices at record low levels for three years in a row, the agriculture establishment has begun to realize that something is wrong. The US Congress has passed “emergency” farm legislation each of the past three years – pushing US farm subsidies to all-time record levels. But even now, the farm crisis is being blamed on such things as weather problems, loss of export markets, or unwise public policies at home and abroad. In general, we are always led to believe that “our” problems are “someone else’s” fault. “The crisis is a simple matter of supply and demand,” they say. The only solutions they propose are to tinker with government policy or, better yet, to simply wait for markets to recover. In the meantime, the only alternatives farmers are being offered are to get big enough to be competitive, get a corporate contract to reduce risks, or get out of farming.
In a recent book, “The End of Agriculture in the American Portfolio,” University of California economist, Steven Blank envisions the imminent end of the American farm. His conclusions regarding the future of agriculture in the US would seem to be equally applicable to agriculture in Canada. American agricultural production is destined to end, he argues, but he claims this should be no cause for alarm. He contends that the end of American agricultural production is the result of a natural process that is making us all better off. He foresees a time in the not too distant future when North America will import nearly all of its foodstuffs from other “lesser developed” countries. Costs of land and labor will be too high for American farmers to be competitive in global food production. He argues that globalization of the food system is not some corporate business strategy, but is simply the inevitable consequence of individual struggles of farmers and agribusiness in America and around the world who quite logically are pursuing their individual self interests to the benefit of society in general.

Blank believes that the current open spaces of rural areas will be transformed from farms to living space for a growing and increasingly affluent population fleeing the problems of urbanization. Cornfields are unable to compete with condominiums for farmland. Farming is a low-skilled, “primary” industry that has no place in an advanced, “high-tech” economy. Rural ways of life will give way to urban ways of life as farms become residential ranchettes. Virtual communities of people interconnected by the Internet will replace real communities of people who meet face-to-face in church or at the grocery store. Communities of interest will replace communities of place. Agriculture will no longer be a significant factor in the rural economy. Most people in the community will be employed elsewhere -- perhaps by companies thousands of miles away. Blank claims the only forms of truly sustainable agriculture will be those compatible with urban life – mainly golf courses, nurseries, and turf farms.

Blank’s fundamental arguments are based on the premise that economic
considerations ultimately will prevail over all others. He assumes that industrial agribusiness will replace family farms because they are “more economically efficient” and American agribusiness eventually will be displaced by even “more efficient” agribusiness elsewhere in the global market. Residential ranchettes will replace rural farmsteads because people with high-tech jobs can pay more for land to look at than farm families can afford to pay to work it.

Blank might well be right. If we allow short-run economic thinking to continue to dominate every aspect of our lives, then Blank’s forecasts for the future of American agriculture appear quite rational and reasonable. The current crisis might well foretell the end of the North America farm. However, the end of farming in North America is neither inevitable, nor is it desirable. There are sound, logical, ecological and social reasons to keep farm families on the land and for every nation to maintain the integrity of its agricultural sector for purposes of national security. We need not sacrifice our overall long run quality of life for the sake of short run economic efficiency. But, we may well be forced to rethink the role and scope of agriculture within the global economy as well as within the broader human society. We may have to develop a new American farm to prevent the end of the American farm.

Crisis and Opportunity
Crisis is most frequently considered something negative, something to be avoided, such as pain, distress, or disorder. However, crisis can be defined more generally to be either positive or negative. A crisis is a decisive moment, a critical time or state of affairs whose outcome will make a decisive difference for either better or worse. In fact, the Chinese have a word for crisis that is used to mean both threat and opportunity. The current crisis in agriculture most certainly is a time of pain, distress, and disorder for farmers and rural communities. However, it is also a time of opportunity – a critical time and state of affairs that will make a decisive difference, either for better or for worse. It’s up to us – to farmers and others – to confront the threat, to seize this opportunity, and to create the
kind of agriculture and human society that we want rather than accept whatever others might impose upon us.

If we are to seize the opportunities in agriculture today, we must be willing to confront the crisis. The current crisis in agriculture is not a consequence of the weather, of world trade problems, or of unwise government policies. These things only magnified the symptoms of problems that are rooted in causes far more fundamental. Crisis is a chronic symptom of the type of agriculture we have been promoting on this continent for at least the past fifty years – symptoms of an industrial agriculture. Reoccurring financial crises are the consequence of our encouraging farmers to industrialize – to become more specialized, standardized and larger in scale so we can make agriculture more efficient. We rationalize the industrialization of agriculture as a means of providing lower cost food for consumers. We rationalize the displacement of family farmers in the process as a means of “freeing people from the drudgery of farming” so they can find better jobs in town.

The promise of profits is the bait that keeps farmers on the industrial technology treadmill. Farmers adopt new cost-cutting and production enhancing technologies to increase profits, but the resulting increases in production cause prices to fall, eliminating profits of the early adopters and driving the laggards out of business. This technology treadmill has been driving farmers off the land for decades. Those remaining on the treadmill after each crisis must run faster and faster just to survive. Soon, they don’t have time for their families, let alone their communities. They can’t afford to care too much about their neighbor, for they know soon, that in order to survive, they will have to have their neighbor’s land. Inefficiency and reluctance to change are not the causes of failures among American farmers. Farm failure is an inherent part of the system. Some must fail in order for others to succeed, and after each crisis there is room for fewer and fewer survivors.

Chronic crisis in American agriculture also has meant chronic crisis in
America’s rural communities as farms have become more specialized, larger, and fewer. The fundamental purpose of most rural communities was to support those engaged in agriculture or some other natural resource based enterprise, such as mining or timber. But, it takes people, not just production, to support a community. Larger farms tend to bypass rural communities in buying the production inputs and marketing their products. In addition, a rural community is far more than a rural economy. It takes people to fill the church pews and school desks, to serve on town councils, to justify investments in health care and other social services, to do the things that make a community. As farms have grown larger and fewer, they have lost their people – their human and social resources – and many rural communities have withered and died.

The current crisis is different in at least one respect, it signals the final stage of industrialization. The final stage of industrialization is consolidation of decision making under corporate control. The giant multinational corporations are now seizing control of all aspects of American agriculture, moving beyond specialization and standardization, beyond consolidation into larger farms, and are now consolidating agricultural decision making in a handful of corporate boardrooms. This final stage of industrialization is turning once peaceful farms into odious factories, with all of the noxious odors, environmental degradation, and inhuman working conditions that characterized heavy industry of earlier times. This final stage of industrialization is turning remote rural communities into the dumping grounds for the rest of society – whether as prisons, landfills, toxic waste dumps, or giant hog factories. This final stage of industrialization could well spell the end of the American farm, and with it, the end of the American rural community.

The corporatization of agriculture in the US came first to the poultry industry. A handful of larger corporations now control poultry production from genetics to the supermarket, and there are virtually no independent producers left. Hog production is rapidly following in the footsteps of poultry, with corporate ownership and contract production becoming the
norm rather than the exception. Dairy will likely be the next sector to industrialize, as the current trend toward large-scale production will quite likely be followed by corporate control. Biotechnology will bring corporate control of grain production, as producers will have to grow crops with approved genetics in order to have a market, and biotech corporations will hold the genetic patents. A grain farmer who doesn’t sign a corporate contract simply won’t have a market.

It’s not a matter of economies of scale any more, but a matter of market control. Market control means profits. Poultry producers have proven that if a few corporations can gain control of a sufficiently large share of an industry, they can stabilize supplies on the backs of their contract producers, and can maintain corporate profits indefinitely. Corporate producers are not concerned about profits during the consolidation phase. The lower the price, the faster independent producers will be forced out of business and the faster the large corporations can gain market share. As corporations gain market share, they can deny market access to lower-cost, independent producers, and ultimately gain complete control of the market, even if they are less efficient than independent producers. When they get control of the markets, they can quickly recoup any losses incurred during the period of consolidation.

As American agriculture comes under corporate control, it will respond even more quickly to global markets – there will be no sentimental attachment of corporate producers to any particular farm, geographic region, or nation. If costs of land and labor are less somewhere other than in North America, as they almost certainly will be, then that’s where our food will be produced. Capital and management can be shifted easily from North America to other countries around the globe – as we have seen in the production of other industrial goods. North American’s farmlands will be sold to the highest bidder, which is likely to be land speculators, and most rural communities will continue to wither and die as they await some future revival as bedrooms communities for affluent urbanites.
The food and fiber industry most certainly has a future, people will always need food, clothing, and shelter, and someone will provide them. But there will be no future for farming in North American, or for rural communities, unless we challenge the conventional wisdom that food should be produced wherever on the globe it can be produced at the lowest cost and that “free markets” should be the final arbitrators of all value. In fact, there will be no future for farming anywhere – not true farming -- not unless we have the courage to challenge and disprove the conventional wisdom that farmers must get bigger, give in to corporate control, or get out. But there are better alternatives for farmers and for society, if we can find the courage to challenge the basic forces driving the corporatization of agriculture and of North American society.

Crisis Brings Opportunity for Change

The crisis in agriculture brings with it opportunities for decisive, positive change. The opportunities arise from the failures of corporate industrialization. Economists will argue that cost reducing technologies, and the pursuit of profits, ensures that consumers get the highest quality food at the lowest cost, even if some farmers are forced out of business in the process. However, we no longer have a competitive, capitalistic economic system to ensure that new technologies actually benefit consumers or that lower production costs translate into lower food costs in the supermarket. Economists are defending corporate agriculture using hopelessly outdated theories developed more than 200 years ago in completely different times.

Contemporary economics is based on the observations of a British economist, Adam Smith, in his landmark book, The Wealth of Nations, published in 1776. From Smith’s observations, economists developed the fundamental assumptions, which underlie all “free market” economic thinking even today. These assumptions must hold in order for Smith’s “invisible hand” of competition to transform individual greed into the greater good for society in general.
Markets must be economically competitive – meaning the numbers of buyers and sellers so large that no single buyer or seller can have any noticeable effect on the overall market. In such markets, no one has the power to exploit anyone else. It must be easy for new sellers to enter markets that are profitable and easy for sellers to get out of unprofitable markets, so that producers are able to respond to consumers’ wants and needs. Consumers must have clear and accurate information concerning whether the things they buy will actually meet their wants and needs. And finally, the consumer must be sovereign – their tastes and preferences must reflect their basic values, untainted by persuasive influences of others.

None of these assumptions hold in today’s society. Today agricultural markets are dominated by the large agribusiness corporations, certainly at every level other than the farm level, and increasingly even at the farm level. In addition, it is not easy to get into or out of any aspect of agriculture, and it is becoming increasingly harder even to get into or out of farming. Consumers don’t get accurate, unbiased information concerning the products they buy, but instead get disinformation by design, disguised as advertising. Finally, consumers are no longer sovereigns. The food industry spends billions of dollars designed specifically to bend and shape consumers tastes and preferences to accommodate mass production and mass distribution, which enable corporate control of agriculture. There is no logical reason to believe that the corporate agriculture of today is evolving to meet the needs or wants of consumers.

Instead, corporate agriculture today is designed specifically to generate profits and growth for corporate investors. We no longer have a competitive, capitalistic agricultural economy. Capitalism requires that individuals make individual decisions in a competitive market environment. As corporations extend their control horizontally “within” the same functional levels, such as marketing, storage, transportation, processing, or retailing, they increase their ability to protect profits from competitors. As corporations also extend their control vertically, “across”
functional levels, including additional different stages of production and marketing, they gain control over decisions concerning how much of what is produced, when it is produced, how it is produced and for whom. They make those decisions to maximize their profits and growth, not to meet the needs of society.

In essence, as agriculture moves from competitive capitalism to corporatism, it changes from a market economy to “central planned” economy. Central planning didn’t work for the Communists, and it won’t work for the corporations. The problem wasn’t that the Communists weren’t smart enough or that their computers weren’t large enough. Central planning is a fundamentally wrong-headed approach to managing an economy – for corporations as well as governments. The corporate system of food production will prove to be fundamentally incapable of meeting the needs of the people. Its emergence as the dominant system, therefore, represents a prime opportunity for an alternative to corporate central planning, to create an agriculture that will truly meet the needs of the people of an enlightened society.

As society becomes more enlightened, we are beginning to realize that we are destroying our natural environment in the process of trying to produce cheap food. We are mining the soil through erosion and depletion of its natural product in the process of maximizing production and minimizing dollar and cent costs of production. We are polluting our streams and groundwater with residues from the pesticides and commercial fertilizers necessary for large-scale, specialized industrial crop production and with wastes from giant confinement animal feeding factories. We are destroying the genetic diversity, both below and above the soil that is necessary to support nature’s means of capturing and transforming solar energy into energy for human bodies.

As society becomes more enlightened, we are beginning to realize that we are destroying the social fabric of society in the process of trying to make agriculture more efficient. We are destroying opportunities for people to
lead productive, successful lives. We are turning thinking, innovative, creative farmers into tractor drivers and hog house janitors. There is dignity in all types of work, but all people should have opportunities to express their full human potential. Consolidation of decision making concentrates the opportunities among the privileged few while leaving the many without hope for a rewarding future. Industrial specialization also tends to separate people within families, within communities, and within nations. We are just beginning to realize that industrialization destroys the human relationships needed to support a civilized society.

The outdated economics that supports agricultural industrialization is fundamentally incapable of dealing effectively with either the environmental or social challenges of today. In economics, the environment and society are external or outside of the decision making process – something that may impact or be impacted by decisions but not part of the process. In reality, the economy, environment, and society all are parts of the same inseparable whole. Society needs a more enlightened system of decision-making – one capable of integrating economic, ecological, and social decisions. We need a “new” approach to farming in North America.

The New American Farm
A new American agriculture is emerging under the conceptual umbrella of sustainable agriculture. Sustainable agriculture is a response to a growing awareness that an agriculture that degrades the natural environment and weakens the social fabric of society cannot meet the needs of people over time, no matter how productive and profitable it may appear to be in the short run. Farm profitability cannot be sustained unless farms are also ecologically and socially sustainable. The focus of agriculture sustainability is on the long run – on intergenerational equity. A sustainable agriculture must be capable of meeting the needs of the present while leaving equal or better opportunities for the future. In order to fulfill this purpose, it must be ecologically sound and socially responsible as well as economically viable. Systems of farming that are lacking in any
one of these dimensions quite simply are not sustainable.

Farming sustainably is no simple task. But, thousands of farmers are finding ways to create a desirable quality of life for themselves and to support their local communities while being good stewards of the land and the natural environment. These farmers, like people in general, are pursuing their self-interest. Pursuit of self-interests is an inherent aspect of being human. But, people, by nature, do not pursue only their narrow, individual or personal self-interest. It’s also within the inherent nature of people to care about other people and to care of the earth. People are perfectly capable of rising above selfishness and greed to pursue a higher concept of self-interest – a self-interest that values relationships with other people and stewardship of the earth as important dimensions of one’s self-interests.

This higher self-interest includes our narrow self-interest (personal, individual concerns), but it also includes interests that we share with others (relationship, community, and social concerns) and interests that are purely altruistic (ethics and moral concerns). All three contribute to our well being or quality of life. Each contributes to a higher sense of quality of life – explicitly recognizing that each of us individually is but a part of the whole of society, which in turn must conform to some higher order or code of natural law.

Sustainable agriculture requires that farmers find balance and harmony among the economic, social, and ecological dimensions of their farming operations -- among self-interests, shared-interests, and altruistic interests. By pursuing their enlightened self-interests, these new American farmers are helping to build a more sustainable agriculture and in addition are discovering the principles needed for a more sustainable human society.

These sustainable farmers may carry the label of organic, low-input,
alternative, biodynamic, holistic, permaculture, or no label at all, but they are all pursuing common economic, ecological and social goals. These farmers, not the experts or the scientists, are the ones on the new frontier -- the explorers, the colonists, the revolutionaries, and the builders of a “New World.” Life is difficult on the frontier because no one really knows how to do what these folks are trying to do -- they are creating the future. They are getting little help from the government, their universities, or the agricultural establishment. They are doing it pretty much on their own. They will continue to confront hardships, frustrations, and there will be some failures along the road. But, more and more of these new American farmers are finding ways to succeed.

There are no blueprints for the New American Farm. But a few fundamental principles are beginning to emerge. In general, the new farming opportunities arise directly from exploiting the weaknesses resulting from misuses of industrialization -- specialization, standardization, and centralized decision making. The new American farm relies instead on the advantages of diversity, individuality, and decentralized networks of interdependent decision-makers.

New American farmers focus on working with nature rather than against it. The natural resource base that ultimately must sustain productivity is inherently diverse. Industrial systems have had to bend nature -- to augment, supplement, alter, and force it -- to create an illusion of conformity out of diversity in order to meet the demands of large-scale, industrial production. The ecological problems arising from industrialization are symptoms of natural resources being used in ways that are inherently degrading to their productivity. Thus, industrialization has created tremendous opportunities for farmers who learn to utilize the inherently productive capacity of a diverse natural resource base, rather than wasting time and money trying to force nature to conform.

These new American farmers utilize practices such as management intensive grazing, integrated crop and livestock farming, diverse crop
rotations, cover crops, and inter-cropping. They manage their land and labor resources to harvest solar energy, to utilize the productivity of nature, and thus, are able to reduce their reliance on external purchases inputs. They are able to reduce costs and increase profits while protecting the natural environment and supporting their local communities.

New American farmers focus on value rather than costs. They realize that each of us values things differently, as consumers, because we have different needs and different tastes and preferences. Industrial methods are efficient only if large numbers of us are willing to settle for the same basic goods and services – so they can be mass produced. So, industrialization has to treat us as if we’re all pretty much the same. Customers have to be persuaded, coerced, and bribed to buy the same basic things rather than the things they really want. We pay more for packaging and advertising of food than we pay to the farmers who produce the food. The industrial system creates tremendous untapped opportunities for farmers who can tailor their products to conform to unique needs and preferences of individual customers, rather than try to bend the preferences of customers to conform to their products.

New American farmers market in the niches. They market direct to customers through farmers markets, roadside stands, CSAs, home delivery, or by customer pick-up at the farm. They use everything from the Internet to word-of-mouth to advertise their services. They market to people who care where their food comes from and how it is produced – locally grown, organic, humanely raised, hormone and antibiotic free, etc. They are often able to avoid some or all of the processing, transportation, packaging, and marketing costs that make up 80 percent of the total cost of mass marketed foods. They increase value, reduce costs, and increase profits while protecting the environment and helping to build stronger local communities.

New American farmers focus on what they can do best. They realize that we are all different -- as producers as well as consumers. We have widely
diverse skills, abilities, and aptitudes. Industrialization has had to “bend people” – train, bribe, and coerce people – to make them behave as coordinated parts of one big machine rather than as fundamentally different human beings. Many social problems of today are symptoms of people being used by industrial systems in ways that are inherently degrading to our uniquely human productive capacities. Thus, industrialization has left tremendous untapped economic opportunities for farmers and others who can use their unique capacities to be productive rather than attempt to conform to systems of production that just don’t fit.

New American farmers may produce grass-finished beef, pastured pork, free range or pastured poultry, heirloom varieties of fruits and vegetables, dairy or milk goats, edible flowers, decorative gourds, or dozens of other products that many label as agricultural “alternatives.” They find markets for the things they want to grow and are able to grow well rather than produce for markets where they can’t compete. Or they may produce fairly common commodities by means that are uniquely suited to their talents. Their products are better, their costs are less, and their life is better because they are doing the things that they do best.

These new American farmers focus on creating value through building unique relationships -- among consumers, among producers, and within nature. In general, they link people with purpose and place. By linking their unique productive capacities with unique sets of natural resources to serve the needs and wants of unique groups of customers they create unique systems of meeting human needs that cannot be industrialized. The farmers and their customers are not just sellers and buyers, they know and care about each other, as people – they have relationships with each other. The farmer’s land is not just a resource to be exploited for economic gain, they care about and want to take care of the land – they have a relationship with the land. The more unique the combinations of person, purpose, and place, the more valuable will be their relationships, and the more sustainable will be the value. The sameness of industrialization creates opportunities for unique farmers who can create
unique relationships with their resources and their customers.

Critics argue that these new farm opportunities are limited. On the contrary, there is no limit to the diversity among people nor diversity within nature. There are as many niche markets as there are people. The question is one of how many different markets it is logical to serve not how many different niche markets exist. Likewise, there are as many differences in production capabilities as there are producers and as many different niches in nature as there are fields or places to produce.

Some question whether a sufficient number of people who are both willing and able to learn can be found to farm in these new ways. Admittedly, the new American farm will require a lot more knowledge, understanding, and thinking than does farming by industrial methods. However, any future occupation offering an opportunity for a decent living will require people to use their minds. The days when someone could earn a good living by the sweat of their brow are in the past. There will be plenty of innovative, creative, hard working people to operate the new American farms, once the real possibility for a more desirable quality of life in farming – economically, socially, and ethically – becomes widely know.

Others question whether people can afford to pay farmers the full costs of meeting their food and fiber needs without exploiting either the natural or human resource base for agriculture. However, today’s consumer, on average, spends only a dime of each dollar for food -- from which the farmer gets only one penny. Thus, most consumers can afford to pay farmers to produce the food they really want and need rather than settle for something less, particularly if that something less degrades the social and ecological systems from which consumers also derive much of their quality of life.

Some question whether a sustainable agriculture is physically capable of meeting the needs of a growing global population – that only “high-yield, high-input” systems are necessary to keep pace with population growth.
First, “high-yield” systems rely heavily on non-renewable inputs such as commercial fertilizers and pesticides. Biotechnology isn’t going to reduce this reliance, but instead may even increase it in the quest for maximum yields. There may be sufficient supplies of non-renewable inputs for another 50 or maybe 100 years. But, what will people do then? We will have twice or three times as many people on earth by then, and the resources will be gone.

Many “low-input” farmers today are already achieving yields equal to or greater than conventional “high-input” systems of farming. The knowledge and expertise required to achieve high yields with low inputs are not nearly as widespread as is commercial agricultural technologies. However, many others are capable of acquiring this ability, if they realized it was possible, and had an incentive, to do so. In addition, sustainable agriculture today is in its infancy – sustainable farmers are but the early explorers on a new frontier. As they accumulate increased understanding and know-how, their productivity abilities will undoubtedly increase as well. If we had invested a fraction of the research and development efforts on regenerative farming methods that we have invested in industrial methods, our ability to produce sustainably might easily surpass our ability to produce conventionally.

Over time, with more farmers with better understanding of sustainable farming, productivity will rise and cost of production will fall for sustainable systems. Over time, with rising costs of non-renewable inputs and further degradation of the natural environment, productivity will continue to fall and costs of production will rise for industrial systems. Over time, sustainable systems will be far more productive and far less costly than will industrial systems of farming.

Those who think that we can’t meet the legitimate food and fiber needs of humanity with a sustainable agriculture are the “new Malthusians.” Some 200-plus years ago an economist by the name of Thomas Malthus claimed that humanity was destined to starve to death because population
increases geometrically and technology only increases arithmetically. Malthus was wrong, because he failed to appreciate the potential productivity of the human mind. Those who think we can’t feed the world without destroying the natural environment and without degrading human society, like Malthus, are failing to appreciate the potential role of human creativity and ingenuity in developing more sustainable systems of farming. The perceived limits to sustainable farming arise from the assumptions of contemporary economics, which are hopelessly out of date, and an industrial mindset, which is rapidly losing its relevance to reality.

Seizing the Opportunity
It’s only reasonable for farmers to be skeptical as to whether or not farming in general can actually be reshaped by the principles of the new American farm. After all, farming is but a small part of the economy, the economy is but one aspect of human society, and industrialization has been engrained in human society over a couple of hundred years. Change may not come quickly and it may not come easily, but change will come. American agriculture of 50 years from now will be fundamentally different from the agriculture of today – the question is not if but how. The question is not if someone will change it, but who will change. The challenge is to change it in ways that will better serve the long-term needs of people – consumers, farmers, rural residents, and society in general – rather than the short run economic needs of corporations. The challenge is to develop an agriculture that is ecologically sound and socially responsible so it can be economically viable as well.

To meet this challenge, we will have to have the courage to challenge the conventional wisdom that whatever is dictated by short-run, economic self interest is inevitable, and is inevitably good for society. It is not. We, as individuals, need not overcome this perceptual obstacle for society in general in order to change our own lives, including our work, but we do need to overcome this perceptual obstacle in our own minds. We need to call upon our common sense to inform us that money isn’t everything – our
relationships with other people matter, as does stewardship of the natural environment. Our lives will be better when we live with harmony and balance among the personal, interpersonal, and spiritual dimensions of our lives. We must be willing to rethink what we want out of life.

To meet the challenge of developing a new American agriculture, we must also rethink the concept of the agricultural economy and the role of agricultural policy. Eventually, government subsidies must be limited to paying for those aspects of agriculture that provide purely public benefits – not subsidizing profits for those who produce solely for private gain. To achieve this, we must recognize that agriculture is multifunctional – that it produces public, as well as private, goods and services. For example, a nation’s agriculture can provide national food security – can ensure that no nation can be starved into submission by another nation. Agriculture can ensure national food equity so that no one goes hungry regardless of ability to buy food. Agriculture can be designed to protect the natural environment – to protect the soil, air, and water that are absolute necessities for life on earth. All of these are legitimate public goods and services – things that have great value to society, but will not be provided by the private economy.

Those farmers who are willing to produce such goods and services can legitimately be rewarded through government programs that provide farmers with the equivalent of “minimum wages, unemployment insurance, and employment security” in the non-farm sector. Such government programs would reward farmers – individuals, not corporate businesses – for their contribution of the public good. The provision of public goods and services would be a legitimate foundation for the development of a more socially responsible, ecologically sound, and economically viable agriculture. However, individual farmers need not wait for changes in government programs to provide additional incentives. Farmers can change the ways they farm today, motivated solely by the desire to improve their overall quality of life, and rewarded in kind when they achieve it. For them, later changes in government programs will but
validate the wisdom of changes they have already made.

We, the people, currently control everything that needs to be changed in order to build a more sustainable, higher quality of life, as individuals as well as for society as a whole. The economy is a creation of people – it is not some sacred, unchangeable set of natural laws. People created the current economic system and people can change it. The corporation does not exist by some right or some decree from God. People created corporations and they exist at the discretion of people. Each corporation has a charter, which once obligated it to operate for the good of the public. We the people can revoke those charters, even if we have to amend the constitution to do it. We can control or abolish corporatism and we can shape our economy to meet the needs of people.

We, the people, have the power to change our government. In North America, we are the government – whether we are willing to admit it or not. We elect the people who represent us in government at national or federal, at state or provincial, or at community or local levels. Through our representatives, we can hire and fire the bureaucrats, can reshape government agencies, and can change government policies. Others now control such things only because we let them. The corporations influence our elections and ensure that representatives serve their interests, instead of ours, only because we let them. Our governments programs fail to serve the needs of people, only because we let them. We have the power to change the things that need to be changed – regardless of whether we choose to use it.

More importantly, we have the power to change our own lives. As individuals, we may not be able to bring about the changes we would like to see in government or in the broader economy or society. But, we can change our own lives. For most of us at least, our individual lives could be made far better than they are today if we would simply “step off of the treadmill, get out of the rat race,” and start living a life of harmony and balance. Our common sense tells us that “more cheap stuff” will not make
We need stronger, more harmonious relationships with other people – within our families, our communities, and our nations. We live in a society where mental depression has become an epidemic. The fundamental cause of mental depression is failed relationships. Certainly some are depressed due to physical disabilities, but most are depressed because they lack positive human relationships. Most of us are not starving, we have adequate clothing and shelter, we have adequate transportation, healthcare, and we do not want for the basic physical needs. We could quite likely improve our quality of life by spending a bit more time and effort on building positive relationships with other people.

We also have the power to reclaim the ethical and moral dimensions of our lives. The vast majority of people admit that they believe in some higher power or some higher order of things to which we humans must conform -- most of us admit to being spiritual. Yet, we have been shamed and coerced into compartmentalizing our lives so that our ethical and moral values don’t interfere unduly with our work or with our civic involvement. But deep down we know that we are whole people – we can’t separate our ethical values from our relationships with other people or from what we do for a living. Most of us have felt that we had to compromise at least some of our ethical or moral principles in order to earn a decent living or have an impact in the political area. In fact, if most of us had not compromised our values, we wouldn’t have the problems with our economic and political systems that we have today. We have rationalized that the economic of social benefit outweighed the moral costs. But we have suffered, perhaps unknowingly, as a consequence of our rationalization.

We didn’t have to compromise our principles, we simply choose to do so. Deep down inside we know that our lives would be better if we quit compromising and began living and working according to our principles and values. We need to begin living lives of harmony and balance. We have the power to enhance our quality of life, and we can begin using that
power today.

For farmers, finding harmony and balance may mean changing the ways they farm in very fundamental ways. One of the most common stories among the new American farmers is that they were once conventional farmers, on the technology treadmill, farming more and more land, with bigger and bigger equipment, going farther and farther in debt. Many were the “winners” in the continuing struggle for survival, but found their quality of life sinking lower with each round that they “won.” They didn’t have the time or energy to keep positive relationships with their spouse or their kids, and they didn’t have the time or economic freedom to take care of their land. They had to put all of their time, energy, and money into growing the farm.

But, one day these farmers woke up, they realized that what they were doing didn’t make any sense. They more they produced and the more money they earned, the more miserable they became. And then, as many have said, they decided to cut back, “to go back to farming the old home place differently,” rather than trying to farm the whole country side. They put their imagination and creativity into finding ways to farm that would enhance their overall quality of life – socially, spiritually, and economically – instead of focusing all of their attention on production and profits. As a consequence of pursuing a higher quality of life through harmony and balance, they have developed more sustainable systems of farming. The world around them may have remained the same, but their own little piece of the world has changed. We all have the power to make the same kinds of changes in our lives.

In addition to changing our personal world, we can at least influence a small part of the world around us. A farmer can make a difference in the land on his or her farm and perhaps on the land downstream and the people downwind. We can all have an influence on the other people in our families and others with whom we work or on those who live in our communities. As we change our own lives in positive ways, we begin to
influence those in that “little piece of the world” in which we are influential as well. One by one, as we change ourselves and then change our little pieces of the world, we will find that the world is beginning to change.

We find that we are more effective when we go into the public arena to advocate larger social and political change when we are coming from a position of security. Our security within ourselves and within our circle of relationships makes us far stronger than when we come from a position of desperation. We can begin to advocate changes that are good for the whole of society over the long run, which enhances our overall quality of life, rather than being forced to support policies which simply put money in our pockets at the expense of someone else. As we raise our standards in the public arena, we just might find that others feel compelled to raise their standards as well. If we are secure in our own ethics and values, we are more likely to find the courage to step boldly into the arena.

One by one, as we find the courage to demand something better, we will change the world for the better. Susan B. Anthony, the champion of voting rights for women in the US once said, “Cautious, careful people, always casting about to maintain their reputation and social standing, never can bring about reform. Those who are really in earnest must be willing to be anything or nothing in the world’s estimation.” It takes courage to bring about change. But Margaret Mead, an award winning cultural anthropologist, once said, “Never doubt that a small group of thoughtful, committed citizens can change the world, indeed it’s the only thing that ever has.” As each of us finds the courage to change our selves and to influence our little piece of the world, we can change the world. Indeed, this is the only thing that ever can.

REFERENCES

As corporations move toward control of agricultural production, and some
people even talk of the end of agriculture in America, any discussion of
“new farms for the new century” might seem a bit out of touch with reality.
In a recent book, “The End of Agriculture in the American Portfolio,” a
California economist, Steven C. Blank, claims that corporate production
will replace family farms, and that corporations eventually will move
agricultural production to other countries. Land and labor costs in the US
are simply too high, he says, to allow the US to be competitive in
agriculture in a global economy. Admittedly, if we look only at economic
trends, farming in the US might seem to be a dying occupation. We might
question whether there would be any realistic possibilities for new farmers
in the new century.

Throughout much of human history, the occupation of farming, worldwide,
has been in almost continuous decline. In the beginning of agriculture,
when humans first began cultivation of crops and livestock for human use
rather than just hunt and gather, the occupation of farming blossomed and
grew. But once people became capable of producing more food than they
needed for their own families, people begin to choose something other
than farming as an occupation. The ability to produce more than needed
for home consumption, allowed some people to leave the land – to
become neither hunters, gatherers, nor farmers – and to barter with
farmers to meet their needs for food and fiber. Those who left the farms
became medicine men, warriors, blacksmiths, storekeepers, dentists,
schoolteachers, entertainers, etc – they did the things that farm families were least able to do for themselves.

In the US, as in many other nations, the absolute numbers of farmers eventually began to decline, even as total populations continued to grow. Some scholars called this process industrialization, as people left farms and rural areas for manufacturing jobs in the cities. In times of famine or other crises, such as the Great Depression of the 1930s, people returned to the land to produce their own food and fiber, to increase their odds of survival. But throughout most of past two centuries, those leaving farms in the industrializing nations consistently have outnumbered the total of those continuing and beginning to farm.

At the turn of the twentieth century, however, America was still an agrarian nation. In the 1890 census, forty-percent of the U.S. population still listed their occupation as farming – by far the largest of any occupation – and well over half of all people lived in rural areas. However, a hundred years later, in 1990, the percentage of farmers in the U.S. population had dropped to less than two-percent, and only about 25 percent lived outside of major metropolitan areas. American agriculture had to be industrialized to support the industrialization of the rest of the economy. Consequently, American farms grew more specialized, larger in size, and fewer in number. The number of U.S. farms dropped from a depression-years peak of 6.6 million in the 1930s to less than two million some sixty years later. In addition, farm households now rely on non-farm sources for about 90 percent of their income. In the span of a century, the nation transformed itself from a rural-farming to urban-industrial nation. The other so-called developed or industrial nations of the world followed similar patterns of transformation from rural to urban.

Against this historical backdrop, however, an increasing number of farmers are finding ways to succeed where others have failed. These farmers are challenging the conventional wisdom that farmers must either
“get bigger, give into corporate control, or get out.” These farmers represent a new breed of farmer with new ideas. They are redefining the occupation of farming. They are finding ways to capitalize on the weaknesses of the industrial approach to farming that has dominated agriculture for the past century. They are successfully bucking the trend toward larger farms, fewer farms and fewer farmers. They are finding ways to make a better living on smaller farms, making room for more, rather than fewer, farms and farmers. They are lowering the barriers for beginning farmers by creating an agriculture that depends more on knowledge and understanding of nature, including human nature, and less on capital and access to technology. This new breed of farmer is creating new opportunities for anyone who has a willingness to work hard, a commitment to continual learning, and a love of the land and its people. They are the new farmers for the new century.

The Old Farm

To understand why the "new" farms work, we have to understanding why the "old" farms do not work – at least don’t work to the long run benefit of people. The conventional farm of today is a product of the industrial revolution. Industrialization, with its specialization, standardization, and mechanization of production, required large numbers of people to “man” the assembly lines and offices of large manufacturing operations. People moved into cities by the millions as a country goes through the industrialization process. In America, the simultaneous industrialization of agriculture – specialization, standardization, and consolidation of control – made it possible for fewer farmers to feed more people better and at a lower cost. This “freed” farmers and other rural people to go to work in the cities and freed consumers’ incomes to buy those things the industrial economy produced.

The same technologies that pulled rural people toward the cities pushed
them off the farms and out of rural communities. These technologies increased production per person by substituting capital and commercial inputs for labor and hands-on management. As successful new farming technologies were developed, they invariably reduced production costs – per bushel or per unit of production – but only if each farmer operated at a larger scale and produced more output. Thus, the incentive to realize greater profits by reducing costs inherently was an incentive to buy bigger equipment and more commercial inputs in order to farm more land and produce more output. As farmers individually responded to these incentives, production in total invariably increased, market prices fell, and the earlier promise of continuing profits vanished. The new technologies then became necessary – no longer for profits but now for survival. Those who adopted too late or expanded too little were unable to compete. This is the process by which farmers were “freed” from their farms to fill the manufacturing jobs in the city. The farms that survived grew larger and fewer in number. In fact, with a limited population to feed and a limited amount of land to farm, it was possible for only fewer and fewer farmers to survive.

As the industrialization of agriculture moves into its final phase – the centralization of control and decision making among giant agribusiness corporations – there might seem little hope for family farms. Within a decade, the independent producer of basic agricultural commodities, such as corn, hogs, soybeans, cattle, may be a rarity. Those not on the payrolls of the large agribusiness corporations quite likely will be producing under comprehensive corporate production contracts. Moreover, as Steven Blank contends, corporate agriculture may eventually move to other countries where labor and land costs are more competitive, spelling the end of the American farm.

The future of conventional farming most certainly is at risk; nevertheless, there are signs of hope on the horizon. The industrial era appears to be nearing an end elsewhere in the economy, even as it continues to
consume agriculture. A new post-industrial, knowledge-based era of human progress is emerging – most prominently in other sectors of the economy, but also in agriculture. This new era of human development will continue to create opportunities in the new century for a new and better kind of farming.

The Inevitability of Change
Admittedly, if the dominant trends of today were to continue, there would be little hope for the future of farming. But, trends never continue, at least not indefinitely. A few years back, a couple of scientists proposed a list of the top twenty "great ideas in science" in Science magazine, one of the two most respected scientific journals in the world (Pool). They invited scientists from around the world to comment on their proposed list. Among the top twenty were such ideas as the relationship between electricity and magnetism, the laws of gravity and motion, and the first and second laws of thermodynamics. The top twenty also included the proposition that "everything on the earth operates in cycles;" everything physical, biological, social, economic – everything. Some scientists responding to the Science survey disagreed with the proposed theory of universal cycles, saying that things “tend to operate in cycles,” but most left it on their list of the top twenty great ideas in science (Culotta).

In essence, the theory of universal cycles implies that trends never continue forever. Trends are nothing more than phases of longer-term cycles that eventually will turn and move in the opposite direction. In reality, it’s just common sense – everything that goes up eventually comes down, and everything that goes around eventually comes back around.

The theory of cycles implies that farms will neither get larger and fewer nor smaller and more numerous forever, but instead will cycle back and forth over time. If we think back over past centuries and around the globe, we can find examples where control of land became concentrated in the hands of a few, such as in feudal times, only later to be dispersed among
the many. The most significant example in the U.S. may have been the development and later demise of plantation agriculture in the South. The most significant such occurrence in the world at present is taking place in what once was the Soviet Union, where large communal farms are being divided into individual farmer-owned plots. Cyclical turning points typically have been associated with major historical events. However, large-scale, industrial agriculture is coming under increasing environmental and social challenges all around the globe. Another major historical change in farming may well be in the offing.

The Transition to Sustainability

Many futurists – people who study trends and cycles – believe we are in a time of a great transition.

“We are at that very point in time when a 400-year-old age is dying and another is struggling to be born – a shifting of culture, science, society, and institutions enormously greater than the world has ever experienced. Ahead, the possibility of the regeneration of individuality, liberty, community, and ethics such as the world has never known, and a harmony with nature, with one another, and with the divine intelligence such as the world has never dreamed.”

These are not the words of a priest or a philosopher but of Dee Hock, founder of one of the largest financial institutions in the World, the VISA Corporation.

Hock is certainly not alone in this thinking. A whole host of futurists from the political and business communities, including Alvin Toffler, Vaclav Havel, Tom Peters, Peter Drucker, John Naisbitt, and Robert Reich agree that we are in a time of fundamental change. They talk and write of a shift in worldview from the mechanistic, industrial model of the past, where
people derived power from control of capital and the technical means of production, to a new life-centered, post-industrial era where knowledge has become the source of power, of wealth, and of future human progress.

The old and new worldviews are fundamentally different. The old views the world as a complex machine; the new views the world as a living organism. Factories are mechanistic. Factories are built, they function for a while, inputs come in, outputs go out, and eventually, they wear out, and they must be replaced. Knowledge is biological rather than mechanical in its fundamental nature – it is discovered, it changes, it grows, it reproduces, and it multiplies over time pretty much on its own. Living things cannot be “built,” and are difficult to control; instead they must be nurtured and cared for. Thus, the knowledge-based era of human progress will require greater understanding of and respect for living systems, including people.

The transition of agriculture is taking place under the conceptual umbrella of sustainable agriculture. The transition to the post-industrial paradigm of sustainable agriculture is but a small part of the great transition that is taking place all across society. The questioning that is driving changes in agriculture, however, exemplifies the broader questioning of society that is fueling the great transition. The questions relate to sustainability – “Is society in general, or agriculture in particular, sustainable over time?”

People may disagree on the specific words, but there is a growing consensus that a sustainable agriculture is “an agriculture that is capable of meeting the needs of the present while leaving equal or better opportunities for the future.” The concept of sustainability applies the Golden Rule across generations. We should do for those of future generations, as we would have them do for us, if we were of their generation and they were of ours. We must find ways to meet our needs, all of us who are here today, without diminishing the ability of those of
future generations to meet their needs as well.

A sustainable agriculture must have three fundamental characteristics. It must be ecologically sound, economically viable, and socially responsible. Any system of farming that lacks any one of the three quite simply is not sustainable. This is not a matter for debate; it is just plain common sense. A sustainable agriculture must protect and maintain the productivity of its natural resource base. If the land loses its ability to produce, the farm is not sustainable. A sustainable agriculture must provide for the food and fiber needs of people, but it also must provide people with opportunities to lead successful lives. Agriculture must do its part to sustain society or society will not sustain that type of agriculture. Finally, a sustainable agriculture must make sufficient profits for farms to remain economically solvent. If the farmer goes broke, the farm is not sustainable.

No one of the three dimensions is any more or less important to sustainability than the others. The ecological, economic, and social dimensions of sustainability are like the three dimensions of a box. A box that is lacking in height, width, or length quite simply is not a box. A farm that lacks economic viability, ecological integrity, or social responsibility quite simply is not sustainable. It’s just common sense.

Sustainable farming is knowledge-based – based on knowledge of how to work with nature, rather than dominate it, in order to generate production and profits. Whereas, industrial agriculture substituted capital and off-farm technology for labor and management, sustainable agriculture substituted labor and management for capital and off-farm technology.

Sustainable farmers farm in harmony with the world around them. They match their unique abilities and talents with their land, their community, and their markets. This requires a higher level of understanding of
themselves, their capabilities, their values, and their purpose in life. This requires a higher level of understanding of consumer tastes and preferences and of the uniqueness of relationship markets. This requires a higher level of understanding of the land and of nature’s productive processes. In general, sustainable farming requires more intensive resource management – more thinking and creativity per acre of land or dollar of investment. Farming sustainably is very much in harmony with a knowledge-based paradigm for future human progress – the post-industrial era of human development.

Wendell Berry, a Kentucky farmer, has clearly articulated the connections among people, the land, and sustainable agriculture.

"...if agriculture is to remain productive, it must preserve the land and the fertility and ecological health of the land; the land, that is, must be used well. A further requirement, therefore, is that if the land is to be used well, the people who use it must know it well, must be highly motivated to use it well, must know how to use it well, must have time to use it well, and must be able to afford to use it well" (p. 147).

The words of Wendell Berry, the farmer and writer, are completely consistent with Peter Drucker, the industrial business consultant and writer,

"In the knowledge society into which we are moving, individuals are central. Knowledge is not impersonal, like money. Knowledge does not reside in a book, a databank, a software program; they contain only
information. Knowledge is always embodied in a person, carried by a person; created, augmented, or improved by a person; applied by a person; taught by a person, and passed on by a person. The shift to the knowledge society therefore puts the person in the center (p. 210)."

Sustainable agriculture, the new vision for the future of agriculture, is a knowledge-based approach to meeting the food and fiber needs of society that decreases the importance on capital and technology by putting people at the center of productivity.

The New Sustainable Farm

This new paradigm for agriculture is being developed by thousands of farmers all across the American continent and all around the world. These farmers are developing the replacement for the old industrial model of agriculture. They are developing a new pattern for farming in the future. Farming sustainably is no simple task, but thousands of farmers are finding ways to succeed. They may carry the label of organic, low-input, alternative, biodynamic, holistic, permaculture, or no label at all, but they are all pursuing common economic, ecological and social goals. By their actions, these farmers are defining a new kind of farming.

These farmers, not the experts or the scientists, are the ones on the new frontier – they are the explorers, the colonists, the revolutionaries, and the builders. As on any frontier, life is difficult because no one really knows how to do what these folks are trying to do – they are creating the future. They are getting little help from the government, their universities, or the
agricultural establishment. They are doing it pretty much on their own. They will continue to confront hardships, frustrations, and there will be some failures along the road. But, more and more of these new farmers are finding ways to succeed.

These new farmers are diverse, but they also share much in common. First, they share a common pursuit of a higher self-interest. They are not trying to maximize profit, but instead are seeking sufficient profit for a desirable quality of life. They recognize the importance of relationships, of family and community, as well as income, in determining their overall well-being. They accept the responsibilities of ethics and stewardship, not as constraints to their selfishness, but instead, as opportunities to lead successful lives.

There are no blueprints for this new way of farming. But a few fundamental principles are beginning to emerge. In general, the new farming opportunities arise directly from exploiting the weaknesses resulting from misuses of industrialization -- specialization, standardization, and centralized decision making. The new farm relies instead on the advantages of diversity, individuality, and decentralized networks of interdependent decision-makers.

New farmers focus on working with nature rather than against it. The natural resource base that ultimately must sustain productivity is inherently diverse. Industrial systems have had to bend nature – to augment, supplement, alter, and force it -- to create an allusion of conformity out of diversity in order to meet the demands of large-scale, industrial production. The ecological problems arising from industrialization are symptoms of natural resources being used in ways that are inherently degrading to their productivity. Thus, industrialization has created tremendous opportunities for farmers who learn to utilize the inherently productive capacity of a diverse natural resource base, rather
than wasting time and money trying to force nature to conform.

These new farmers utilize practices such as management intensive grazing, integrated crop and livestock farming, diverse crop rotations, cover crops, and inter-cropping. They manage their land and labor resources to harvest solar energy, to utilize the productivity of nature, and thus, are able to reduce their reliance on external purchased inputs. They are able to reduce costs and increase profits while protecting the natural environment and supporting their local communities.

These new farmers focus on giving consumer full value – giving them what they want. They realize that each of us value things differently, as consumers, because we have different needs and different tastes and preferences. Industrial methods are efficient only if large numbers of us are willing to settle for the same basic goods and services – so they can be mass-produced. So, industrialization has to treat us as if we are all pretty much the same. Customers have to be persuaded, coerced, and bribed to buy the same basic things rather than the things they really want. That’s why we pay more for packaging and advertising of food than we pay to the farmers who produce the food. The industrial system creates tremendous untapped opportunities for farmers who can tailor their products to conform to unique needs and preferences of individual customers, rather than try to bend the preferences of customers to conform to their products.

New farmers market in the niches. They market direct to customers through farmers markets, roadside stands, CSAs, home delivery, or by customer pick-up at the farm. They use everything from the Internet to word-of-mouth to advertise their services. They market to people who care where their food comes from and how it is produced – locally grown, organic, humanely raised, hormone and antibiotic free, etc. They are often able to avoid some or all of the processing, transportation, packaging, and marketing costs that make up 80 percent of the total cost
of mass marketed foods. They increase value, reduce costs, and increase profits while protecting the environment and helping to build stronger local communities.

New farmers focus on what they can do best. They realize that we are all different -- as producers as well as consumers. We have widely diverse skills, abilities, and aptitudes. Industrialization has had to bend people -- train, bribe, and coerce -- to make them behave as coordinated parts of one big machine rather than as fundamentally different human beings. Many problems of today’s society are symptoms of people being used by industrial systems in ways that are inherently degrading to our uniquely human productive capacities. Industrialization has left tremendous untapped economic opportunities for farmers and others who can use their unique capacities to be productive rather than attempt to conform to systems of production that just don’t fit.

These new farmers may produce grass finished beef, pastured pork, free range or pastured poultry, heirloom varieties of fruits and vegetables, dairy or milk goats, edible flowers, decorative gourds, or dozens of other products that many label as agricultural “alternatives.” They find markets for the things they want to grow and are able to grow well rather than produce for markets where they can’t compete. Or they may produce fairly common commodities by means that are uniquely suited to their talents. Their products are better, their costs are less, and their life is better because they are doing the things that they do best. New farmers focus on creating value through uniqueness – among consumers, among producers, and within nature.

In general, new farmers link people with purpose and place. By linking their unique productive capacities with unique sets of natural resources to serve the needs and wants of unique groups of customers they create unique systems for meeting human needs that cannot be industrialized. The more unique their combinations of person, purpose, and place, the
more sustainable will be the value to customers and producers alike. The sameness of industrialization creates opportunities for unique farmers who can create unique linkages with both resources and customers.

Is Organic Farming Sustainable?

Many people seem to equate sustainable agriculture with organic farming. The two concepts certainly are related, but they are not the same. The recent rapid growth in organic markets has attracted the attention of many conventional farmers. Growing organic markets and organic price premiums also have attracted the attention of the giant agribusiness corporations. The Hudson Institute’s Dennis Avery and a few other high-input junkies not withstanding, organic production has gained in both interest and credibility. The “o-word” – a curse word in the agricultural establishment a few years ago – has become almost an “in-word.”

Unfortunately, the “S-word” remains a curse word in the vocabulary of most folks in the agricultural establishment – including many university people. Sustainability is OK if it means a profitably, environmentally sound agriculture. Even Monsanto and DuPont have their “sustainable agriculture” programs. But, once you start bringing in the social issues – family farms, rural communities, quality of life, ethics and values – the establishment abandons sustainability. They have grudgingly accepted the fact that an agriculture that uses up its resource base and pollutes its environment is not sustainable. But, they claim industrial systems can be environmentally friendly. They balk at accepting the social dimension of sustainability, because any claims they might make of being socially responsible would not be credible. They want to sustain agriculture, and their own profitability, but feel no responsibility to sustain people through agriculture. They reject the mandate for a socially responsible agriculture, because industrial systems are quite simply not socially responsible.
They are interested in organic markets, only if they can convince the organic movement to shed its “social baggage.”

Up to this point in time, organic farming and sustainable agriculture have generally traveled the road of enlightenment and progress together. Organic farming is as old as agriculture. However, history indicates that organic – in and of itself – does not ensure sustainability. Civilizations have risen from fertile lands only later to fall when nutrients were depleted or crops were destroyed by pests – while using farming systems that were “organic,” in the sense of no commercial inputs were available. Thus, “organic” systems are not inherently sustainable. However, many still believe that ultimately all sustainable systems must be organic, even if all organic systems are not sustainable.

The sustainable agriculture movement evolved out of the organic community a decade or so ago. The evolution was an attempt to widen the circle of people involved in the search for systems of farming that will last, and thus, will be sustainable over time. The early organic advocates of sustainable agriculture probably still believe that all sustainable systems will be organic, but they have been willing to accept those taking alternative means in hopes of reaching a common end.

Advocates of organic and sustainable agriculture have generally agreed on purpose and principles, even if not always on means or methods. The generally accepted purpose of sustainable agriculture is to meet the needs of the present, while leaving equal or better opportunities for the future. General agreement also exists concerning the principles of sustainability. Most agree that sustainable systems must be ecologically sound, economically viable, and socially responsible – that all are necessary and none alone or in any pair is sufficient. Up to this point, organic and sustainable have been held together by purpose and principles, but their continuing in harmony may be in jeopardy.
Historically organic farming has been as much a philosophy of life as a method of production. Organic farming methods are based on nature’s principles of production – on farming in harmony with nature rather than trying to conquer nature. Diverse farming systems which integrated crops and livestock enterprises are designed to capture solar energy, to recycle waste, and to regenerate the soil. Organic farmers also believe in living in harmony with other people – in cooperating rather than competing. Healthy food, a healthy environment, caring communities, and a strong society are considered natural products of pursuing an organic farming philosophy.

However, many of the new organic farmers, or would-be organic farmers, see organic mostly, if not purely, as a matter of economics. Some conventional farmers brought land out of the Conservation Reserve Program (CRP). Much of this land had no pesticides or inorganic fertilizer applied to it in more than three years, and thus, could qualify quite easily for organic farming. Other conventional farmers were going broke producing basic commodities and were looking for any profitable alternative. Large-scale, corporate farming operations saw organic as a growth market to be exploited for as long as it lasts. The early organic standards debates over use of biotechnology, sewage sludge, and irradiation were all reflections of conventional and industrial interests in organic farming. Thus, many conventional farmers and corporations alike seem to be looking at the organic production as an immediate, short-run economic opportunity. They do not see organic as a means to the end of a more sustainable agriculture.

Even the traditional “organic community” is no longer of one mind. Most agree that they want to protect their markets from industrialization. But they don’t necessarily agree on whether organic markets should remain niche markets or become mass markets. If organic markets become mass markets, they eventually will become industrialized markets. And industrial production is inherently unsustainable – regardless of the inputs
and practices approved or used. The materials and methods may be organic but the paradigm for production will be industrial. Allowable materials and methods will be changed over time, if necessary, to accommodate the industrial paradigm. It makes little difference whether “industrial organic” systems emerge as existing organic producers become corporate giants or as current corporate giants capture the market. Neither will be sustainable.

National organic standards are almost certain to lead to industrialization of a substantial segment of the organic market. National standardization will allow those who can meet the minimum standards at the lowest “dollar and cent cost” to prevail – which almost certainly will be the industrial, mass producers. The most critical element of the recent certification debate was whether state and non-government entities would be allowed to maintain their own certification programs, and that individuals be allowed to truthfully label whatever they offer for sale. Without such rights, all organic markets will become industrial, mass-markets. But even the maintenance of organic niche markets does not ensure the sustainability of organic production. Those who are driven mostly, or solely, by the promise of profits from niche markets – ignoring their ecological niches or places of production – also will threaten its sustainability.

For production to be sustainable, the system must be ecologically sound as well as profitable and socially responsible. The process of production must be compatible with the ecology of the place of production. Niche markets will be sustainable only if the means of production are tailored to conform to their ecological niches. Those who violate the ecological principles of sustainability will not be able to sustain their uniqueness, and ultimately will not be able to sustain profitability.

However, those organic farmers who continue to pursue organic farming as a means for sustainability will continue to travel the road of
enlightenment and progress. Those who continue to pursue organic farming as a philosophy of life, rather than just a business, will continue to find a life of quality. They will help build an agriculture that is ecologically sound and socially responsible, as well as economically viable. They will continue to realize a higher quality of life – personally, interpersonally, and spiritually, as they remain true to the purposes and principles of sustainability.

### A Matter of People

Sustainability is fundamentally a matter of people. Sustainable agriculture promotes smaller, more-diversified family farms because of its focus on people. Sustainable agriculture promotes greater concern among people – people making conscious, purposeful decisions for the common good rather than relying on the impersonal forces of the marketplace. The *invisible hand* of theoretical economics that is supposed to transform individual greed into the common good has been mangled in the machinery of corporate industrialization. The markets will not ensure that the hungry will be fed. The markets will not ensure that people willing to work will have an opportunity to work. The markets will not ensure that future generations will have adequate resources for food, clothing, and shelter. The only way to ensure that the needs of the present and future are met is for people to make conscious, purposeful decisions to care for the natural environment and to care for other people.

If agriculture is to be sustainable, we must have enough people on the land to sustain the productivity and ecological health of the land. Thus, sustainability will require more, rather than fewer, farmers – more who understand their particular parcel of land, who know how to take care of it, who are motivated to care for it, and who have the time and money to care for it well. A smaller farm may leave more time for people to care about each other and care for the land. In a sense, sustainability demands
that farmers “love the land.” And, each farmer can “love” only so much land.

In general, the new sustainable farmers must put more of themselves into their farms – as managers, workers, neighbors, friends, family – as people. But farming in harmony, economically, socially, and ethically, allows the farm, the farmer, and the family to become part of the same whole. So, there is no conflict between the personal, interpersonal, and spiritual because they work in harmony for a common purpose – to achieve a higher self-interest. A measure of economic success is necessary for harmony and balance, but getting wealthy is not a priority.

New farms for the new century will center on people. New farmers will rely far more on knowledge than on capital or technical inputs. Knowledge is not impersonal, like money or technology. Knowledge does not reside in a book, a databank, or a software program – these things contain only information. Knowledge is always discovered by a person, enhanced by a person, taught by a person, and put to use by a person. The transition to the knowledge-based society will bring people back to the center of society and will bring people -- farmers, customers, citizens, -- back to the center of farming.

What guarantee do we have that these new farmers will succeed? There are no guarantees, but there most certainly is hope. To quote Vaclav Havel; writer, reformer, and President of the Czech Republic:

“Hope is not the same as joy when things are going well, or willingness to invest in enterprises that are obviously headed for early success, but rather an ability to work for something to succeed.
Hope is definitely not the same thing as optimism. It's not the conviction that something will turn out well, but the certainty that something makes sense, regardless of how it turns out.
It is this hope, above all, that gives us strength to live and to continually try new things, even in conditions that seem hopeless.

Life is too precious to permit its devaluation by living pointlessly, emptily, without meaning, without love and, finally, without hope."

Even when things don’t seem to be going well, and when it’s obvious that success is going to require a lot of time and effort, as long as we are able to keep working and thinking, there is hope. Even when we have no logical reason to be optimistic, when we are not sure that things will ever turn out well, if what we are doing makes sense, there is still hope. It’s this hope that gives us the strength and courage to try to make the world a better place, even if others think our cause in hopeless.

Life is too precious to permit its devaluation by living pointlessly, emptily, without meaning, without love and, finally, without hope.

REFERENCES


Farming in Harmony

John Ikerd
University of Missouri

Presented at farmers’ cooperative marketing meeting in Lancaster County, PA, July 11, 2000.

The history of the human race is a history of conflicts – conflicts among people and conflicts between people and nature. While people of all races, creeds, and nations loudly proclaim their desire to live in peace and harmony, their actions invariably promote continuing conflict. We seem to believe, if only other people would come to accept our beliefs, values, and ways of thinking and acting, there would be no conflict. We could live in harmony. If only we could overcome the natural human ills – hunger, thirst, cold, disease, aging, etc. – there would be no conflict with nature. We could live in harmony. We want harmony, but harmony on our terms – and this is the source of our continuing conflict.

In Conflict with Nature
Much of human history has been written as an ongoing struggle of “man against nature.” The forces of nature – wild beasts, floods, pestilence, and disease -- have been cast in the role of the enemy of humankind. To survive and prosper, we must conquer nature – kill the wild beasts, build dams to stop flooding, find medicines to fight disease, and use chemicals to control pests. Humans have been locked in a life and death struggle against “Mother Nature.” We’ve been winning battle after battle. But, we’ve been losing the war.

We humans have killed so many “wild beasts” that non-human species are becoming extinct at an unprecedented rate – except in prehistoric times now labeled as global catastrophes. It’s clear that humans cannot survive – nor might we want to survive – as the only living species on earth. How many more species can we destroy before we lose more than
we can afford to do without? How many more battles with Mother Nature can we afford to win?

We have dammed so many streams the sediment that once replenished the topsoil of fertile farmland through periodic flooding now fills the reservoirs of lakes instead. Populations of fish and wildlife that once filled and surrounded free flowing streams, and fed the people of the land, have dwindled and disappeared. Floods may come less often now, but when nature really flexes its muscles, as it did in the Midwest in 1993 and 1996, nothing on earth can control the floods. How many more streams can we afford to dam? How many more battles with Mother Nature can we afford to win?

We have wiped out plague after plague that has threatened humankind, and we now lead longer, presumably healthier, lives than ever before. But new, more sophisticated diseases always seem to come on the scene as soon as the old ones are brought under control. We may live longer, but that doesn’t necessarily mean we are healthier. Much of the medicine we take today is to treat the symptoms caused by the medicines we take. On average, we Americans spend more money for health care than we spend for food. How long can our new cures keep ahead of new diseases? How many more medical miracles can we afford? How many more battles with Mother Nature can we afford to win?

We can quite easily kill most insects, diseases, weeds, and parasites using modern chemical pesticides. This has allowed us to realize the lower food prices brought about by a specialized, mechanized, standardized, industrialized agriculture. But we still loose about the same percentage of our crops to pests as we did in earlier times. In addition, health concerns about pesticide residues in our food supplies and in our drinking water are on the rise. How many more pests can we afford to kill before we kill ourselves? How many more workers can we displace before we displace ourselves? How many more battles with Mother Nature can we afford to win?
Every time we think we have won a battle, nature fights back. Nature always seems ready for the counterattack. And, people are beginning to lose faith in “man’s” ability to ever conquer nature. They are concerned about whether we can win the battle with the next flood, the next disease, or the next pest that we create with our efforts to control the last one. They are concerned with their own safety, health, and well being. But, they are concerned also about the sustainability of a human civilization that continues to live in conflict with nature. They fear we cannot win our war against nature, because we are a part of nature – the very thing we are trying to destroy. They are searching for ways to find harmony with nature – to sustain the nature of which we are a part.

Conflicts among People

Much of human history has been written as an ongoing struggle of “man against man.” The Bible and other great books tell stories of continuing conflict among families, tribes, and nations going back to the beginning of recorded human history. Prehistoric fossils provide scientific verification that people have been fighting and killing other people, for as long as there have been people on the earth. After each victory, there is always another war.

Human history tends to glorify conflict. Warriors are listed prominently among the great figures in human history – Alexander the Great, Julius Caesar, Genghis Kahn, and Napoleon Bonaparte – just to name a few. American history began with the Revolutionary War, but the War of 1812, the Civil War, the Spanish American War, the First and Second World Wars, the Korean and Vietnam Wars are all prominent in American history. In places like the Middle East it seems that war has been going almost continuously forever. National leaders are almost invariably the heroes of past wars, and each war provides both sides with “justification” for the next war. Wars obviously are destructive, but yet we continue to fight. We rationalize that if we can only win this next war, we will achieve,
or at least move closer to, lasting peace and harmony. But, history proves that wars never end wars. After each victory, there is always another war.

War certainly is not the only expression of human conflict – perhaps not the most important or even the most destructive. Conflicts among individuals may take the form of disagreements, arguments, assaults, and even murder. These personal conflicts are more pervasive through society at all times, and thus, may be more destructive than are wars. But, perhaps even more destructive, if in less violent ways, is the inability of people to relate to each other in positive ways within families, communities, and societies. Because of our lack of sensitivity and understanding – our inability to communicate, to compromise, to collaborate, to cooperate – we live lives of continual disharmony. Disharmony is destructive, yet we continue to live in conflict. After each victory, there is always another fight.

Perhaps it should come as no surprise that we have chosen an economic system that is based on conflict rather than cooperation. The foundation of a capitalistic economy is competition – organized conflict. Adam Smith, the father of capitalism, observed that as each businessperson pursued their individual self-interest, competing freely with each other, they also served the greater good of society. Their pursuit of self-interest was transformed into serving the public interest, as if “by an invisible hand.” All they had to do was to compete with each other.

The capitalistic concept of competition is very impersonal in nature. In order for competition to work for the good of society, for example, buyers and sellers must be sufficiently large in number and small in size so that no individual buyer or seller can have any measurable impact on his or her competitors. In other words, any buyer or seller could double their sales or purchases, or drop out of the market completely, and it would have no noticeable effect on market supplies or price. However, even this impersonal kind of competition can be destructive.
Agriculture provides a prime example of the destructive nature of market competition. The number of farmers in the U.S. has dropped by more than two-thirds, from over 6 million to less than 2 million, in the past 65 years. In addition, in the 1930s most farm families relied on farming for a major part of their household income, whereas today those classified as farmers receive far more income from off-farm sources than from farming. Most families did not leave farming by choice; they were forced off the farm by the impersonal forces of market competition. Even those who choose some other occupation after growing up on a farm, made their decision after comparing their experiences in a farm economy that was continually forcing people off the farm with a non-farm economy that was continually luring people into the industrial workplace. Farming in the U.S. has been an occupation characterized by hard work, undesirable working conditions, low pay, with dim prospects for the future, simply because we have chosen an economic system that gives a higher priority to production than to people and higher priority to competition than to cooperation. After each victory, there is always another battle for survival to fight.

New technologies were designed specifically to allow fewer people to produce more food and fiber at a lower cost to consumers. Farmers adopted these new technologies because they represented an opportunity to reduce their production costs and increase profits. However these new technologies invariably lead to increased production and lower farm commodity prices, erasing any potential for sustained profitability. Lower farm level prices eventually would be passed on to the consumer – the “invisible hand” working for the benefit of consumer. But, for the surviving farmers, there was always another battle to fight.

Historically, agricultural markets have been economically competitive – any individual farmer could have doubled production or have gone out of business without having any noticeable effect on overall supplies or
prices. However, as more and more farmers “individually” adopted these production-enhancing technologies, their actions “collectively” caused prices to fall. Since each farmer could now produce more than before, there was room for fewer farmers than before. Only those who adopted the technologies first realized any profit. Those who adopted later were simply trying to survive. Those who adopted too late were forced out of business. Their farms were bought, combined with other farms, and made into the larger farms needed to realize the full benefit of the new production enhancing technologies. Competition forced some farmers to fail and others to get larger. The forces of a competitive market place had predetermined their destiny. There were always fewer survivors than before and, always, another battle to fight.

While consumers may have benefited from lower prices for food and fiber, farm families and rural communities have had to suffer the negative consequences of disruption and dislocation. Farmers have been forced to abandon the occupation for which they had spent a lifetime preparing – the occupation that many had loved – and to suffer the emotional and financial stress of personal and economic failure. As families were forced off the land, there were fewer people to by groceries, clothes, and hardware in town, fewer people to go to school and church, fewer people to serve in local government, join civic organizations, and rural communities withered and died. Competition may have improved the economic efficiency of food production but it created conflict and disharmony within families, within communities, within society as a whole, and people suffered. We may have chosen to ignore the suffering, but that doesn’t diminish its reality. Conflict leads to suffering, and to still another battle to fight.

More recently, agriculture has followed the rest of the economy, moving beyond capitalistic competition to corporate control. We no longer have capitalism in the U.S.; we have evolved to “corporatism” instead. Large, publicly held corporations have dominated many sectors of the U.S.
economy for decades. They are so large and so few in numbers as to make a mockery of Adam Smith’s conditions for effective capitalism. None of the critical assumptions needed for the “invisible hand” to transform individual greed into societal good hold in today’s economy. Economically competitive markets require not only large numbers of small buyers and sellers, but require freedom to get into and out of business, consumer access to accurate product and price information, absence of superficial product differentiation, and perhaps most important, consumer sovereignty – no efforts to manipulate consumer tastes and preferences. None of these conditions hold in today’s corporate dominated markets.

Agriculture today is in the final stage of industrialization – corporate control of decision-making. Increasingly surviving agricultural producers are being forced to resort to comprehensive production contracts to survive – which reduces them to the status of landlords and contract laborers. The one who makes the important decisions ultimately reaps the benefits of any business activity. The corporations are making the important decisions in agriculture today, and the corporations ultimately will reap the rewards.

Conflicts created by corporatization are even more violent and destructive than are those created by capitalistic competition. Corporations compete head-to-head, with individuals and with other corporations. Corporations realize full well that they have to drive others out of business in order to make profits and grow. And profits and growth are the only motives a corporation can have, once management becomes separated from ownership. Corporations are not human. They have no compassion, no sense of ethics, no morality, in their dealings with others. Thus people who work for corporations, who are compassionate, ethical, and moral in their personal lives, work in continuous conflict with the corporation that pays their salary. Unlike capitalistic competition, corporate conflict is up front, out in the open, it is a “dog-eat-dog” world out there – and corporate executive brag about their “battles” for market share and domination.
And, each victory is always followed by still another battle.

Conflicts arising from corporatism promise far more suffering and destruction in the future that we have seen from capitalism in the past. Yet we allow the destruction to continue. We have been “brainwashed” into believing that the only thing that matters, or at least that matters most, is that the economy continues to grow – so there will be more jobs and bigger pay checks, so we can buy more “things.” We have been persuaded, shamed, bribed, and coerced into believe that the only thing that can make human life better, for ourselves and for others both now and the future, is a stronger economy. The rallying cry of recent presidential campaigns has been: “It’s the economy, stupid.” Relationships don’t matter, nature doesn’t matter, all that matters is that we are able to buy more “cheap stuff.”

But relationships do matter and nature does matter. More “cheap stuff” can never offset the destruction that results from a dysfunctional society with no sense on caring and compassion for each other and with no sense of morality or stewardship responsibility for those of the future. Thankfully, more and more people are beginning to awaken to the suffering and destruction that arises from continuing conflict.

Activist groups all across society, both in the U.S. and around the World, are calling for the development of a more sustainable society – a society that is ecologically and socially responsible, as well as economically viable. Some activists may emphasize social justice, others environmental protection, and others economic democracy. But more and more are beginning to realize that focusing on sustainability is the key to the positive transformation of human society. We can’t sustain economic progress unless our economic system is also ecologically sound and socially responsible. We can’t sustain our natural resource base unless our ecological systems are socially acceptable and economically viable. We can’t sustain social justice unless our social systems are also
economically viable and ecologically sound. Once we are able to replace tradeoffs and conflict with balance and harmony – among things economic, ecological, and social – we will be able sustain human live and progress on earth. We will have achieved a victory after which there need be no more wars.

A New Paradigm for Harmony
A new paradigm or model for working and living in harmony with nature and among people is arising under the conceptual umbrella of sustainability. Sustainable systems must be capable of meeting the needs of those of us of the present generation without compromising the ability of future generations to meet their needs as well. In simple terms, sustainability means applying the Golden Rule across generations. It’s about short run, self-interest, meeting our needs at present, but it’s also about shared-interest, meeting the needs of others both now and in the future. Sustainability requires that we find harmony between others and ourselves now, as well as harmony between those of us of the present and those of the future. Sustainability requires that we live in harmony.

The sustainable agriculture movement is but one small part of a far larger movement that is transforming the whole of human society. But the sustainability of agriculture is critical to the sustainability of society. A society that cannot feed itself quite simply is not sustainable. Human civilization is moving through a great transformation from the technology-based, industrial era of the past to a knowledge-based, “sustainable” era of the future. Agriculture is moving through a similar transition.

In contrast to sustainability, the competitive economic model is based on the assumption that the welfare of people is in conflict with nature. People have to harvest, mine, and otherwise exploit nature to create more goods and services for consumption, for ourselves. The corporate, industrial model is based on the economic assumption that the welfare of people depends on competition. People and corporations must compete with
others for the rewards that come from serving the needs of humanity, and those who win the competition have served humanity best. Human productivity is defined in terms of one’s ability to produce goods and services that will be bought and consumed by others. Quality of life is viewed as a consequence of consumption – something we can buy at “Wal-Mart or Disney World.” The more we produce, the more we earn, the more we can consume, and the higher our standard of living. The more we can take from nature and each other, the higher our quality of life.

The sustainable model is based on the assumption that people are multidimensional – that we are physical, mental, and spiritual beings. We have a mind and soul as well as a body. All three determine the quality of our life -- what we think and what we feel as well as what we consume. A life that lacks harmony and balance among the physical, mental, and spiritual is not a life of quality. The industrial model has focused on the physical body, the self -- getting more and more to consume. The sustainable model focuses on finding harmony among all three – the physical, mental, and spiritual – on leading a life of balance and harmony.

Spirituality is not synonymous with religion. Spirituality refers to a felt need to be in harmony with some higher unseen order of things – paraphrasing William James, a well-known religious philosopher. Religion, at its best, is simply one means of expressing one’s spirituality. Spirituality assumes a higher order to which humans must conform – if we are to find peace. Harmony cannot be achieved by changing the “order of things” to suit our preferences. Harmony comes only from changing our actions to conform to the “higher order.” A life lived in harmony is its own reward.

A sustainable agriculture must be economically viable, socially responsible, and ecologically sound. The economic, social, and ecological are interrelated, and all are essential to sustainability. The
three are as inseparable as are the height, width, and length dimensions of a box. A system that lacks any one of the three is not sustainable, just as an object that lacks a height, width, or length dimension is not a box.

An agriculture that uses up or degrades its natural resource base, or pollutes the natural environment, eventually will lose its ability to produce. It’s not sustainable. An agriculture that isn’t profitable, at least over time, will not allow its farmers to stay in business. It’s not sustainable. An agriculture that fails to meet the needs of society, as producers and citizens as well as consumers, will not be sustained by society. It’s not sustainable. A sustainable agriculture must be all three – ecologically sound, economically viable, and socially responsible. And the three must be in harmony.

Some see sustainability as an environmental issue. It is an environmental issue, but it is much more. Any system of production that attempts to conquer nature will create conflicts with nature, will degrade its environment, and will risk its long run sustainability. Our current corporate, industrial agriculture epitomizes a system of farming in conflict with nature. The fundamental purpose of agriculture is to convert solar energy into products for human food and fiber. Industrial agricultural systems use up more energy in the form of fossil fuels than they capture as solar energy from the sun. Nature provides efficient biological means of converting solar energy into living plants and animals. Nature provides the means by which things come to life, protect themselves, grow to maturity, reproduce, and die to be recycled to support a future generation of life. Agriculture is an attempt to tip the ecological balance in favor of humans relative to other species – that’s its fundamental purpose. But, if we attempt to tip the balance too far, too fast, we will destroy the integrity of the natural system of which we are a part. A sustainable agriculture must be in harmony with nature.

A sustainable agriculture also must be in harmony with people. Since
people are a part of nature, with a basic nature of our own, a sustainable agriculture must also be in harmony with human nature. A socially sustainable agriculture must also provide an adequate supply of food and fiber at a reasonable cost. Any system of agriculture that fails this test is not sustainable, no matter how ecologically sound it may be. But “man does not live by bread alone,” and a socially responsible agriculture must contribute to a positive quality of life in other respects as well.

The industrial system of farming has destroyed the family farm as a social institution, has caused rural communities to wither and die, and has changed the social impact of agriculture on society in general from positive to negative. A sustainable agriculture must meet the food and fiber needs of people, but it cannot degrade or destroy opportunities for people to lead successful, productive lives in the process. A sustainable agriculture must be in harmony with our nature of being human.

Finally, a sustainable agriculture must find harmony with the human economy. The greatest challenge to farming in ways that are ecologically sound and socially responsible is in finding ways to make such systems economically viable as well. Certainly, there are many win-win situations in farming, where the economic performance of a farming operation can be improved by taking care of the natural resource base and providing meaningful employment for people producing things that other people really need. A farm can be profitable and productive without exploiting either the natural environment or other people. But, a producer cannot “maximize” profits in the short run without exploiting the natural environment and exploiting other people. Humans can choose to take care of the environment and show concern for other people, even if it limits their short run profits and growth. But, publicly held corporations cannot. Corporations have no choice but to “maximize” profits and growth. Our current economy favors corporate systems that exploit their natural and human environment for short run gains.
Those individuals who choose to protect the natural environment must sacrifice any economic opportunity that might result from exploiting it. Those who show concern for the well being of other people – workers, customers, or neighbors – must sacrifice any economic opportunity that might result from exploiting them. So it might seem that some sacrifice in short run well being is necessary to achieve long run ecological and social sustainability – but it is not.

Conventional thinking assumes the relationship among the environment, social, and economic wellbeing is a trade-off relationship – that one can have more of one only by sacrificing some of the others. However, this represents a highly materialistic worldview. It assumes if someone gets more of something, then someone else must sacrifice. This materialistic worldview ignores the fact that we can gain satisfaction, for ourselves, right now, by doing things for others and by saving things for future generations – just because we know these are the right things for to do. Our satisfaction is not dependent on realizing the expectations of some future personal rewards – the reward is embodied in the current action rather than the future outcome. There is inherent value in living and working in harmony. Getting more of one thing without having more of the others only creates imbalance and disharmony – making us worse off rather than better off.

However, the necessity for economic viability is a very real concern – even for those who pursue harmony rather than material wealth. If our endeavors are not economically viable, we lose the right to pursue those endeavors. But, how can a person make a living farming without degrading either the natural environment or the surrounding community? Industrial farming sets the standard for dollar and cent costs of production – and industrial farming exploits its natural and human resource base to keep those costs to a minimum. How can a sustainable farmer compete? The answer is not to compete with industrial farming but to do something fundamentally different.
This something different includes letting nature do more of the work of production – working with nature rather than against it. Production costs may be competitive with, if not lower than, industrial systems if you let nature do enough of the work. Organic production methods, management intensive grazing, pastured pork and poultry, low-input farming -- these are all systems that rely less on off-farm commercial inputs and more on one’s ability to understand and work with nature. Industrial systems require uniformity and consistency, but nature is inherently diverse and dynamic. Harmony comes from matching what you produce and how you produce it to the unique ecological niche in which you produce. The greater the harmony the more of the work nature will be willing to do.

Finding harmony means reconnecting with the land. Wendell Berry puts it most succinctly in his book, *What are People For,* "...if agriculture is to remain productive, it must preserve the land and the fertility and ecological health of the land; the land, that is, must be used well. A further requirement, therefore, is that if the land is to be used well, the people who use it must know it well, must be highly motivated to use it well, must know how to use it well, must have time to use it well, and must be able to afford to use it well (p. 147)." Sustainable production is possible only if farmers have a harmonious relationship with the land – if they know it, care about it, know how to care for it, take time to care for it, and can afford to care for it – only if they love it.

Something different also means marketing in the niches – giving people what they really want rather than coercing or bribing them to take what you have for sale. The conventional wisdom is that niche markets are limited because individually they are small. The conventional wisdom is wrong. All consumer markets are niche markets, because they are made up of individuals, and we all want and need something a bit different. Industrial systems of mass production and mass distribution treat things as if they were pretty much the same. The cost saving in industrial
systems come from doing the same basic thing over and over again – producing uniform commodities in large volume. Niche marketing means giving people what they actually need and want – producing in harmony with the market.

Finding harmony means reconnecting with people – as fellow human beings rather than as consumers, producers, or some other generic economic entity. Joel Salatin, a Virginia farmer and agripreneur recently featured in the Smithsonian Magazine, refers to this as “relationship marketing.” When you have a relationship with your customers, they do not simply represent a market to be exploited to make a few more dollars. They are friends and neighbors that you care about and don’t want to lose. When your customers have a relationship with you, you are not just another supplier to be haggled down to the lowest possible price to save a few dollars. You are someone they care about and don’t want to lose. When you know, care about, and have affection for each other, you have a relationship that creates value above and beyond market value. You are contributing directly to each other’s quality of life. You are creating a harmony that arises only among people who love one another.

Neither land nor people can be sustained unless they are given the attention, care, and affection – the love -- they need to survive, thrive, and prosper. The necessary attention, care, affection, and love come only from lives lived in harmony -- among people and between people and nature.

Finally, as more farmers and customers, sharing common concerns for ecological and social sustainability, develop relationships through the marketplace, their economic communities of interest will expand as well. Customers will be willing to pay more and farmers will be willing to provide more because they are both getting more from the relationship than just money. Those who might attempt to exploit these new economic communities for short run gains – those motivated by economic value
rather than ethical or moral values – are destined to find disappointment. Those who join in seeking balance among the economic, ecological, and social dimensions of their lives – among the physical, mental, and spiritual – will be rewarded. They are helping to create a New World in which people may learn to live in harmony with each other as well as in harmony with nature.
The focus of this conference on reconnecting consumers and farmers through issues related to food and the environment seems particularly relevant to this particular point in time in American culture. We have become a nation of disconnected people who deal with each other only indirectly – through markets, through agents, or through lawyers and courts. Our relationships are defined by transactions, contracts, and laws rather than by common interests, commitment, and trust. Our disagreements are addressed through argument, arbitration, and lawsuits rather than through honest discussion of our differences. Truly personal relationships, based on believing, trusting, caring, and sharing, are labeled as naïve or idealistic. We Americans seem to have lost our sense of personal connectedness. We need to reconnect with each other throughout our society, if we are to retain our national identity – our sense of shared values, of being something more than a collection of individuals that happen to be living in the same country.

Nowhere is our disconnectedness more evident than in our systems of food and farming. Most consumers, particularly younger consumers, have no sense of where their food actually comes from. They may know that farmers grow crops and livestock, and that someone processes and packages these crops and delivers food to grocery stores and restaurants, but they have little sense of what’s involved in this process. For example, few people even stop to consider that soil is essential to all of life, including human life – as essential as air, water, or sunlight. Pure air and
water alone cannot support life. All of life is rooted in the earth. Farming is the means by which we bring life from the soil. Farming, in the minds of many, conjures up some image from the past of a decent, hard working family living in rural isolation and trying to coax a living from the land. To others, farming is just like any other manufacturing process that turns raw materials into finished products. But, there is no sense of connectedness between the people who eat and farmers who tend the soil to bring forth their food.

What does it matter if people don’t understand where their food comes from? People don’t understand where their automobiles come from, or where their clothes, their houses, their movies, or anything else come from, and no one seems to be complaining about their lack of knowledge of such things. However, I believe that all disconnections among people matter, even if no one complains. The seeds of dissention are sown in the gaps of understanding and appreciation that exist among people. Conflict, frustration, depression, anger, and other miseries in life are but symptom of our disconnectedness. People have not associated the symptoms with the cause, but the cause still matters. But, it matters even more that we consumers understand our connections with farmers.

Many farmers feel a great sense of frustration that people don’t understand how life in general is connected to life in the soil and life on the land. They feel that they are virtually forced to destroy the natural productivity of the soil, to degrade the natural environment, and to destroy the social fabric of their communities, because the only thing consumers are concerned about is the price of food in the grocery store. Many farmers feel that they are being forced to value the economic bottom-line above virtually all else, above their neighbors and communities, and sometimes even above their families, because the only thing consumers care about is that food is produced as efficiently as possible. Farmers want to be good neighbors and good stewards of the land, but the competitive pressures of a consumer-driven, market economy won’t let them. Instead, they are slowly destroying the land, destroying the quality
of rural life, and ultimately will destroy the ability of the earth to support human life, all because consumers don’t understand their connectedness with the land and with the people who farm it.

Until fairly recently, nearly everyone farmed, had farmed, knew a farmer, or at least knew someone who had farmed for a living. Prior to the industrial revolution, some two hundred years ago, farming was the dominant occupation in the United States and no one was very far removed from the farm – either by distance or by personal relationships. A little as a hundred years ago around forty percent of the people in the US were farmers, and well over half lived in rural farming communities. Even during the 1950s and 1960s, most urban dwellers had either grown up on a farm or knew someone who had. It’s only within the last couple of decades that farmers and their customers have become total strangers. Today, models of working farms are set up as tourist attractions, and there is serious discussion of a national network of farming museums to give people some sense of what farming is about. But tourist attractions will not reconnect consumers with farming any more effectively than zoos connect people with the jungle. Connectedness arises from meaningful relationships.

The Causes of Our Disconnectedness
If we are to help reconnect consumers and farmers, we need to start with an understanding of how people became disconnected in the first place. It’s no coincidence that people have become disconnected during the last few decades – during the final stages of industrialization. Disconnectedness is an unintended, but inescapable, consequence of industrial approach to development.

The fundamental principles of industrialization are specialization, standardization, and centralization of decision making. When workers specialize in doing fewer things, each person can become more efficient in the task they perform, and by working with others can produce more
with less total work. By standardizing the tasks of specialized workers and standardizing the things they produce, workers and their products become interchangeable, greatly facilitating the coordination of separate specialized functions. Finally, specialization and standardization simplifies decision making processes, and makes it possible to centralize management and to consolidate large numbers of workers and functions into large business operations. Economists call this achieving economies of scale. Regardless of whether the result is assembly line production by giant automobile manufacturers or a large scale confinement animal feeding operation, the principles are the same. The gains in efficiency from industrialization result from carrying out specialized functions by standardized means under centralized management.

Our current economic system has evolved over the past two-hundred years to accommodate industrializing production and distribution processes. Again, it is no coincidence that competitive capitalism emerged as the dominant economic model during the industrial revolution. Adam Smith, in his landmark book of 1776, The Wealth of Nations, developed the blueprint for our industrial economy. He used the example of making straight-pins to illustrate the potential for tremendous gains in productivity from division of labor – specialization and standardization of production processes. But he went on to explain how free markets allowed specialized producers of food – the butcher, the brewer, and the baker – to best serve the needs of society in general by pursuing their individual self-interest.

“It is not from the benevolence of the butcher, the brewer, or the baker,” he said, “that we expect our dinner, but from their regard to their own interest. We address ourselves, not to their humanity but to their self love, and never talk to them of our necessities but of their advantages”(p. 7). Later, in reference to trade, Smith states, “he intends only his own gain, and he is in this, as in many other cases, led by an invisible hand to promote an end which was no part of his intention.” By pursuing his own interest he frequently promotes that of the society more effectually (sic)
than when he intends to promote it” (p. 199). These statements provided the foundation of the contemporary economic wisdom -- that pursuit of individual short run self-interests is transformed into achievement of the public good, as if by an *invisible hand*. The greatest societal good automatically results from the greatest individual greed.

As we have become specialized in our work, and as we have come to rely on the impersonal market place to reward us for our efforts and to make available the things we want and need, we have lost our appreciation for the value of personal connections. And, as the economy has become increasingly complex, we have become increasingly separated and disconnected from each other personally.

When America was an agrarian nation, people either produced their own food, or they bartered for or bought it from someone who had produced it. The relationship between consumer and producer was personal. As the economy became more specialized, merchants such as butchers, bakers, and brewers bought from producers and sold to consumers, and the farmer/consumer connections became one-step removed. Then came the grocery store owners, who bought from the butchers, bakers and brewers, and then, consumers were at least two-steps removed from the farm. As people left rural areas for the cities, consumers were separated by distance as well as function, and added functions such as transportation, further processing, storage, and packaging, magnified the degrees of separation. Consumers and producers alike became increasingly reliant upon the impersonal marketing system. They relied on laws to facilitate buying and selling, on grades and standards to define quality, on health requirements to ensure safety, etc. – and they relied less on personal relationships.

This same type of disconnection was occurring all across society – increasingly, people were relating to each other through the market place. Confidence, commitment, and trust were replaced by guarantees, contracts, and regulations. And when disputes arose concerning market
transactions, they were settled in the courts. The reservoirs of personal goodwill from which conciliation and consensus must be drawn were rapidly depleted. Our national disconnectedness is no coincidence with industrialization; instead, it is a direct consequence of industrialization. And equally significant, we will not become reconnected as a people until we move beyond industrialization to a fundamentally new and different era of human progress.

The Great Transition
Admittedly, if the dominant trends of the past two hundred years were to continue, there would be little hope for reconnecting people and building new partnerships. But, trends never continue, at least not indefinitely. A few years back, a couple of scientists proposed a list of the top twenty "great ideas in science" in Science magazine, one of the two most respected scientific journals in the world (Pool). They invited scientists from around the world to comment on their proposed list. Among the top twenty were such ideas as the relationship between electricity and magnetism, the laws of gravity and motion, and the first and second laws of thermodynamics. The top twenty also included the proposition that "everything on the earth operates in cycles;" everything physical, biological, social, economic – everything. Some scientists responding to the Science survey disagreed with the proposed theory of universal cycles, but most left it on their list of the top twenty great ideas in science (Culotta).

In essence, the theory of universal cycles implies that trends never continue forever. A trend is nothing more than a phase of a cycle and eventually will turn and move in the opposite direction. In reality, it’s just common sense – everything that goes up eventually comes down, and everything that goes around eventually comes back around.

In fact, many futurists, people who study trends and cycles, believe we are in a time of a great transition that will reverse the processes of
industrialization and take civilization in an entirely different direction for the future.

“We are at that very point in time when a 400-year-old age is dying and another is struggling to be born – a shifting of culture, science, society, and institutions enormously greater than the world has ever experienced. Ahead, the possibility of the regeneration of individuality, liberty, community, and ethics such as the world has never known, and a harmony with nature, with one another, and with the divine intelligence such as the world has never dreamed.”

These are not the words of a priest or a philosopher but of Dee Hock, founder of one of the largest financial institutions in the World, the VISA Corporation.

Hock is certainly not alone in this thinking. A whole host of futurists from the political and business communities, including Alvin Toffler, Vaclav Havel, Tom Peters, Peter Drucker, John Naisbitt, and Robert Reich agree that we are in a time of fundamental change. They talk and write of a shift in worldview from the mechanistic, industrial model of the past, where people derived power from control of capital and the technical means of production, to a new life-centered, post-industrial era where knowledge becomes the new source of power, of wealth, and of future human progress.

The two world views are fundamentally different. One views the world as a complex machine; the other views the world as a living organism. Factories are mechanistic in nature. They are built, they function for a time, inputs go in and outputs come out, but they eventually wear out, and must be replaced. Knowledge is biological rather than mechanical in nature – it is discovered, it changes, it grows, and multiplies over time, pretty much on its own. Living things can’t be built and are difficult to control; instead they must be nurtured and cared for. Thus, the knowledge
based era of human progress will require greater understanding of and respect for living systems, including people. The new source of power, wealth, and satisfaction with the uniquely human capabilities of people to think, to feel, and to relate to each other.

In the words of Peter Drucker, the time-honored writer and consultant to American industry:

"In the knowledge society into which we are moving, individuals are central. Knowledge is not impersonal, like money. Knowledge does not reside in a book, a databank, a software program; they contain only information. Knowledge is always embodied in a person, carried by a person; created, augmented, or improved by a person; applied by a person; taught by a person, and passed on by a person. The shift to the knowledge society therefore puts the person in the center" (p. 210).

The Agricultural Transition

The great transition is already under way. The sustainable agriculture movement is but one small parts of the great transition that is taking place all across society. The questions that are driving changes in agriculture are the same as those being asked about our economy and society as a whole – how can we meet the needs of people, all people, today while leaving equal or better opportunities for those of generations to follow?

People are losing confidence in the industrial, free-market economy. They can see that Adam Smith’s invisible hand has been mangled by industrial corporatism, and is no longer capable of transforming self-interest into societal good. We no longer have competitive markets, at least not in the economic sense to eliminate excessive profits. It’s no longer easy to get into or out of businesses to accommodate changing consumer tastes and preferences. We don’t have accurate information concerning the actual qualities of the things that we buy, but get disinformation by design in the form of persuasive advertising. Consumer sovereignty is a thing of the
past – it began disappearing when the advertising agency started hiring Ph.D. psychologists to “shape” consumer demand. None of the necessary conditions for competitive capitalism exists in today’s economy. In addition, the global economy is moving away from market coordination toward a corporate version of” central planning,” as if the only problem with the Soviet economy was a lack of sophisticated management.

Today, we have a corporatist rather than capitalist society. The concept of corporatism is not limited to the economy, but permeates the political arena as well. People have abrogated their responsibilities as citizens as well as owners of productive resources. Shareholders allow corporate executives to speak for them in the political arena through the financing of political campaigns and to their legislators in the halls of Congress. Members of labor unions, professional organizations, and all sorts of special interest groups participate in the same corporatist political processes – substituting corporatism for democracy.

In the midst of the strongest economy in decades, the people of America seem to be looking for something different – for something more than economic prosperity. More and more people seem to be concluding that even if things are OK right now, what we are doing quite simply is not sustainable. They are looking for something that will bring lasting quality to their lives. They are searching for a sustainable quality of life.

The three cornerstones of sustainability are ecological soundness, economic viability, and social responsibility. Some people treat sustainability as an environmental issue, and fail to appreciate that it rests upon a foundation of social justice and intergenerational equity. An agriculture, for example, that is not socially responsible and ecologically sound, as well as economically viable, quite simply is not sustainable over time. Sustainability applies the Golden Rule both within and across generations. We must be concerned that others have enough to eat, as we would expect them to be concerned about our lack of food. We must
treat those of future generations as we would have them treat us, if we were members of some future generation and they were the caretakers of the earth today.

Intergenerational equity has its foundation in human spirituality. Paraphrasing William James – a well-known religious philosopher – we may define spirituality as a “felt need to live in harmony with some unseen order of things.” The sustainability issue ultimately is rooted in a perceived “need to be in harmony with the order of things” – in spirituality.

Sustainable farming means farming in harmony with nature – nurturing nature rather than dominating or manipulating nature. Sustainable farming means farming in harmony with people – within families, communities, and societies. Sustainable farming means farming in harmony with future generations – being good stewards of the earth’s finite resources. However, sustainable agriculture also requires economic viability. A farm is not sustainable unless it is at least periodically profitable. However, sustainable farming systems must generate profits by fitting the methods of farming to the farm, the farmer, and the community – not forcing either to fit some predefined prescription for productivity. Sustainable farming requires that farmers reconnect with people, with people as customers, with people as neighbors, as they reconnect with the land.

Wendell Berry, a Kentucky farmer, has clearly articulated the connections among people, the land, and sustainable agriculture.

"...if agriculture is to remain productive, it must preserve the land and the fertility and ecological health of the land; the land, that is, must be used well. A further requirement, therefore, is that if the land is to be used well, the people who use it must know it well, must be highly motivated to use it well, must know how to use it well, must have time to use it well, and must be able to afford to use it well" (p. 147).
Farmers will not have time to use the land well or be able to afford to use it well, unless they have customers and neighbors that understand how important it is that farmers be able to preserve the ecological health of the land, and to use it well.

The New American Farm
The good news for the future of food and farming is that thousands of farmers already are finding ways to be good stewards of the land and the natural environment while sustaining a desirable quality of life for themselves and their families and supporting their local communities. They may label themselves as organic, low-input, alternative, ecological, biodynamic, holistic, permaculture, or claim no label at all. However, they are all pursuing common economic, ecological and social goals. By their actions, these farmers are defining a new kind of American farm.

These new American farmers are a diverse lot, but they share a common pursuit of a higher self-interest. They are not trying to maximize profit, but instead are seeking sufficient profit for a desirable quality of life. They recognize the importance of relationships, of family and community, as well as income, in determining their overall well being. They accept the responsibilities of ethics and stewardship, not as constraints to their selfishness, but instead, as opportunities to lead successful lives.

These farmers, these common people, are the architects of this new approach to farming. These farmers, not the experts or the scientists, are the ones on the new frontier – they are the revolutionaries, the explorers, and the colonists of the post-industrial era. Life is difficult on the frontier because no one really knows how to do what these folks are trying to do – they are creating the future. They are getting little help from the government, their universities, or the agricultural establishment. They are doing it pretty much on their own. They will continue to confront hardships, frustrations, and there will be some failures along the road. But, more and more of these new farmers are finding ways to succeed.
There are no blueprints for the new American farm, but a few fundamental principles are beginning to emerge. In general, the new farming opportunities arise directly from exploiting the weaknesses resulting from misuses of industrialization -- specialization, standardization, and centralized decision making. The new American farm relies instead on the advantages of diversity, individuality, and decentralized networks of interdependent decision-makers.

New farmers focus on working with nature rather than against it. The natural resource base that ultimately must sustain productivity is inherently diverse. Industrial systems have had to bend nature -- to augment, supplement, alter, and force it-- to create an allusion of conformity out of diversity in order to meet the demands of large-scale, industrial production. The ecological problems arising from industrialization are symptoms of natural resources being used in ways that are inherently degrading to their productivity. Thus, industrialization has created tremendous opportunities for farmers who learn to utilize the inherently productive capacity of a diverse natural resource base, rather than wasting time and money trying to force nature to conform.

These new farmers utilize practices such as management intensive grazing, integrated crop and livestock farming, diverse crop rotations, cover crops, and inter-cropping. They manage their land and labor resources to harvest solar energy, to utilize the productivity of nature, and thus, are able to reduce their reliance on external purchases inputs. They are able to reduce costs and increase profits while protecting the natural environment, and thus, the health and quality of life of people of their local communities.

New farmers focus on value rather than costs. They realize that each of us value things differently, as consumers, because we have different needs and different tastes and preferences. Industrial methods are
efficient only if large numbers of us are willing to settle for the same basic goods and services – so they can be mass-produced. So, industrialization has to treat us as if we are all pretty much the same. Customers have to be persuaded, coerced, and bribed to buy the same basic things rather than the things they really want. That’s why we pay more for packaging and advertising of food than we pay to the farmers who produce the food. The industrial system creates tremendous untapped opportunities for farmers who can tailor their products to conform to unique needs and preferences of individual customers, as people, rather than try to bend the preferences of customers to conform to their products.

New farmers market in the niches. They market direct to customers through farmers markets, roadside stands, CSAs, home delivery, or by customer pick-up at the farm. They use everything from the Internet to word of mouth to advertise their services. They market to people who care where their food comes from and how it is produced – locally grown, organic, humanely raised, hormone and antibiotic free, etc. They are often able to avoid some or all of the processing, transportation, packaging and marketing costs that make up 80 percent of the total cost of mass marketed foods. They increase the value received by their customers, reduce their costs, and increase profits while protecting the environment and helping to build stronger relationships in local communities.

New farmers focus on what they can do best. They realize that we are all different -- as producers as well as consumers. We have widely diverse skills, abilities, and aptitudes. Industrialization has had to “bend people” -- train, bribe, and coerce them -- to make people behave as coordinated parts of one big machine rather than as fundamentally different human beings. Many social problems of today are symptoms of people being used by industrial systems in ways that are inherently degrading to our uniquely human productive capacities. Thus, industrialization has left tremendous untapped economic opportunities for farmers and others who can use their unique capacities to be productive rather than attempt to
conform to systems of production that just don’t fit.

These new farmers may produce grass finished beef, pastured pork, free range or pastured poultry, heirloom varieties of fruits and vegetables, dairy or milk goats, edible flowers, decorative gourds, or dozens of other products that many label as agricultural “alternatives.” They find markets for the things they want to grow and are able to grow well rather than produce for markets where they can’t compete. Or they may produce fairly common commodities by means that are uniquely suited to their talents. Their products are better, their costs are less, and their life is better because they are doing the things that they do best. New farmers focus on creating value through the uniqueness of relationships – among people as consumers, among people as producers, and between people and their natural environment.

In general, the new farmers link people with purpose and place. By linking their unique productive capacities with unique sets of natural resources to serve the needs and wants of unique groups of customers they create unique systems of meeting human needs that cannot be industrialized. The more unique their combinations of person, purpose, and place, the more sustainable will be the value to customers and producers alike. The sameness and separateness of industrialization creates opportunities for unique farmers who can create unique linkages and personal relationships with the land and with their customers.

Farmers Reconnecting with Consumers
The emergence of this new American farm gives cause for optimism but gives no assurance of success. These new farmers are fighting against tremendous odds in the economic arena. These new American farmers seem insignificant as players in the corporate scramble for control of the global food market. These new farmers are fighting against tremendous odds in the policy arena. While they struggle to understand how to better work with nature, billions of public dollars are spent each year to promote
Reconnecting Consumers and Farmers in the Food System

agricultural industrialization, through biotechnology, precision farming technologies, and other futile attempts to bring nature under the control of “man.” These new American farmers seem insignificant as claimants of public research and education funds to ensure the long run sustainability of the human life on earth.

But these new American farmers can succeed – they can succeed because they are building new personal connections as the go about their work of building a more sustainable agriculture. They are building connections with their customers through Community Food Circles – which list local suppliers of all sorts of farm and food products available for direct sales to local customers. They are building connections through Community Supported Agriculture, where customers pay for a seasons-worth of produce at the beginning of the season and farmers share both the risk and the bounty with their members. These new farmers are making new connections with customers at farmers markets, where many customers come each week to buy specific items from “their farmer.” They are making new connections with chefs and restaurant owners, not only by supplying high quality products, but also by making personal commitments to work together to build connections with customers.

Many also are making new connections with people that they never meet face-to-face. They market through personal agents who represent them as farmers, rather than just their product. They make new connections when they market on the Internet or through the mail, but they sell themselves along with their products. Some even make connections when they sell through supermarkets, when they back their products with their reputation rather than just a guarantee. Personal relationships are built by believing, trusting, caring, and sharing. These things are easier face-to-face but not impossible at a distance.

These new farmers also are making new connections with their own families and with other farmers, as they are learning to cooperate rather
than compete, as they pursue a higher quality of life rather than merely a higher standard of living. They are making new connections with non-farmers through various “sustainable-agriculture-like” organizations, through community groups, and through a whole host of different types of conferences and workshops, which encourage diverse participation by farmers, consumers, educators, public officials, and the general public.

Maybe these efforts to reconnect seem futile in the face of overwhelming opposition. But remember, this same type of trend is taking place all across society – not just in food and farming. Agriculture is but a small part of the great transition – a unique and critical part, but still just a small part. Little by little, society is beginning to wake up to the consequences of our disconnectedness, and people are beginning to reconnect in hundreds of thousands of little, but significant, ways. As we work to reconnection with others in our little part of the world, we are doing our part to bring about the great transition toward a more sustainable society. Ultimately, this is all we can do, and all we need to do, to make the world better. It’s so easy; we have no excuse for not doing it.

The noted anthropologist, Margaret Mead said, “Never doubt that a small group of thoughtful, committed citizens can change the world. Indeed, it’s the only thing that ever has.” So, let’s get reconnected and change the world.

REFERENCES:


The New American Farm

John Ikerd

University of Missouri


In a new book, "The End of Agriculture in the American Portfolio," economist Steven C. Blank envisions the coming end of the American farm – a future of agriculture undoubtedly shared by many in the conventional agricultural establishment. American agricultural production is destined to end, he argues, but this should be no cause for alarm. He contends that the end of American agricultural production is the result of a natural process that is making us all better off. He foresees a time in the not too distant future when the U.S. will import nearly all of its foodstuffs from other countries. Costs of land and labor in U.S. will be too high for American farmers to be competitive in food production. He argues that the inevitable creeping globalization of the food system is not some corporate conspiracy but is simply the sum of individual struggles of farmers and agribusiness in America and around the world who quite logically are pursuing their individual self interests to the benefit of society in general.

Blank's fundamental arguments are based on the premise that economic considerations ultimately will prevail over all others. He assumes that industrial agribusiness will replace family farms because they are "more efficient" and American agribusiness eventually will be displaced by even "more efficient" producers elsewhere in the global market. If these assumptions of economic theory were an accurate reflection of reality, then Blank's predictions would be reasonable. If the world, at some point in the future, completely abandons human rationality for some pseudo-economic reality, then Blank’s predictions actually could come true. Admittedly, economics has become the dominant religion of our American society, and it is being rapidly spread around the world. But, people have not yet abandoned common sense – at least not completely. There is still hope that human rationality will prevail over the dogma of economics and there will be a future for farming America – that the twenty-first century will bring the emergence of the new American farm.

The Crisis in American Agriculture

American agriculture admittedly is in crisis. Until recently, the crisis had been a quiet one. No one wanted to talk about it. Thousands of farm families were being forced off the land, but we were being told by the agricultural establishment that their exodus was inevitable – in fact, was a sign of progress. Those who failed were simply the victims of their own inefficiency -- their inability to keep up with changing times, their inability to compete. But in fact, it's not inefficiency or resistance to change that is forcing families to leave their farms. It's our collective obsession with our short-run, economic self interests. It's our worship of markets as the only true arbitrators of value. It's our acceptance of corporate greed as the only road to true prosperity. The crisis in American agriculture is neither inevitable, nor is it a sign of progress.

With farm prices at record low levels for two years running, the agriculture establishment has begun to take notice. Congress has passed emergency farm legislation the past two years. But even now, the farm crisis is being blamed on such mundane things as "exceptionally good" global weather, problems in Pacific Rim financial
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markets, European trade restrictions, and an inadequate government "safety net." The crisis is a simple matter of supply and demand, they say. The only solutions they propose are to tinker with government policy or, better yet, to simply wait for markets to recover. The only alternatives farmers are being offered are to get big enough to be competitive, get a corporate contract to reduce risks, or get out of farming. But, getting big, giving in, or getting out are not the only alternatives.

The crisis in American agriculture is a chronic symptom of the type of agriculture we have been promoting in this country for the past fifty years -- an industrial agriculture. Reoccurring financial crises are the consequence of our encouraging farmers to industrialize – to become more specialized, standardized and larger in scale so consumers can have more cheap food. We rationalize the displacement of family farmers in the process as "freeing people from the drudgery of farming" so they can find better jobs in town.

The promise of profits is the bait that keeps farmers on the technology treadmill. Farmers adopt new cost cutting and production enhancing technologies to increase profits, but the resulting increases in production cause prices to fall, eliminating profits of the early adopters and driving the laggards out of business. This technology treadmill has been driving farmers off the land for decades. Those remaining on the treadmill after each crisis must run faster and faster just to survive. But, the current crisis has an added dimension. The current crisis reflects a brazen attempt by the giant corporations to seize control of American agriculture, to move beyond specialization and standardization, to centralize command and control – to complete the industrialization of agriculture. This final stage of industrialization could well spell the end of the American farm.

Steven Blank contends that once American agriculture has become industrialized, it will respond even more efficiently to global markets – there will be no sentimental attachment of corporate producers to any particular farm, geographic region, or nation. If costs of land and labor are less in some country other than in America, as they almost certainly will be, then that’s where America’s food will be produced. Capital and management can be shifted easily from America to other countries around the globe – as we have seen in the production of other industrial goods.

The food and fiber industry most certainly has a future, people will always need food, clothing, and shelter, and someone will provide them. But there will be no future of farming in American unless we challenge the conventional wisdom that food should be produced wherever on the globe it can be produced at the lowest cost and that "free markets" should be the final arbitrators of all value. In fact, there will be no future for farming anywhere -- not true farming -- not unless we have the courage to challenge and disprove the conventional wisdom that farmers must get bigger, give in to corporate control, or get out. But there are better alternatives for farmers and for society, if we can find the courage to challenge the conventional economic wisdom that farmers must get bigger, give in to corporate control, or get out.

Challenging the Conventional Wisdom of Economics

Conventional wisdom in the U.S. seems to be that only the market is capable of doing things right. Anything that interferes with the market; the government, public attitudes, or cultural values, for example; by definition creates economic inefficiency and is bad for society. Few people are aware of the origin of this belief, and even fewer seem willing to challenge it. In fact, the few who dare to question the market’s sanctity are quickly attacked by people in powerful places with obvious self-interest in perpetuating the belief -- including an army of economists.

Current belief in the sanctity of the market can be traced back to statements by Adam Smith, the father of contemporary economic theory, in his book, The Wealth of Nations. "It is not from the benevolence of the
butcher, the brewer, or the baker, that we expect our dinner, but from their regard to their own interest. We address ourselves, not to their humanity but to their self love, and never talk to them of our necessities but of their advantages" (p. 7). Later, in reference to trade, Smith states, "he intends only his own gain, and he is in this, as in many other cases, led by an invisible hand to promote an end which was no part of his intention." "By pursuing his own interest he frequently promotes that of the society more effectually (sic) than when he intends to promote it" (p. 199). These statements provided the foundation of the contemporary economic wisdom -- that pursuit of short run self-interests is transformed into achievement of the public good, as if by an invisible hand. The greatest societal good automatically results from the greatest individual greed.

But, Adam Smith didn't say that pursuit of maximum profits and growth by large, corporate organizations would result in the greatest benefit to society. The economy of Smith's day was quite different from today. In the late 1700s, most economic enterprises were small, family operations. For such operations, land, labor, capital, and management often resided in essentially the same entity, and farming was still the dominant occupation. Few enterprises were large enough to have any impact on the marketplace as a whole. Most market transactions were direct between buyer and seller -- there were few opportunities for deceptive sales practices. Trade was mostly in basic commodities – every seller's wheat, bread, or shoes were pretty much the same as those offered for sale by other sellers. Under these conditions, profits were quickly competed away in highly competitive local markets.

There were few corporations in Smith's time, but he wrote about the dangers of monopolies and excess profits, -- "the price of a monopolist is upon every occasion the highest than can be got (p. 28)." He considered "joint stock companies," corporations, to be inherently irresponsible entities, and could think of only a handful of endeavors where publicly owned corporations could be justified (p. 341). Even those would require close public scrutiny and government control, he warned.

Human populations back then were small enough and technologies were sufficiently benign that people could have little permanent impact on their natural environment – at least not on a global scale. Strong cultural, moral, and social values dictated the norms and standards of "acceptable" individual behavior. Smith could not conceive of a society in which the welfare of the poor and hungry would not matter, or where people in general would behave in unethical or immoral ways. "No society can surely be flourishing and happy, on which the far greater part of the members are poor and miserable" (p 36).

In the environment within which conventional economics was born, in Smith's time, pursuit of self-interest might have served the interests of society reasonably well. But, the world has changed over the past 200 years. In fact, none of the important assumptions of truly competitive markets -- the prerequisite for efficient resource allocation by free markets -- are valid in the economy of today.

Today, giant corporations dominate almost every sector of local and global economies. Through mergers, joint ventures, and strategic alliances, corporations have formed "virtual" monopolies – irresponsible entities that maximize profits "upon every occasion." Corporate profits today are far larger than any concept of "normal" profit envisioned in classical economics.

The basic economic resources of land, labor, capital, and management now reside in separate entities, sometimes divided even among nations. Labor and management are in continual conflict, and most corporate shareholders -- owners of mutual funds and pension funds -- are hardly conscious of how much of what companies they own. Land has become just another marketable commodity to be exploited and used up.
Producers and consumers have become disconnected, geographically and conceptually, as a consequence of industrialization. Consumers no longer have any personal knowledge of where their products come from or of who is involved in their production. They must rely on a complex set of standards, rules, and regulations for product information, and today's advertising consists of "disinformation" by design. Superficial product differentiation abounds -- through processing, packaging, advertising, and marketing gimmicks -- making price competition impotent if not impossible.

Human activities are no longer ecologically benign -- if they ever really were. The pressures of growing populations and rising per capita consumption are now depleting resources of the land far faster than they can be regenerated by nature. Wastes and contaminants from human activities are being generated at rates far in excess of the capacity of the natural environment to absorb and detoxify them. Fossil fuels, the engine of twentieth-century economic development, are being depleted at rates infinitely faster than they can ever be replenished. Human population pressures are destroying other biological species, upon which the survival of humanity may be ultimately dependent. The human species is now capable of destroying almost everything that makes up the biosphere we call Earth, including humanity itself.

The society of Smith's day was weak on economics – hunger, disease and early death were common -- but it had a strong cultural and ethical foundation. However, that social and ethical foundation has been seriously eroded over the past two centuries -- as glorification of greed has replaced enlightened self-interest.

Civil litigation and criminal prosecution seem to be the only constraints to the unethical and immoral pursuit of profit and growth. Corporations are inherently non-human entities – regardless of what the Supreme Court has said and regardless of the nature of their managers and stockholders. Corporations have no heart, they have no soul. Concerns of the affluent for today’s poor seem to be limited to concerns that welfare benefits may be too high or that they will be mugged or robbed if the poor become too desperate. Smith's defense of the pursuit of self-interest must be reconsidered within the context of today's society – a society that is now strong on economics but weak on community and morality.

Contemporary economics has always been fundamentally incapable of dealing with relationships among people, or between people and their environment. This fact is freely admitted even in basic economics text books. In economics, a market is nothing more than a collection of independent individual consumers. Human institutions such as families, communities, nations and cultures have no economic relevance – other than as collections of individuals. Thus, one gains no economic well being from relationships -- from identifying with or being a part of any particular family, community, nation or culture. Believing, trusting, sharing, caring, and serving are but empty words to the economist. Economic values relate only to our narrow, short run self interest. Concepts such as faith, hope, and love are ignored -- they are just illusions of the human imagination.

Economics assumes that trade always takes place between two people or groups that are equally competent and capable of pursuing their own self-interest. Sometimes this is a valid assumption, but often it is not. Economics ignores the fact that the world is filled with people (and countries) who are inherently unequal in competence and capabilities. It ignores the fact that giant corporations are capable of totally dominating conditions of trade with smaller businesses or individuals. By their very nature, industrial corporations attempt to dominate in their transactions with all, including with the natural environment.

When trade occurs between the strong and the weak, particularly when motivated by profit as economists assume, the weak are invariably exploited by the strong. As long as the outcomes for strong and weak added together end up in a larger dollar and cent total, economics concludes that there have been gains from trade -- no matter that the weak are now even relatively weaker and more vulnerable and the strong are now even
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stronger and more dominant. To the economist, justice and equity are just empty words because they have no means to address them.

In economics theory, the environment is a passive entity, and thus, has no specific active relationship with people. The environment is always external, or outside, the economic system. The environment may be ignored, treated as an external constraint, or as something that is impacted by economic activity within. But, the environment is always treated as something separate and apart from people and the economy. In economics, we are separated from something that we obviously are a part of. The serenity we feel and beauty we see in nature is assumed to have no impact on our human well being. In economics, the sense of rightness that comes from our attempts to be good stewards of the earth’s resources contributes nothing to our quality of life. It’s economically irrational to want to leave as much and as good as we have today for the benefit of future generations.

In summary, contemporary economics is concerned totally and completely with pursuit of short run, self interests. Economics recognizes no unique social value – a community or a society is nothing more than a collection of individuals. Economics recognizes no unique spiritual values – and concern for the environment, at least for its sustainability, is fundamentally spiritual. Economist – and the industrial, corporate interests that now would raise economists to the priesthood – would cast out those of us who still believe that quality of life has social and spiritual dimensions that are just as important as our narrow economic self interests.

Does this kind of economics really make sense as a guiding philosophy for America -- and as a model for the rest of human society? Do we actually believe that the greatest greed results in the greatest good? Or are we a society that is being shamed into doing things that don’t make sense because we don’t want to be publicly degraded and labeled naïve and unrealistic, as being economically illiterate and irrational?

Toward an Economics of Enlightened Self-interests

It’s true, people will pursue their self-interest – it is an inherent aspect of being human. But, people, by nature, do not pursue only their narrow, individual self-interest. It is within the fundamental nature of people also to care about other people and to accept the responsibilities of humanity to take care of the earth. People are perfectly capable of rising above the economics of greed to an economics of enlightenment. An invisible hand can still translate the pursuit of self-interests into the greatest good for society, but only if each person pursues an enlightened self-interest – a self-interest that values relationships and stewardship as important dimensions of our individual well being.

Enlightened self-interests includes narrow self-interest (which focuses on individual possessions), but it also includes interests that are shared (which focuses on relationships, community, and social values) and interests that are purely altruistic (which focuses on interests one pursues only out of a sense of stewardship, ethics, or morality). All three – self-interests, shared-interests, and altruistic-interests -- contribute to one’s well being or quality of life, but not in the same sense that greed might enhance one’s material success. Each contributes to a more enlightened sense of quality of life, which explicitly recognizes that each individual is but a part of the whole of society, which in turn must conform to some higher order or code of natural laws.

The economics of enlightenment has its foundation in spirituality – the belief in a need to live in harmony with a higher order of things. Many seem to equate spirituality with religion, but religion is but the means by which some people practice their spirituality. Anyone who believes in the existence of a fundamental set of unchanging laws or principles, which underlie moral or ethical values, may be said to be spiritual. It makes no
difference whether one's belief in God arises from their belief in fundamental laws of nature, including human nature, or one's respect for nature and other people arises from one's belief in God. Both reflect a belief in some higher order, which defines the larger whole of which humans are but a part.

Enlightened self interests are realized by living in harmony with this higher order. In the absence of spirituality, shared interests may be pursued for selfish motives. Some are willing to pay their share of the costs only if they expect to get more than their share of the benefits. In the absence of spirituality, ecological concerns may be addressed for purely selfish motives -- to protect one's self or family from harm. But enlightened self interests recognizes that shared-interests and altruistic interests are but different layers of one’s self – that our individual self is inseparable from our social and ethical selves. We are enlightened when we recognize explicitly that our life is better when we no not only care for ourselves, but also when we care for the well being others -- with no regard for what we may get in return. When enlightened, we recognize explicitly that our life is better when we conserve and protect the earth’s resources for future generations -- with no regard for an earthly reward. Enlightened self interests recognizes explicitly that we have three different layers of self – the independent self, the interdependent self, and the ethical or moral self. Quality of life arises from harmony and balance among those three dimensions of self.

The Dalai Lama of Tibet puts it in slightly different terms, "If you think in a deeper way that you are going to be selfish, then be wisely selfish, not narrow-mindedly selfish. From that viewpoint, the key thing is the sense of universal responsibility, that is, the real source of strength, the real source of happiness. From that perspective, if in our generation we exploit every available thing, trees, water, mineral resources, or anything, without bothering about the next generation, about the future, that’s our guilt, isn’t it? So if we have a genuine sense of universal responsibility as the central motivation and principle, then from that direction our relations with the environment will be well balanced. Similarly with every aspect of relationships: our relations with our neighbors, our family neighbors and country neighbors, will be balanced from that direction" (p. 179).

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A new American agriculture is emerging under the conceptual umbrella of sustainable agriculture. The focus of the concept of sustainability is on intergenerational equity – to meet the needs of the present while leaving equal or better opportunities for the future. But, in order to fulfill this purpose, sustainable systems must be economically viable, ecologically sound, and socially responsible. Systems of farming that are lacking in any one of these dimensions quite simply are not sustainable over time.

Thus sustainable agriculture requires that farmers find balance and harmony among the economic, social, and ecological dimensions of their farming operations -- among self-interests, shared-interests, and altruistic interests. By pursuing their enlightened self interests, the new American farmer will help build a more sustainable agriculture and a more sustainable human society – as if by an invisible hand. In fact, sustainability demands that we pursue a new economics of enlightenment.

Farmers, in general, presumably would not use chemicals in ways that destroy their health, poison their own food, or pollute their water supply. But, the sustainable farmer must be willing to make ecological investments that will benefit of others solely. Sustainability requires that we consider the health and well-being of those down wind and down stream as well as ourselves. Sustainability requires that we conserve non-renewable resources – soil, energy, clean air, and clean water -- for future generations. Thus, ecological sustainability is deeply rooted in a strong sense of stewardship – our responsibility to take care of things for the benefit of others.
Farmers, in general, recognize they must make investments of time and money in family, community and society in general -- they may expect personal rewards for these investments, but the rewards must be shared with others. However, many may make social investments out of self-interest, for purely selfish reasons -- they expect their share of the benefits to exceed their share of the costs. But, sustainable farmers must be willing also to make social investments for purely altruistic reasons -- investments from which they expect no direct benefit for themselves. They benefit only from fulfilling their ethical and moral responsibilities for others. Such investments are economically rational, only from the perspective of an economics of enlightenment.

The contemporary economic dimension is no less important than are the social and ecological dimensions in ensuring sustainability. A sustainable agriculture requires all three -- an agriculture that is ecologically sound, socially responsible, and economically viable. Aldo Leopold, in his essay on land ethics, said we must consider the economics as well as the ethics and aesthetics. We cannot be expected to take care of others unless we are first able to take care of ourselves. Economic viability is necessary if a farmer is to maintain the authority to use the resources for which they are to be good stewards. Or to put it bluntly, if a farmer goes broke, they are not sustainable. Conflicts arise between economics and sustainability because too often economics is allowed to dominate everything else -- including relationships and stewardship. Sustainability requires a measure of profitability, but short run profit maximization invariably leads to ecological degradation and social exploitation. Sustainability requires balance and harmony among between economics and the other two.

Farming sustainably is no simple task. But, thousands of farmers are already finding ways. They are finding ways to sustain a desirable quality of life for themselves and to support their local communities while being good stewards of the land and other natural environment. They may carry the label of organic, low-input, alternative, biodynamic, holistic, permaculture, or no label at all, but they are all pursuing common economic, ecological and social goals. By their actions, these farmers are defining a new kind of American farm.

These new American farmers are a diverse lot, but they share in common their pursuit of enlightened self interest. They are not trying to maximize profit, but instead are seeking sufficient profit for a desirable quality of life. They recognize the importance of relationships, of family and community, as well as income, in determining their overall well being. They accept the responsibilities of ethics and stewardship, not as constraints to their selfishness, but instead, as opportunities to lead successful lives.

These farmers, these common people, are the architects of the New American Farm. These farmers, not the experts or the scientists, are the ones on the new frontier -- the explorers, the colonists, the revolutionaries, and the builders of a "New World." Life is difficult on the frontier because no one really knows how to do what these folks are trying to do -- they are creating the future. They are getting little help from the government, their universities, or the agricultural establishment. They are doing it pretty much on their own. They will continue to confront hardships, frustrations, and there will be some failures along the road. But, more and more of these new American farmers are finding ways to succeed.

There are no blue prints for the New American Farm. But a few fundamental principles are beginning to emerge. In general, the opportunities arise directly from exploiting the weaknesses of industrialization -- of specialization, standardization, and centralized decision making. The new American farm tends to rely instead on the advantages of diversity, flexibility, and decentralized networks of interdependent decision makers.

New American farmers focus on working with nature rather than against it. The natural resource base that ultimately must sustain productivity is inherently diverse. Industrial systems have had to bend nature -- to augment, supplement, alter, and force it -- to create an allusion of conformity out of diversity in order to meet the demands of large-scale, industrial production. The ecological problems arising from industrialization are
symptoms of natural resources being used in ways that are inherently degrading to their productivity. Thus, industrialization has created tremendous opportunities for farmers who learn to utilize the inherently productive capacity of a diverse natural resource base, rather than wasting time and money trying to force nature to conform.

These new American farmers utilize practices such as management intensive grazing, integrated crop and livestock farming, diverse crop rotations, cover crops, and intercropping. They manage their land and labor resources to harvest solar energy, to utilize the productivity of nature, and thus, are able to reduce their reliance on external purchases inputs. They are able to reduce costs and increase profits while protecting the natural environment and supporting their local communities.

New American farmers focus on value rather than costs. They realize that each of us values things differently, as consumers, because we have different needs and different tastes and preferences. Industrial methods are efficient only if large numbers of us are willing to settle for the same basic goods and services — so they can be mass produced. So, industrialization has to treat us as if we’re all pretty much the same. Customers have to be persuaded, coerced, and bribed to buy the same basic things rather than the things they really want. That’s why we pay more for packaging and advertising of food than we pay to the farmers who produce the food. The industrial system creates tremendous untapped opportunities for farmers who can tailor their products to conform to unique needs and preferences of individual customers, rather than try to bend the preferences of customers to conform to their products.

New American farmers market in the niches. They market direct to customers through farmers markets, roadside stands, CSAs, home delivery, or by customer pick-up at the farm. They use everything from the Internet to word of mouth to advertise their services. They market to people who care where their food comes from and how it is produced — locally grown, organic, humanely raised, hormone and antibiotic free, etc. They are often able to avoid some or all of the processing, transportation, packaging and marketing costs that make up 80 percent of the total cost of mass marketed foods. They increase value, reduce costs, and increase profits while protecting the environment and helping to build stronger local communities.

New American farmers focus on what they can do best. They realize that we are all different — as producers as well as consumers. We have widely diverse skills, abilities, and aptitudes. Industrialization has had to "bend people" — train, bribe, and coerce them — to make people behave as coordinated parts of one big machine rather than as fundamentally different human beings. Many social problems of today are symptoms of people being used by industrial systems in ways that are inherently degrading to our uniquely human productive capacities. Thus, industrialization has left tremendous untapped economic opportunities for farmers and others who can use their unique capacities to be productive rather than attempt to conform to systems of production that just don’t fit.

New American farmers may produce grass finished beef, pastured pork, free range or pastured poultry, heirloom varieties of fruits and vegetables, dairy or milk goats, edible flowers, decorative gourds, or dozens of other products that many label as agricultural "alternatives." They find markets for the things they want to grow and are able to grow well rather than produce for markets where they can’t compete. Or they may produce fairly common commodities by means that are uniquely suited to their talents. Their products are better, their costs are less, and their life is better because they are doing the things that they do best.

In general, new American farmers focus on creating value through uniqueness — among consumers, among producers, and within nature. They link people with purpose and place. By linking their unique productive capacities with unique sets of natural resources to serve the needs and wants of unique groups of customers.
they create unique systems of meeting human needs that cannot be industrialized. The more unique their combinations of person, purpose, and place, the more sustainable will be the value to customers and producers alike. The sameness of industrialization creates opportunities for unique farmers who can create unique linkages with both resources and customers.

Critics argue that these new farm opportunities are limited. On the contrary, there is no limit to the diversity among people nor diversity within nature. There are as many niche markets as there are people. The question is one of how many different markets it is logical to serve, not how many different niche markets exist. Likewise, there as many differences in production capabilities as there are producers, and as many different niches in nature as there are fields or places to produce.

Some question whether a sufficient number of people who are both willing and able to learn can be found to farm in these new ways. Admittedly, the new American farm will require a lot more knowledge, understanding, and thinking that does farming by industrial standards. However, any future occupation which offers an opportunity for a decent living will require the use of one’s mind. The days when someone could earn a good living by the sweat of their brow are in the past. The industrial era is over. There will be plenty of innovative, creative, hard working people to operate the new American farms, once their promise for a more desirable quality of life -- economically, socially, and ethically -- becomes widely know.

Others question whether people can afford to pay farmers the full costs of meeting their food and fiber needs without exploiting either the natural or human resource base for agriculture. However, today’s consumer, on average, spends only a dime of each dollar for food -- from which the farmer gets only one penny. Thus, most consumers can afford to pay farmers to produce the food they really want and need rather than settle for something less, particularly if that something less degrades the social and ecological systems from which consumers also much derive their quality of life.

The ultimate strategy for valuing uniqueness is through personal relationships. Each personal relationship is different from all others. Many consumers are alienated from current mass marketing systems not only because they don’t meet their specific needs, but because they have lost faith in the impersonal system of mass production for mass markets. They do not believe large corporations monitored by big government will really protect the natural environment or fulfill important social responsibilities. They trust neither corporate or government assurances that foods in the supermarkets are safe and healthful. They feel more personally secure and socially responsible when they support local and regional food systems rather than rely on international markets dominated by the multinational corporations. In other words, they want to know their farmer -- personally.

The most secure markets for the new American farm will be those based on personal relationships. Producers who develop personal relationships with their customers need not see other producers as their competitors. They can collaborate rather than compete. No two people are alike, thus, no two producers are likely to be viewed as close competitors in the minds of their relationship customers. Fortunately, meaningful relationships can only be spread so thin. Thus, there will be natural constraints, or limits to growth, in relationship markets. The necessity of maintaining personal relationships offsets the natural tendency to get bigger, and thus, helps farmers to resist the lure of the industrial treadmill. Local and regional markets will be developed and sustained over time by people who prefer to deal with people they know.

It's Mainly Up to Us
There may well be no future in farming in America, in the sense that we have known it in the past. But, that need not mean the end of the American farm. A new American farm is struggling to emerge under the conceptual umbrella of sustainable agriculture. It’s success or failure, and the sustainability of American agriculture, is mainly up to us. We can sit by and pray that Adam Smith’s invisible hand is still able to transform greed into good. We can allow the American farmer become a thing of the past and rely on the rest of the world for our food and fiber. Or we can choose to pursue our enlightened self-interests, we can demand for society a new economics of sustainability, and we can help build the new American farm.

Contemporary economic thinking is out of date and old fashioned. It’s based on assumptions of 200 years ago that no longer reflect reality. Small family farms and businesses, caring communities, loving families, nations with integrity, cultures with values – these things will never be outdated. We have no ethical or moral obligation to accept economics as the final arbiter of all things. Economics alone should not determine who gets a job and who doesn’t, who stays in business and who doesn’t, what we do in communities and what we don’t, where food is produced and where it is not, whether or not we trade, or of anything else. We don’t have to abandon "good" things from the past just because something "more economically efficient" comes along. We don't have to accept "bad" things in the future just because they are "more economically efficient" than some "good" alternative. We can choose what we want to keep from the past and what we want to accept in the future. The market is not God – no matter what the economic priests would lead us to believe. Economics is a creation of people. We simply cannot turn loose the thing we created for our benefit and allow it to exploit the very people it was designed to serve. It just doesn’t make any sense.

Common sense demands that we rethink and directly challenge the fundamental principles that underlie conventional economic thinking – line by line, row by row, from the ground up. There is a crisis in American Agriculture. It’s a chronic crisis – a consequence of the industrialization of agriculture in the pursuit of short run economic self interests. The root cause of this crisis is the same as the root cause of ecological degradation and of social and moral decay – a society that blindly accepts the economic bottom line as if it were the word of God. Industrialization, if left unbridled, ultimately will spell the end of the independent American farm. Globalization, if left unbridled, could crush the whole of American Agriculture.

But, we don’t have to submit to the industrialization of agriculture, we don’t have to submit to the globalization of our food systems, and we don’t have to worship the false idol of economic greed. Corporations were created to serve people, not the other way around. Trade among people should be carried out in ways that make all parties better off – that degrade neither people nor the natural resource base. Trade is not really free unless both parties are free not to trade. The economy is a creation of people to meet the needs of people, not the other way around. We can simply refuse to become the slaves of these institutions that were created to serve the public good.

There is a positive alternative to contemporary economics -- an economics of enlightenment. And there are positive alternatives to agricultural industrialization arising from the sustainable agriculture movement. There are thousands of farmers creating dozens of models for the new American farm. But, the very real possibility of the end of America agriculture should sound a warning to us all. The time to choose between the economics of greed and the economics of enlightenment is at hand. The time to choose between an industrial agriculture and a sustainable agriculture is at hand. The time to choose between the end of the American farm and the new American farm is at hand. God grant us wisdom that we might choose wisely.

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21st Century Agriculture:

The end of the American Farm or the new American farm?

John Ikerd

University of Missouri


The American farm of the 21st century will be different. This is perhaps the only thing we can say about 21st century agriculture with any degree of confidence. Farms of the future will be different from farms of the present as well as different from farms of the past. In addition, the least accurate prediction concerning how farms will be different would be simply extrapolation from the past, through the present, and into the future. All trends eventually change direction – the world works in cycles. Everything that goes up comes down and everything that goes around comes back around. Admittedly, the past and the present always contain the seeds of the future. However, we humans lack the ability to foretell the future with accuracy – although our human imagination and curiosity continually tempts us to try.

In his book, “The End of Agriculture in the American Portfolio,” economist Steven C. Blank envisions the end of the American farm – a vision of the future grudgingly shared by a growing number of people in the conventional agricultural establishment. American agriculture is destined to end, he argues, but this should be no cause for alarm. He contends that the end of American agricultural production is the result of a natural process that is making us all better off. He foresees a time in the not too distant future when the U.S. will import nearly all of its foodstuffs from other countries. Costs of land and labor in the U.S. will be too high for American farmers to be competitive in a global food economy. He argues

http://www.ssu.missouri.edu/faculty/jikerd/papers/NAF5-EndAmericanFarm.htm (1 of 18) [11/30/02 10:01:12 AM]
that creeping globalization of the food system is not some corporate conspiracy but is simply the result of the struggles of farmers and agribusiness, in America and around the world, logically pursuing their individual economic self-interests. This pursuit of individual economic self-interest ultimately will best serve the long run interests of society as a whole, he claims.

Blank’s fundamental arguments are based on the basic premise that economic considerations ultimately will prevail over all others. First American farmers will be forced to abandon production of basic agricultural commodities – corn, soybeans, hogs, cattle, cotton, rice, etc. – in favor of high-investment, high-risk crops – such as wine grapes, berries, organic vegetables, etc. High-risk, high-return enterprises will be the last agricultural alternatives offering farmers any hope of realizing profits from employing high cost land and labor. However, increasing affluence will allow increasing numbers of people to escape from the cities in search of a quieter, safer, healthier lifestyle in the countryside. As land prices continue to rise, agribusiness eventually will abandon America completely because they will be able to employ their management and capital more profitably in other countries.

Although, Blank doesn’t make a major issue of it, he assumes that corporate agribusiness will replace family farms because corporations are “more efficient” farmers than are families. As American agriculture comes increasingly under the control of corporate agribusiness – through ownership, contracting, or various types of strategic alliances – it will respond even more efficiently to competitive global markets. Once corporate ownership becomes separated from management, through public stock offerings, a corporation becomes incapable of pursuing any objectives other than maximum profit and growth – its stockholders will accept nothing less. Corporations are not human; they have no heart or soul. Thus, corporations have no sentimental attachment to any particular parcel of land, community, geographic region, or nation. If economic costs of production are less in some country other than in the US, as they almost
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certainly will be, then that’s where America’s food will be produced.
Agricultural technology, capital, and management can be shifted easily
from America to other countries around the globe – as we have seen in the
production of other industrial goods.

However, Blank claims we should not be concerned because Americans
still will be well fed. This is all a quite logical result of the working of a free
market economy, he says. It simply will be more efficient in the future to
produce America’s food elsewhere on the globe. In fact, America’s
transition out of agriculture will be a sign of national economic progress.
Agriculture is any nation’s first step toward economic development –
abandoning hunting and gathering for a more efficient means of providing
food and fiber. However, agriculture requires only low-skilled, manual labor
and few management skills, and thus, farming is not capable of sustaining
economic progress over time. Manufacturing represents a natural
evolution from unskilled labor to skilled labor, to mechanization, and
management of large, complex industrial systems of production. Over the
past two centuries, industrialization has been the mark of economic
progress as nations move from agriculture to manufacturing.

However, as we enter the 21st century, America is moving beyond
industrialization – to a new post-industrial era of economic development.
We already have seen the foundation of the US economy shift from
manufacturing to the service sector of the economy. Some service jobs
tend to be low-skill and low paying, such as fast foods and electronic data
entry. However, many service positions are high-skill office work, requiring
high levels of education and training – such as finance, brokerage,
marketing, communications, education, research, systems design, and all
sorts of consulting. Such jobs are more productive and command higher
salaries than do manufacturing jobs.

In the 21st century, America will become part of the “new economy” – new
information systems will allow corporations in the “more advanced” nations
to create, manage, and control the agricultural, manufacturing, and service
sectors of the economies of other nations. Those who create, manage, and control things inevitably reap greater economic benefits than those who actually produce, manufacture, and do things. Agriculture and manufacturing are but stepping stones to higher levels of economic development. Blank contends that it’s simply time for America to abandon agriculture and move ahead to its next stage of economic development.

Greater specialization among nations is made possible by globalization of national economies. In a *seamless*, global economy, some nations can specialize in agriculture, others in manufacturing, others in services, and others in providing *homes* for corporations that create, manage, and control the economic enterprises of other nations. Current World Trade negotiations are being carried out for the expressed purpose of creating a single global economy within which all nations are free to pursue their economic competitive advantages. Anything that restricts trade is seen as an obstacle to global economic progress – an obstacle that must be removed for the sake of greater economic efficiency.

In summary, Blank believes that the open spaces of rural America will be transformed from farms into living space for a growing and increasingly affluent population fleeing the problems of urbanization. Cornfields are unable to compete with condominiums for farmland. The San Joaquin Valley can’t compete with the Silicone Valley for farm workers. Farming is a low-skilled, “primary” industry that has no place in an advanced, “high-tech” economy. Rural ways of life will give way to urban ways of life, as farms become residential ranchettes. Virtual communities of people, interconnected by the Internet, will replace real communities of people who meet face-to-face in church or at the grocery store. Agriculture will no longer be a significant factor in the future rural economy. Most people in rural communities will be employed elsewhere -- perhaps by companies thousands of miles away. Americans will be well fed, but our food will come from other countries where it can be produced cheaper. People of all nations will benefit as they are allowed to pursue their economic competitive advantages in a global economy. Today’s farmers will find
future employment, but not as farmers, or at least as farmers in America. Blank claims the only forms of truly sustainable agriculture in America will be those compatible with urban life – mainly golf courses, ornamental nurseries, and turf farms. The American farm will be a thing of the past.

Blank’s conclusions regarding the future of American agriculture, and of the global economy, are all quite reasonable and logical within the context of contemporary economic thinking. If the usual assumptions of economic theory were an accurate reflection of today’s reality, then Blank’s predictions would be quite reasonable. In fact, if the world, at some point in the future, completely abandons its common sense for some pseudo-economic reality, then Blank’s predictions might actually come to pass. Admittedly, economics has become the dominant *religion* of our American society, and it is being rapidly spread around the world. But, people have not yet abandoned their common sense – at least not completely. There is still hope that newly enlightened thinking will prevail over the dogma of economics, that the twenty-first century will not bring the *end of the American farm*, but instead, will bring the emergence of a *new American farm*.

**Challenging the Conventional Wisdom of Economics**
The conventional economic wisdom in America today seems to be that only the *markets* are capable of ensuring that the right things are done, and are done efficiently. Supply and demand are seen as the only true arbiters of value. If something is profitable, it should be done, if it is unprofitable, it shouldn’t. Anything that interferes with the markets; the government, public attitudes, or cultural values, for example; by definition creates economic inefficiency and is bad for society. Few people are aware of the origin of these *beliefs*, and even fewer seem willing to challenge them. In fact, the few who dare to question the sanctity of the markets are quickly attacked by people in powerful places with obvious self-interest in perpetuating *the myth of the markets* -- including an army of economists.
The current belief in the sanctity of markets can be traced back to statements by the British Economist, Adam Smith, in his book, *The Wealth of Nations*, published in 1776. “It is not from the benevolence of the butcher, the brewer, or the baker, that we expect our dinner, but from their regard to their own interest. We address ourselves, not to their humanity but to their self love, and never talk to them of our necessities but of their advantages” (p. 7). Later, in reference to trade, Smith states, “he intends only his own gain, and he is in this, as in many other cases, led by an invisible hand to promote an end which was no part of his intention” (p. 199). These statements provided the foundation for contemporary economic wisdom -- that pursuit of short run self-interests is transformed into achievement of the public good, as if by an *invisible hand*.

From Adam Smith’s observations of more than 200 years ago, neo-classical economists developed the fundamental assumptions that underlie “free market” economic thinking even today. Although contemporary economists try desperately to rationalize arguments to the contrary, these conditions must hold before the *invisible hand* of competitive capitalism can transform the pursuit of individual short-run self-interest into the greater long-run good of society in general.

First, markets must be economically competitive – meaning numbers of buyers and sellers so large that no single buyer or seller can have any noticeable effect on the overall market. In such markets, no one has the power to retain profits by exploiting anyone else. It must be easy for new sellers to enter enterprises that are profitable and easy for sellers to get out of unprofitable enterprises, so that producers are able to respond to market signals of consumers’ wants and needs. Consumers must have clear and accurate information concerning whether the things they buy will actually meet their wants and needs. And finally, consumers must be *sovereigns* – their tastes and preferences must reflect their basic values – their tastes and preferences untainted by persuasive influences.

None of these assumptions holds in today’s society. Today agricultural
markets are dominated by the large agribusiness corporations, certainly at every level other than farming, and increasingly even at the farm level. In addition, it is not easy to get into or out of any aspect of agriculture, and it is becoming increasingly harder to even get into or out of farming. Consumers don’t get accurate, unbiased information concerning the products they buy, but instead get disinformation by design, disguised as advertising. Finally, consumers are no longer sovereigns. The food industry spends billions of dollars on advertising designed specifically to bend and shape consumers tastes and preferences to accommodate mass production and mass distribution, which enable corporate control of agriculture. There is no logical reason to believe that the corporate agriculture of today is evolving to meet the changing needs or wants of consumers.

Instead, corporate agriculture today is designed specifically to generate profits and growth for corporate investors. In fact, we no longer have a competitive, capitalistic agricultural economy. Capitalism requires that individuals make individual decisions in a competitive market environment. As corporations extend their control horizontally “within” the same functional levels, such as marketing, storage, transportation, processing, or retailing, they increase their ability to protect profits from competitors. As corporations extend their control vertically, “across” functional levels, including additional different stages of production and marketing, they gain control over decisions concerning how much of what is produced, when it is produced, how it is produced and for whom. Those decisions are made to maximize their short-run profits and growth, not to meet the long-run needs of society.

In essence, as agriculture has moved from competitive capitalism to corporatism, it has changed from a market economy to a “central planned” economy. Central planning didn’t work for the Communists, and it won’t work for true Capitalists. The problem wasn’t that the Communists were not smart enough or that their computers weren’t large enough. Central planning is a fundamentally wrong-headed approach to managing an
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economy – for corporations as well as governments. The corporate system
of food production will prove to be fundamentally incapable of effectively
meeting the real needs of people.

Steven Blank’s vision of the future would place global food production
under the control of a handful of multinational corporations that would
decide how much of what kind of food is produced where, and who gets to
consume it. Americans would be at least as dependent on the rest of the
world for food as we are today for oil. Perhaps we could keep the food
imports flowing, as we maintain the inflow of oil today. But, how large a
military force would it take? What new “Organization of Food Exporting
Countries” might be formed to control the market? How many “small wars”
would we have to fight to keep a “renegade country” from reducing our
supply of food? How many people would we eventually have to kill? Would
“cheap food” be worth the cost we might ultimately be forced to pay?

Toward a More Enlightened Future

Thankfully, as society becomes more enlightened, we are beginning to
understand the true costs of cheap food. We are beginning to realize that
the industrialization of agriculture, while enhancing economic efficiency
and reducing food costs, has brought with it unanticipated ecological and
social costs. The industrialization of agriculture, characterized by
specialization, standardization, and centralization of control, has put
farmers in direct conflict with their ecological, social, and economic
environment. Cheap food most certainly has not benefited most farmers
economically. As farms have become more specialized and more
mechanized, they have become larger in size, and thus, fewer in number.
The struggle for ever-greater economic efficiency has forced many farmers
to fail so that a few might survive – by buying their failed neighbor’s land
and growing larger. Does it really make sense to displace farmers of other
countries as we have displaced ours – in our continuing pursuit of even
cheaper food?

Also, we are beginning to realize that we are destroying our natural
environment in the process of trying to produce cheap food. We are mining the soil through erosion and depletion of its natural productivity in the process of maximizing production and minimizing dollar and cent costs of production. We are polluting our streams and groundwater with residues from the pesticides and commercial fertilizers necessary for large-scale, specialized industrial crop production and with wastes from giant confinement animal feeding factories. We are destroying the genetic diversity, both below and above the soil, which is necessary to support nature’s means of capturing and transforming solar energy into energy for human uses. Does it really make sense to export our ecologically destructive farming methods to other nations – in our continuing quest for cheap food?

We are just beginning to realize that we are destroying the social fabric of our society in the process of trying to make agriculture more efficient. We are destroying opportunities for people to lead productive, successful lives. We are turning thinking, innovative, creative farmers into tractor drivers and hog house janitors. There can be dignity in all work, but all people should have opportunities to express their full human potential. Consolidation of decision-making concentrates opportunities among the privileged few while leaving the many without hope for a rewarding future. Industrial specialization also tends to separate people within families, within communities, and within nations. We are just beginning to realize that industrialization destroys the human relationships needed to support a civilized society. Does it make sense to destroy the social and cultural fabric of other countries – in our quest for cheaper food?

The outdated economics that supports agricultural industrialization for the sake of economic efficiency is fundamentally incapable of dealing effectively with either the environmental or the social challenges confronting agriculture today. In economics, the environment and society are external or outside of the decision making process – something that may impact or be impacted by decisions but not part of the process. In reality, the economy, environment, and society all are parts of the same
inseparable whole. Society needs a more enlightened system of decision-making – one capable of integrating economic, ecological, and social decisions.

It’s true, people will pursue their self-interest, – it is an inherent aspect of being human, as conventional economics assumes. But, people, by nature, do not pursue only their narrow, individual self-interest. It is within the fundamental nature of people also to care about other people and to accept the responsibilities of humanity as the caretakers of the earth. People are perfectly capable of rising above the economics of greed to an economics of enlightenment. An invisible hand can still translate pursuit of self-interests into the greatest good for society, but only if each person pursues a more enlightened self-interest – a self-interest that values relationships and stewardship as important dimensions of our individual well being.

Our enlightened self-interests include our narrow self-interest, which focuses on individual possessions and pleasures. However, it also includes a broader self-interest, which recognizes the value of relationships with other people – even those relationships that return nothing in the way of possessions or individual pleasures. Our enlightened self-interests also include our higher self-interests, which recognizes the value of stewardship, and other ethical and moral behavior, in giving meaning and purpose to our lives. All three – personal, interpersonal, and spiritual interests all contribute to our well being. Each contributes to a more enlightened sense of quality of life, which explicitly recognizes that each individual is but a part of the whole of society, which in turn must conform to some higher order or code of natural laws.

The Dalai Lama of Tibet puts this in slightly different terms, “If you think in a deeper way that you are going to be selfish, then be wisely selfish, not narrow-mindedly selfish. From that viewpoint, the key thing is the sense of universal responsibility, that is, the real source of strength, the real source of happiness. From that perspective, if in our generation we exploit every
available thing, trees, water, mineral resources, or anything, without bothering about the next generation, about the future, that’s our guilt, isn’t it? So if we have a genuine sense of universal responsibility as the central motivation and principle, then from that direction our relations with the environment will be well balanced. Similarly with every aspect of relationships: our relations with our neighbors, our family neighbors and country neighbors, will be balanced from that direction” (p. 179).

Sustainable Agriculture – the New American Farm
The sustainable agriculture movement in America exemplifies the pursuit of a more enlightened self-interest. People may disagree on the specific words, but there is a growing consensus that a sustainable agriculture is an agriculture that is capable of meeting the needs of the present while leaving equal or better opportunities for the future. The concept of sustainability applies the Golden Rule across generations. 

*We should do for those of future generations, as we would have them do for us, if we were of their generation and they were of ours.* We must find ways to meet our needs, all of us who are here today, without diminishing the ability of those of future generations to meet their needs as well.

A sustainable agriculture must have three fundamental characteristics. It must be ecologically sound, economically viable, and socially responsible. Any system of farming that lacks any one of the three quite simply is not sustainable. This is not a matter for debate; it is just plain common sense. A sustainable agriculture must protect and maintain the productivity of its natural resource base. If the land loses its ability to produce, the farm is not sustainable. A sustainable agriculture must provide for the food and fiber needs of people, but it also must provide people with opportunities to lead successful lives. Agriculture must do its part to sustain society or society will not sustain that type of agriculture. Finally, a sustainable agriculture must make sufficient profits for farms to remain economically solvent. If the farmer goes broke, the farm is not sustainable.

No one of the three dimensions is any more or less important to
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sustainability than the others. The ecological, economic, and social dimensions of sustainability are like the three dimensions of a box. A box that is lacking in height, width, or length quite simply is not a box. A farm that lacks economic viability, ecological integrity, or social responsibility quite simply is not sustainable.

Farmers motivated by sustainability share a common pursuit of an enlightened self-interest, in spite of their diversity in many other respects. They are not trying to maximize profit, but instead are seeking sufficient profit for a desirable quality of life. They recognize the importance of relationships, of family and community, as well as income, in determining their overall well being. They accept the responsibilities of environmental stewardship, not as constraints to their selfishness, but instead, as opportunities to lead more meaningful, successful lives. To them, practicing friendship and stewardship are not sacrifices made solely for the benefit of others, but are means by which they pursue a higher quality of life.

Sustainable farmers seek to farm in harmony with the world around them. They match their unique abilities and talents with their land, their community, and their markets. This requires a higher level of understanding of themselves, their capabilities, their values, and their purpose in life. This requires a higher level of understanding of consumer tastes and preferences and of the uniqueness of relationship markets. This requires a higher level of understanding of the land and of nature’s productive processes. In general, sustainable farming requires more intensive resource management – more thinking and creativity per acre of land or dollar of investment.

Sustainable farming is thinking farming. It requires an ability to translate observation into information, information into knowledge, knowledge into understanding, and understanding into wisdom. Certainly, sustainable farming involves hard work, but farming sustainably is not the “first stage of development beyond hunting and gathering.” It is the next stage, beyond
“industrialization.” Sustainable agriculture is very much in harmony with a post-industrial paradigm for future human progress – the next step forward in the ongoing process of human development. Sustainable farmers are thinking workers – or working thinkers. Contrary to Blank’s suggestion that America must abandon agriculture as it moves beyond industrialization, perhaps America simply needs to embrace this new kind of agriculture that brings with it a new vision for the American economy and society.

This new paradigm for agriculture is being developed by thousands of farmers all across the American continent and all around the world. These new American farmers are developing the replacement for the old industrial model of agriculture. They are developing a new pattern for farming in the future. Farming sustainably is no simple task, but thousands of farmers are finding ways to succeed. They may carry the label of organic, low-input, alternative, biodynamic, holistic, permaculture, or no label at all, but they are all pursuing common economic, ecological and social goals. By their actions, these farmers are defining the new American farm.

These farmers, not the experts or the scientists, are the ones on the new frontier – they are the explorers, the colonists, the revolutionaries, and the builders. As on any frontier, life is difficult because no one really knows how to do what these folks are trying to do – they are creating the future. They are getting little help from the government, their universities, or the agricultural establishment. They are doing it pretty much on their own. They will continue to confront hardships, frustrations, and there will be some failures along the road. But, more and more of these new farmers are finding ways to succeed.

There are no blueprints for this new way of farming. But a few fundamental principles are beginning to emerge. In general, the new farming opportunities arise directly from exploiting the weaknesses resulting from misuses of industrialization -- specialization, standardization, and centralized decision making. The new farm relies instead on the
advantages of diversity, individuality, and decentralized networks of interdependent decision-makers.

New farmers focus on working with nature rather than against it. The natural resource base that ultimately must sustain productivity is inherently diverse. Industrial systems have had to bend nature – to augment, supplement, alter, and force it-- to create an allusion of conformity out of diversity in order to meet the demands of large-scale, industrial production. The ecological problems arising from industrialization are symptoms of natural resources being used in ways that are inherently degrading to their productivity. Thus, industrialization has created opportunities for farmers who can learn to utilize the inherently productive capacity of a diverse natural resource base, rather than wasting time and money trying to force nature to conform.

These new farmers utilize practices such as management intensive grazing, integrated crop and livestock farming, diverse crop rotations, cover crops, and inter-cropping. They manage their land and labor resources to harvest solar energy, to utilize the productivity of nature, and thus, are able to reduce their reliance on external purchased inputs. They are able to reduce costs and increase profits while protecting the natural environment and supporting their local communities.

These new farmers focus on providing value to their customers. They realize that each of us value things differently, as consumers, because we have different needs and different tastes and preferences. Industrial methods are efficient only if large numbers of us are willing to settle for the same basic goods and services – so they can be mass-produced. So, industrialization has to treat us as if we are all pretty much the same. Customers have to be persuaded, coerced, and bribed to buy the same basic things rather than the things they really want. That’s why we pay more to those who package and advertise food than we pay to the farmers who produce the food. The industrial system creates tremendous untapped opportunities for farmers who can tailor their products to conform
to unique needs and preferences of individual customers, rather than try to bend the preferences of customers to conform to their products.

New farmers market in the niches. They market direct to customers through farmers markets, roadside stands, CSAs, home delivery, mail order, or by customer pick-up at the farm. They use everything from the Internet to word-of-mouth to advertise their services. They market to people who care where their food comes from and how it is produced – locally grown, organic, humanely raised, hormone and antibiotic free, etc. They are often able to avoid some or all of the processing, transportation, packaging, and marketing costs that make up 80 percent of the total cost of mass marketed foods. They increase value, reduce costs, and increase profits while protecting the environment and helping to build stronger local communities.

New farmers focus on what they can do best. They realize that we are all different -- as producers as well as consumers. We have widely diverse skills, abilities, and aptitudes. Industrialization has had to bend people -- train, bribe, and coerce -- to make them behave as coordinated parts of one big machine rather than as fundamentally different human beings. Many problems of today’s society are symptoms of people being used by industrial systems in ways that are inherently degrading to our uniquely human productive capacities. Industrialization has left tremendous untapped economic opportunities for farmers and others who can use their unique capacities to be productive rather than attempt to conform to systems of production that just don’t fit.

These new farmers may produce grass finished beef, pastured pork, free range or pastured poultry, heirloom varieties of fruits and vegetables, dairy or milk goats, edible flowers, decorative gourds, or dozens of other products that many label as agricultural “alternatives.” They find markets for the things they want to grow and are able to grow well rather than produce for markets where they can’t compete. Or they may produce common commodities by means that are uniquely suited to their talents.
Their products are better, their costs are less, and their life is better because they are doing the things that they do best. New farmers focus on creating value through uniqueness – among consumers, among producers, and within nature.

In general, new farmers link people with purpose and place. By linking their unique productive capacities with unique sets of natural resources to serve the needs and wants of unique groups of customers they create unique systems for meeting human needs that cannot be industrialized. The more unique their combinations of person, purpose, and place; the more sustainable will be the value to customers and producers alike. The sameness of industrialization creates opportunities for unique farmers who can create unique linkages with both resources and customers.

Must everything be quick, convenient, and cheap?
At a recent conference on organic farming, a consumer in the audience made the statement that organic foods would never catch on with mainstream consumers until it becomes “quick, convenient, and cheap.” That question forced me to think about American values, and eventually, to think about what has brought us to the potential “end of agriculture in the American portfolio.” It’s our demand that our food must be quick, convenient, and cheap that has caused us to industrialize our agriculture and now encourages us to move our food production to other nations of the world. It’s also our demand that our food be quick, convenient, and cheap that has caused us to degrade our natural environment, to destroy our rural communities, and to force millions of farm families off the land. Hopefully, we are beginning to realize that food that is quick, convenient, and cheap quite simply is costing us more time, effort, and wealth than humanity can afford – once we consider the full social, ecological, and human costs of production.

Perhaps it will take more time, effort, and money in the short run for American farmers to farm sustainably. However, over the longer run, the costs of sustainable farming will decline as we restore the productivity of
nature, and the costs of industrial farming will climb as we continue to degrade the productivity of nature. Within a decade or two, we will be able to produce more at a lower cost with new systems of farming that degrade neither land nor the people.

Perhaps it will take more time and more people to farm sustainably – but after all, “what are people for?” If a new way for farming can provide a desirable quality of life, why shouldn’t more Americans be farmers? Perhaps we consumers will need to take more time acquiring and preparing our food. But, what better use can we make of our time than in creative activities that enhance our health and quality of life in preparing and eating meals together?

Perhaps it will take more effort, specifically more mental effort, to support the new American system of food and farming. But most things that are not mentally stimulating, or even mentally challenging, likewise contribute very little to our overall quality of life. In general, things that are quick, convenient, and cheap are rarely worth the time, effort, or money they demand.

Perhaps it’s time to stop looking for things that are quick, convenient, or cheap and instead begin searching for things that are worth the time, effort, and money required to do them right. Perhaps it’s time to end the era of industrial agriculture in America, and to welcome the new American farm.

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Reclaiming the Sacred: Sustainable Farming as a Metaphor for Sustainable Living

John Ikerd


The problems confronting agriculture and the problems confronting society in general share a common source: the dysfunctional nature of relationships among people and between people and the earth. Consequently, the solutions to the problems of society are essentially the same as solutions to the problems of agriculture. In farming, the critical nature of the interrelationships among people and between people and the earth is perhaps more apparent than in any other form of human activity. So, the nature of the problems and solutions are more easily seen and understood in agriculture than in society in general. Thus, farming provides a useful metaphor for living. And more important, a sustainable agriculture, an agriculture that reconnects people with the earth and with each other, provides a useful metaphor for a sustainable society.

The productivity of a farm clearly depends on the health and natural fertility of the soil. And, the fertility of soil depends not only on its mineral and chemical composition but also upon the millions of organisms that live in the soil, in a symbiotic relationship with the roots of plants. The productivity of farms clearly depend on the health and natural vigor of plants and animals, which in turn depend on soil, water, air, and sunlight – and upon the biological diversity of their natural environment. Healthy soils feed healthy plants and healthy plants feed healthy animals – including we humans who eat both plants and animals.

The profitability of a farm depends on the nature of relationships among
people – between farmers and their customers and between farmers and their suppliers. A profitable farming operation must have good markets – someone somewhere must be willing and able to pay for things that farmers offer for sale. A profitable farming operation also must have some control over its costs of production. No selling price is high enough if input suppliers simply raise their prices and absorb the farmer’s profits. The economic viability of a farm clearly depends on economic relationships, which in fact, are nothing more or less, than impersonal relationships among people.

The quality of life on a farm certainly is affected by farm income, but clearly depends at least as much on quality of personal relationships among those who live and work on farms and between farm families and their communities. Historically, family farms have involved the whole family in important farming decisions, as well as depended on all members of the family for labor. Historically, farm families have been more isolated by geography than have non-farm families, and thus, have relied more on each other for social, recreational, and emotional relationships. Likewise, many farming communities have remained isolated from the economic mainstream, making the interdependence between farm families and the social and political life of rural communities more clear. The same types of personal interdependence exist throughout society, but in farming, they are easier to see and to understand.

The environmental, social, and economic problems confronting American agriculture today are symptoms of the industrialization of agriculture – specialization, standardization, and consolidation of control. Specialization leads to separation and to the destruction of interconnectedness. Large-scale, specialized farming operations must rely on commercial fertilizers and pesticides that destroy the health and productivity of the soil. The demise of family farms is a symptom of simplification, routinization, and mechanization of farming, which made it
both possible and necessary for each farmer to farm more land and invest more capital. As some farms failed so that others might get larger, local businesses suffered, local schools were lost to consolidation, church pews were left empty, and rural communities withered and died. Relationships among people and between people and the land were sacrificed for the sake of physical and economic efficiency.

The specialization and standardization, which first led to fewer and larger farms, is now shifting control of farming to a handful of multinational corporations. Under corporate control, American agriculture might well be moved to other countries with lower land and labor costs and fewer environmental regulations. People are becoming even more separated from their roots in the soil by a global, industrial food system. The long run sustainability of agriculture depends on maintaining healthy relationships. And, the sustainability of American agriculture is in doubt.

Large-scale confinement animal feeding operations (CAFOs) epitomize the industrialization of American agriculture. With these giant animal factories – producing poultry, eggs, hogs, milk, etc. – the economic, ecological, and social impacts of industrialization on rural communities are clear. These corporately controlled animal factories move to economically depressed rural areas where people are desperate for jobs. They provide a few low-paying jobs in the community – the high-paying jobs are invariably located somewhere else – but they displace far more family farmers who were producing those same commodities elsewhere. They may enhance the local tax base but they increase demands on local public services far more than they add to local government coffers. In addition, CAFOs inherently pollute the natural environment, with noxious odors in the air and animal waste in streams and groundwater, raising legitimate concerns for human health and for the health of natural ecosystems.

Rural communities are split by continual feuding, with those who benefit
from new jobs and increased tax revenues on one side and displaced family farmers and local residents who bear the costs of polluted air and water on the other. The community loses its ability to govern itself effectively, and the corporation fills the leadership vacuum. The corporations continually threaten to move their operations elsewhere where environmental regulations are less bothersome and local people are less hostile. And, when the corporation finds somewhere else, either at home or abroad, where people will work even harder for less pay, they move on and leave the community with the mess to clean up and with relationships to mend. In these large-scale, animal factories, the connections between the industrial paradigm and its threats to ecological, social, and economic sustainability are clear and compelling.

Those same relationships exist between industrialization and threats to sustainability for society in general. But, modern society is extremely complex and the relationships are not quite so clear. All of life, including human life, is dependent upon a healthy natural environment – water, air, sunlight, soil, and diversity of living species. Industrial systems of economic development degrade the health of the natural environment in general, just as industrial agriculture degrades the natural productivity of farms. Industrial systems degrade the productivity of people. As Adam Smith wrote in his Wealth of Nations, regarding division of labor, people who only perform specialized, routine tasks eventually lose their ability to solve problems, to be innovative and creative. In Smith’s words, they become “as stupid and ignorant as is possible for a human creature to become.” Industrial systems, in general, degrade the physical and mental well being of people while they pollute and degrade the natural environment -- just as industrial agriculture degrades the social and ecological health of rural areas.

With industrial systems, profits and growth take precedent over personal relationships and social responsibility. Specialization and standardization separate people within families and within communities and devalues
human relationships. Relationships among people are reduced to buying and selling or other forms of legal transactions. As relationships become distant and impersonal, exploitation of workers, consumers, and taxpayers becomes accepted business practices. The social, ecological, and economic degradation of America is no different in concept from the demise of our family farms and the ecological, economic, and social decay of our rural communities. The linkages between cause and effect are just easier to see in agriculture.

On the positive side, the keys to building a more sustainable human society are no different in nature from the keys to building a more sustainable agriculture. Thankfully, farmers all across America and around the world are finding ways to make agriculture more sustainable. A recent publication of the USDA Sustainable Agriculture Research and Education program highlights fifty such farmers from across the United States.¹ There are thousands more, each with a unique and different story, but each sharing a common vision for a more sustainable agriculture. These farmers are creating a new agriculture, and in so doing, are creating a new metaphor for human society.

This is a “new breed” of farmer, with a new vision for the future. They are rediscovering the roots of agriculture; they are reconnecting to the land and to each other, and in the process, are redefining farming. They are finding ways to capitalize on the weaknesses of the industrial paradigm that has dominated agriculture for the past century. They are successfully bucking the trend toward larger farms, which has meant fewer farms and fewer farmers. They are finding ways to make a better living on smaller farms, making room for more, rather than fewer, farms and farmers. They are lowering the barriers to farming by creating an agriculture that depends more on knowledge and understanding of nature, including human nature, and less on capital and access to technology. This new breed of farmers is creating new opportunities for anyone who has a willingness to work hard, a commitment to continual learning, and a love
of the land and people. They are reconnecting people to the land and to each other and are creating a new kind of farming for the new century.

While there are no blueprints for the new American farm, some fundamental principles are emerging. The new farms tend to be more diversified than are conventional farms. These farmers are committed to caring for the land and protecting the natural environment. They work with nature, rather than try to control or conquer nature, and nature is inherently diverse. They fit the farm to their land and climate rather than try to bend nature to fit the way they might prefer to farm. In most regions, this requires a variety of crop and animal enterprises. In some regions, however, diversity means crop rotations and cover crops. In other regions, diversity means managing livestock grazing to achieve diverse plant species or with multiple species of grazing animals. Through diversification, these new farmers substitute management for the off-farm inputs that squeeze farm profits and threaten the environment. They are farming in ways that are more economically viable, as well as more ecologically sound, by reconnecting with nature.

The new farmers tend to have more direct contact with their customers than do conventional farmers. Most either market their products direct to customers or market through agents who represent them with their customers. They realize that each of us value things differently as consumers, because we have different needs and different tastes and preferences. They produce the things that their customers value most, rather than try to convince their customers to buy whatever they produce. They market to people who care where their food comes from and how it is produced – locally grown, organic, natural, humanely raised, hormone and antibiotic free, etc. – and, they receive premium prices because they produce what their customers value. They are farming in ways that are more economically viable, as well as more socially responsible, by reconnecting with people.
To these new farmers, farming is as much a way of life as a way to make a living. They are “quality of life” farmers. To them, the farm is a good place to live, a good place to raise a family, and a good way to be a part of a caring community. Their quality of life objectives are at least as important as the economic objectives in carrying out their farming operations. Their farming operations reflect the things they like to do, the things they believe in, and the things they have a passion for, as much as the things that might make money. However, for many, their products are better and their costs are less because by following their passion they end up doing what they do best. Most new farmers are able to earn a decent income, but more important, they have a higher quality of life because they are living a life that they love – they are reconnecting with their own basic nature.

These new farmers build relationships, among each other and with their customers, as well as with their land. They freely share information, they form partnerships and cooperatives to buy equipment, and to process and market their products – to do together the things that they can’t do as well alone. They are not trying to drive each other out of business; they are trying to help each other succeed. They are not trying to take advantage of their customers to make quick profits; they are trying to create lifelong social and economic relationships with customers. They buy locally and sell locally. They refuse to either exploit each other – or to exploit the land. They are reconnecting people with the land and reconnecting people with each other.

Perhaps most important, these new farmers are challenging the conventional wisdom that farmers must either get bigger, give into corporate control, or get out of farming. They are challenging the conventional wisdom that farming is just another bottom-line business, and that farmers who fail to maximize profits are destined to go broke. They are challenging the conventional wisdom that farmers must adopt the latest science-based technologies, chemical or genetic, or they will
become obsolete and fail. They are challenging the conventional wisdom that a farm is nothing more than a factory without a roof and that fields and feed lots nothing more than biological assembly lines. They are challenging the conventional wisdom that “man” must conquer and control nature and that some must fail so that others may succeed. These new farmers are rejecting conventional wisdom and relying instead on their “common sense.”

Their common sense tells them that they must work with nature, respect their customers, live with integrity, and help each other – if they are to be truly successful. Their common sense tells them that their farms must be ecologically sound and socially responsible if they are to be economically viable over the long run. Their common sense tells them that quality of life has personal, interpersonal, and spiritual dimensions, and that preoccupation with any one of the three destroys the harmony and balance necessary for a life of quality. Implicitly, if not explicitly, these farmers realize that there is a higher order of things, an order they did not create nor can they change, to which they must conform if they are to lead lives of purpose and meaning.

Common sense, as the name implies, is something that is shared in common among all sensible human beings. Such common sense is not a product of education, experimentation, life experience, culture, or environment. It spans all economic and social strata of all cultures across all eras of time. This concept of common sense is related to Plato’s concept of “pure knowledge.” Plato argued, in around 400 BC, that one can never gain “pure knowledge” through observation because anything that can be observed is always changing, whereas, pure knowledge never changes. He argued that we observe only imperfect examples of the true “form” of things – the order or architecture of pure knowledge. Thus, we can observe examples of “form” and we can visualize ideas of true “form” in our minds. But, we can never actually observe true “form,” i.e., the order of pure knowledge, because it exists only in the abstract.
Our common sense is our “insight” into the nature of “pure knowledge.” Through our common sense, we can “visualize in our minds” a higher level of organization, or higher order of things. Through observing the interrelationships among things in nature, including human relationships, we can gain insights into the nature of this higher order. But we can never fully understand it, because it exists only in the abstract.

Conventional wisdom is something fundamentally different from common sense – although the two are sometimes mistakenly used interchangeably. Both represent widely held opinions, but the sources of those opinions are quite different. Conventional wisdom is rooted in logic and reason – in conclusions drawn from past observations. Sometimes the logic and reasoning are faulty, and thus the conclusions are faulty, but conventional wisdom is always based on some past observation or experience. Conventional wisdom need not be based on first-hand observation; it may be passed down from generation to generation. And conventional wisdom may include some things that make common sense. However, something “makes sense” to us only if we “sense” it is true – only when the truth of it is validated by the spiritual or metaphysical rather than the logical part of our being. Some people choose to deny their common sense, and instead rely solely on logic and reason. But, we all have access to common sense, if we choose to use it.

Even the founding fathers of our country were capable, at times, of denying their common sense in favor of the conventional wisdom. The rightness of owning slaves was conventional wisdom until well into the 19th century – it had always been done. However, it has never made common sense that one person should dominate another. Thomas Jefferson wrote and spoke out against slavery, because he knew it was ethically and morally wrong. Yet, he helped draft a constitution that allowed slavery, and he personally owned slaves. Jefferson allowed conventional wisdom to take precedent over his common sense.
Until the 20th century, women in the U.S. were denied the right to vote – the conventional wisdom: their husbands should vote for them. In fact, former slaves were given voting rights in the U.S. before voting rights were granted to women. It didn’t make common sense, not then and not now, to deny women their voting rights. Thomas Payne, among other prominent revolutionary leaders, spoke out in favor of women’s suffrage in the writing of the U.S. constitution. But again, the leaders of the country allowed conventional wisdom to take precedent over common sense.

Most people today know that it is wrong to exploit the natural environment and we know that it is wrong to exploit other people for our personal benefit. It is just common sense that we should make conscious, purposeful decisions to take care of each other and to be stewards of nature. Yet, we participate in an economic and political system that is based on exploitation of nature and of people. We allow the conventional wisdom to take precedent over our common sense.

Historically, human societies haven’t had a particularly impressive record in relying on their common sense. “Common sense hasn’t been all that common.” However, over the past couple of hundred years, the concept of common sense has been purposely debased and its value denied. The emergence of the “age of reason” challenged human civilization to insist on scientific validation of their insights and intuitions – if you couldn’t “prove” it, you had no way of knowing that it was true. If you couldn’t observe it, you certainly couldn’t prove it. And if you couldn’t prove it was true, it was discarded as irrational superstition.

If common sense couldn’t be converted into scientific knowledge, through observation and validation, it was relegated to the category of illogical beliefs. The concept of common sense was derided as the “wisdom” of the foolish, the uneducated – the unscientific. In essence, unverifiable common sense was relegated to the realm of the metaphysical or the
spiritual. And matters of spirituality were related to the realm of the unscientific and therefore unreal.

Among the most notable challengers to the irrational and spiritual was Descartes, a Frenchman, who proposed the dualism of spirit and matter. This division allowed scientists to treat inert matter as “dead” and completely separate from themselves, and to see the material world as made up of a multitude of different objects assembled as if parts of a huge, complex machine. Sir Isaac Newton, an Englishman, also held this mechanistic view of the universe and shaped it into the foundation for classical physics. Over time, scientists expanded the mechanical model to include the living as well as the “dead.” Scientists today treat plants, animals, and even people, as complex mechanisms with many interrelated, yet separable, functioning parts.

Scientists consider the spiritual realm, to the extent considered at all, to be in the fundamental nature of things – the unchanging relationships that they seek to discover. In science, there is no active spiritual aspect of life, only the passive possibility that the supernatural was involved somehow in the initial creation of the universe that we are now exploring. The more we learned about the working of that universe, the less we needed to attribute to God. The more we “knew” the less we needed to “believe.” As we expanded the realm of the “factual” we reduced the realm of the “spiritual” until it became trivial, at least in the important matters of life.

Without a spiritual foundation, the concept of science shifted from a “science of understanding” to a “science of manipulation.” Over time, the goal of science shifted from increasing “wisdom” to the goal of increasing “power.” We didn’t want just to understand how things happen; we wanted to make things happen. We didn’t want just to understand the universe; we wanted to dominate the universe. The purpose of science had shifted from enhancing knowledge to enhancing our ability to influence, direct, and control.
During the early part of 20th century, physicists developed fundamentally new theories they called quantum physics. The emergence of quantum physics challenges the old mechanistic worldview. Quantum physics views everything as interconnected – there are no independent and dependent elements. Everything is “interdependent.” Reality exists as “potentials,” which become “real” only when “observed,” within a specific context. The reality observed always depends upon the observer – they are related. The “living” and the “dead” are inseparable. However, mechanical reductionism, which attempts to explain all biological processes as purely chemical and mechanical processes, still dominates the applied biological sciences from agriculture to medicine.

The industrialization of agriculture was a direct result of this mechanistic, scientific worldview. Farming was one of the last strongholds for the sacred in the world of science. “Mechanical” processes – using machines to manufacture things from “dead” matter – were relatively easy to understand and manipulate. But, “biological” processes – involving living organisms, including humans – proved much more difficult to understand and to manage. Farming and food are fundamentally biological in nature. So it took far longer to learn to manipulate and control agriculture.

However, science eventually succeeded in taking the mysteries and miracles out of farming – at least out of commercial, industrialized farming. Science eventually brought nature under its control. People are difficult to understand and manipulate. But, machines took the laborers out of the fields, so farming became more manageable. Selective breeding brought genetic vagaries more or less under control. Genetically modified organisms (GMOs) are but the latest attempts by humans to manipulate and control other life forms.

Commercial fertilizers gave farmers the power to cope with the uncertainties of organic-based nutrient cycling. Commercial pesticides
provided simple scientific means of managing predators, parasites, and pests. Deep-well irrigation reduced the grower’s dependence on rainfall. Confinement feeding facilities protected livestock from the adverse elements of weather. Processing, storage, and transportation – all mechanical processes – removed many of the previous biological constraints associated with form, time, and place of production.

Supermarkets and restaurants are but the final stages in long and complex assembly lines for food that begins with manufactured genetics and ends with electronic scanners. Why pray for rain when we can drill a well or dam a stream and irrigate? Why thank God for food created by ADM and ConAgra? Who needs God when we have modern science and industrial technology?

The new sustainable paradigm of farming, however, challenges the conventional wisdom of a mechanistic, industrial agriculture. Sustainable agriculture is firmly rooted in common sense. It embraces respect for the spiritual, the mystery and miracles of life, without rejecting the science of understanding. Sustainable farmers know that science can be used to gain greater understanding of the nature of things. But, sustainable farmers also know that there are fundamental laws of nature, including human nature, that cannot be manipulated by science and technology. Sustainable farming is based on the common sense that we must conform to the laws of nature rather than the conventional wisdom that science and technology can solve any problem and overcome any obstacle that nature might present.

Sustainable agriculture is rooted in the belief that plants, animals, people, and all living things are interconnected with each other and with the earth in some higher order of things that we can neither conquer nor control. If we are to sustain agriculture, and sustain human life on earth, we must learn to live in harmony within that order – in harmony with the spiritual dimension of reality. If we are to sustain agriculture, we must return to our
common sense.

The road to a more sustainable human society, like the road to a more sustainable agriculture, must begin with a return to common sense. This is not a call to return to superstition and mysticism, but to return to the spiritual and sacred. This is not a call to embrace the irrational, but a return to what we know to be true. Plato didn’t consider it irrational to believe in the existence of an unknowable “form” of pure knowledge. Einstein didn’t consider it irrational to try to understand the order of the universe by asking, “how might God have designed it to work?” It is not unscientific to believe that God gave us all a common sense of right and wrong or truth and falsehood, it’s just against the current conventional wisdom. The call for sustainability is a call to embrace the science of understanding while rejecting the science of manipulation and control. It is a call to challenge the conventional wisdom that “man can be his own God,” to reclaim the sacred, and to return to our common sense.

A return to common sense is an acknowledgement of the existence of a higher order of things of which we are a part. It is an acknowledgement of the interconnectedness of all things in a web of life defined by a set of inviolate laws of nature, including human nature, to which we must conform. It is an acknowledgement that we are not our own God, nor can we ever be our own God. Instead, we are a part of God’s creation and the purpose and meaning of our lives is defined by our place in the order of that creation. We can never acquire pure knowledge through observation, because it exists only in the abstract. While observations of examples of reality may be useful, our only source of true knowledge must come through intuition and insight – through our common sense.

The emergence of a new more sustainable American farm gives cause for optimism for the future of humanity because it signals a return to common sense. These new farmers are facing tremendous odds in the practical arenas of economics and politics. They may seem insignificant as players
in the corporate scramble for control of the global food market. While they struggle to understand how to better work with nature, billions of public dollars are spent each year to promote agricultural industrialization, through biotechnology and other futile attempts to bring nature under the control of “man.” These new farmers also seem insignificant as claimants of funds for public research and education, while politically and economically powerful biotech firms court university researchers and administrators. But, while conventional wisdom is against them, common sense is on their side.

These new American farmers can succeed – they can succeed, in part, because they are rebuilding personal relationships as they go about their work of building more sustainable farms. They are building connections with their customers through Community Food Circles – which list local suppliers of all sorts of farm and food products available for direct sales to local customers. They are building connections through Community Supported Agriculture, where customers pay for a seasons-worth of produce at the beginning of the season, and farmers share both the risk and the bounty with their members. They are making new connections with customers at farmers’ markets, where many customers come each week to buy specific items from “their farmer.” And, they are making new connections with chefs and restaurant owners, not only by supplying high quality products, but also by making personal commitments to work together to connect with diners. They are succeeding because they are rebuilding the web of personal relationships and thereby creating a new web of understanding.

Many also are making new connections with people that they never meet face-to-face, as they market through personal agents who represent them as farmers, rather than just their product. They make new connections when they market on the Internet or through the mail, whenever they sell themselves along with their products. Some are even connecting when they sell through supermarkets, when they back their products with their
personal reputation rather than with just a guarantee. Personal relationships are built by believing, trusting, caring, and sharing. These things are easier when done face-to-face but can be done at a distance. And, these things must be done among people – not corporations. By reconnecting people, they are restoring integrity to the food system and improving their odds of success.

These new farmers also are strengthening relationships within their own families and with other farmers, as they learn to cooperate rather than compete, as they pursue a higher quality of life rather than a higher standard of living. They are making new connections with non-farmers through various “sustainable-agriculture-like” organizations, through community groups, and through a whole host of different types of conferences and workshops, which encourage diverse participation by farmers, consumers, educators, public officials, and the general-public. While reconnecting with each other, they are reconnecting with the larger society.

There is added reason for optimism because this same type of trend is taking place across society – not just in food and farming. Agriculture is but a small part of the broad-based sustainability movement that spans nearly every aspect of society – a unique and critical part, but still just a small part. Little by little, society is beginning to wake up to the consequences of our disconnectedness from nature and from each other, and people are beginning to reconnect in hundreds or thousands of little, but significant, ways. As we work to reconnect with others in our little part of the world, we are doing our part to bring about the transition to a more sustainable society. By restoring the web of relationships, we are creating new sources of strength through harmony.

One by one, as we find the courage to challenge the conventional wisdom of the status quo with common sense need for change, we are helping to create a better world. Susan B. Anthony, the champion of voting rights for
women in the U.S. once said, “Cautious, careful people, always casting about to maintain their reputation and social standing, never can bring about reform. Those who are really in earnest must be willing to be anything or nothing in the world’s estimation.” It takes courage to bring about change. But Margaret Mead, an award winning cultural anthropologist, once said, “Never doubt that a small group of thoughtful, committed citizens can change the world, indeed it’s the only thing that ever has.” As each of us finds the courage to change our selves and to influence our little piece of the world, we can change the world. Indeed, this is the only thing that ever can.

The rest of us need to learn from the example of the new America farmers – the new farmers for the new century. We need to reclaim the sacred in our lives, as they have reclaimed the sacred in farming. We need to start a new economic and social revolution as they have started in farming. We need to reject the science of manipulation in favor of the wisdom of sustainability. We need to return to our common sense.

1 “The New American Farmer – Profiles in Agricultural Innovation,” the SARE Program, USDA, Washington DC. ($10 US – call: 802-656-0484 or e-mail: sanpubs@uvm.edu, also available free on line at http://www.sare.org/newfarmer )
Sustainable Agriculture: It’s About People

John Ikerd


Sustainable agriculture probably is viewed by most people as an environmental issue. In fact, many questions concerning sustainability do have their roots in the environmental movement. The concept of “sustainable development” came into the consciousness of many people following the first major international conference on environmental issues sponsored by the United Nations in Stockholm, Sweden in 1972. The concept of “sustainable agriculture” was first promoted in the public policy arena during the 1980s by the organic farming community – led by the Rodale Institute, a long-time advocate of environmental causes. So, it’s only natural for people to relate sustainability with the environmental movement.

However, sustainable agriculture gained its initial credibility in the public policy arena as an economic issue. During the farm financial crisis of the 1980s, American farmers were caught in a financial squeeze between chronically depressed commodity prices and continually rising costs of production inputs – fertilizers, pesticides, fuels, etc. The organic farming community had been lobbying, without much success, to get the USDA to support research and education programs that would reduce, if not eliminate, farmers’ reliance on commercial chemical inputs. A compromise between conventional farmers, who wanted to reduce input for economic reasons, and organic farmers, who wanted to reduce inputs, for philosophical reasons, resulted in the USDA’s LISA (Low Input Sustainable Agriculture) research and education program. However, some of the early advocates saw sustainable agriculture as a simple
matter of economics – “if it’s profitable, it’s sustainable, if it’s not profitable it’s not,” they said.

The agribusiness community openly opposed the LISA program. They were not going to support any government program that might reduce the farmers’ reliance on their products and decrease their profits. They used everything from making jokes about the LISA name, to raising the specter of mass starvation, to phony “research plots” using “no fertility or pest management” to represent LISA farming systems. The tactics weren’t ethical, but they worked. USDA abandoned the LISA program and shifted the emphasis from reducing inputs to natural resource management through a new Sustainable Agriculture Research and Education (SARE) program.

The social dimension of sustainable agriculture rose to public awareness out of the SARE program. Sustainable agriculture was defined in the SARE legislation as systems of farming that, among other things, would “enhance the quality of life for farmers and society as a whole.” In the legislative discussion, “quality of life” was defined to mean, to “increase income and employment -- especially self-employment -- opportunities in agricultural and rural communities and to strengthen the family farm system of agriculture, a system characterized by small and moderate sized farms which are principally owner operated” (Congressional Record 10/22/90:H11128). Thus, sustainable agriculture was defined to included social responsibility – to increase self-employment opportunities in rural communities and on owner-operated, small- and moderate-sized, family farms.

Thus, sustainable agriculture is about the environmental integrity, about economic viability, and about social responsibility, but ultimately, it’s about people. The fundamental purpose of agriculture is to meet the needs of people – to tip the ecological balance in favor of humans relative to other species. However, agriculture is rooted in nature – in soil, air, water,
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plants, animals, and the other elements of natural ecosystems. The earth and everything upon the earth, including people, are parts of that natural ecosystem. And, according to the fundamental principles of ecology, if we attempt to tip the balance of nature in favor of humans too far or too fast, we will destroy the integrity of the ecosystems of which we ourselves are a part.

In other words, a healthy, diverse environment is necessary for the long run well being of humans. If we degrade the natural environment – the soil, air, or water – we degrade its ability to provide for the food and fiber needs of people. If we destroy the quality of the environment – the purity of air or water – we degrade the health and well being of people. If we destroy other living species of the earth, we may ultimately destroy the ability of the earth to support human life. We must maintain the integrity of the natural ecosystem in order to sustain its ability to sustain the life and health of people, because we are a part of the natural environment.

However, the economy provides the means by which we relate to the natural environment, and to each other, within complex human societies. In primitive self-sufficient societies, people relate directly to each other. They provide most of their own needs, they work together, and they barter to acquire the things they cannot produce for themselves. In such societies, people relate directly with the natural environment, they farm the soil, cut lumber from the forests, and dig minerals from the earth to meet their needs. However, as societies move beyond self-sufficiency, they develop “money” and “markets,” and impersonal systems of “economics” to facilitate greater specialization and trade. As economies emerge, relationships between people and the natural environment become impersonal and indirect. Farmers, foresters, and miners sell their products to other specialized producers and receive money in return. The economy then determines who gets to make decisions about how the natural resources are used – who gets to be farmers, foresters, miners, etc.
In a market economy, if a farmer can’t make a living farming, he or she will be forced to find another line of work. So, if their current method of farming isn’t profitable, or otherwise financially viable, farmers are forced to either find a profitable alternative to the current system or find something else to do for a living. Therefore, ecologically sound farming methods will not be used unless they are also economically viable. If the farmer goes broke, his or her farming operation is not sustainable, no matter how ecologically sound it may be. However, the fact that a system of farming is profitable in the short run, even over a few decades, doesn’t mean that that farming system is sustainable over the long run. Short run profits may well be gained by exploitation, by mining wealth from the natural environment. Any system of resource development that is based on exploiting the wealth of nature, rather than maintaining its productivity, is not sustainable over time. Economic viability is a necessary condition for sustainability, but it is not sufficient.

The concept of a profitable, environmentally sound agriculture has been grudgingly embraced by nearly everyone associated with agriculture in America. Even the large agribusiness corporations – including Monsanto and Du Pont – have “sustainable agriculture” programs, which focus on reducing the negative environmental impacts of conventional farming methods. However, strong resistance still exists to accepting the “social responsibility” dimension of sustainability. Some label it as “social engineering” – imposing one particular set of social values on the rest of society. Others argue that our “free market” economy ensures “socially responsible” behavior – that the market is the best arbiter of social equity. Thus, agribusiness firms, most farm organizations, most commodity groups, and even many universities resist acknowledging social responsibility as a prerequisite for sustainability.

Perhaps, markets are capable of ensuring “equity,” in some sense of the word, but markets are not capable of ensuring “equality.” Civilization is
based on the premise that people are capable of rising above a “survival of the fittest” way of life. Certainly, there are some aspects of civilized societies in which it is deemed appropriate that people be rewarded in relation to their ability – whether it is physical strength, mental ability, or economic cunning. However, one mark of a civilized society is their ability to define and defend those rights that accrue equally to all, regardless of their physical or mental ability or their ability to earn income or accumulate wealth. In America we have defined “life, liberty, and the pursuit of happiness” as fundamental rights to which all must be given an “equal” opportunity. This is not social engineering – it is a legitimate, civilizing function of government.

A socially responsible agriculture must provide for the food and fiber needs of people. But, social responsibility goes beyond simply making sure that enough is produced to meet the needs of those who are willing and able to pay. In America, all people have a fundamental right to sufficient food to ensure their life, growth, and health, regardless of their ability to pay. In a “civilized society,” to the extent that such minimum levels of nutrition are available for any, they must be available for all. A society that is unwilling to accept this responsibility could hardly be called civilized. Certainly, the government must be involved in ensuring the social responsibility of agriculture, but such is the legitimate and logical function of government. A socially responsible agriculture must ensure food “security” for all.

The concept of social responsibility extends to the producers as well as the consumers of food. “Man does not live by bread alone.” A socially responsibility agriculture must ensure that the people who produce the food have an opportunity to lead successful, productive lives. This does not mean that society has a responsibility to ensure the success of everyone who might choose to farm by any means they might choose. However, it does mean that farmers should be protected from unfair competition in the market place. The concept of “free markets” was never
meant to imply the freedom of a handful of large corporations to dominate an industry. Neither should farmers be forced to exploit their land, their neighbors, nor their customers in order to maintain the economic viability of their farming operation. The concept of “free markets” was never meant to imply the freedom to degrade the earth or its people. Certainly, there is a role for government in ensuring the long run sustainability of agriculture. Farmers ultimately must be rewarded for contribution to public welfare, by protecting the environment and contributing to healthy communities, but such are the legitimate and logical functions of government.

If an agricultural system is incapable of supporting the needs of a society, then society will not support that form of agriculture. A system that is not socially responsible ultimately will degrade its resource base, will lose its ability to produce, and thus, cannot survive economically. We need look only to the communistic farming systems of Eastern Europe for clear evidence of farming systems that were not socially responsible, could not sustain society, and thus, could not be sustainable by society.

So a sustainable agriculture must be capable of meeting the current food and fiber needs of people, all people, while leaving equal or better opportunities for people of the future. To be sustainable, agriculture must be ecologically sound, economically viable, and socially responsible. The three dimensions of sustainability are not a matter of formal definition or legal precedent, but are a matter of common sense. If the land loses its ability to produce, the farm is not sustainable. If the farmer goes broke, the farm is not sustainable. And if a system of farming fails to support society, it will not be supported by society, and thus, is not sustainable. The economic, ecological, and social dimensions of sustainability are like the three dimensions of a box. All are necessary but none is sufficient. A box that is lacking in height, width, or length, quite simply is not a box. A farming system that is lacking in ecological integrity, economic viability, or social responsibility, quite simply is not sustainable.
With such a firm foundation in common sense, it might seem difficult to find credible opposition to the concept of sustainability. However, the opponents of sustainability find strong support in the current global culture of economic materialism. The dominant “social and ethical” paradigm of all industrialized nations today is “free market” economics. Contemporary economic thinking now permeates all aspects of modern life – private, public, personal, interpersonal, ethical, and moral. However, the economic paradigm has become universally accepted with very limited understanding of its roots, its legitimate function, or its ultimate implication for humanity.

Economics deals with the optimum allocation of scarce productive resources among competing consumptive uses. Economics is a very useful science, as we have seen over the past couple of hundred years. But economics, fundamentally, is about finding the optimum means for “using things up.” Economics has virtually nothing useful to say about conserving, sustaining, or regenerating productive resources, so that future generations will have opportunities to meet their needs as well. Economics has virtually nothing useful to say about using resources for anything other than consumptive purposes – about social equality or creating opportunities for people to lead productive, rewarding lives. Economics is about the pursuit of individual, short-run, self-interests. Our individual and collective “quality of life” is assumed to be the natural product of our success of our pursuit of individual, economic self-interests.

The economic system of competitive capitalism, which has evolved with contemporary economic thinking, has resulted in tremendous material gains for human society. No one would choose to go back to the pre-capitalistic, pre-industrial era of starvation, deprivation, drudgery, and subsistence living. However, with its tremendous gains, our dominate system of economic development brought with it important and significant unintended negative social and ecological consequences. Over time, as
the marginal gains from increasing economic materialism has diminished, the negative social and ecological consequences have risen, both in absolute magnitude, and even more in relation to the declining gains. Not the least among those growing costs is the current economic threat to the long run sustainability of society.

The economic development paradigm dominating the past two centuries has been industrialization. The emergence and development of the “industrial era” was supported and nurtured by the evolving economic theories of competitive capitalism. Adam Smith, in his landmark book, The Wealth of Nations, wrote of the tremendous gains in productivity made possible by specialization – division of labor. Specialization became one of the defining characteristics of industrialization. Standardization of form, function, and sequence emerged as the second characteristic of industrialization – facilitated by replaceable parts, mechanization, and assembly-line production. Standardization was necessary to coordinate the specialized functions to achieve productive and economic efficiency.

Finally, specialization and standardization simplified production processes and made functions more easily controlled – greatly increasing the effective span of management. Industrialization allowed the control of industry to be centralized or consolidated, with fewer decision-makers controlling more workers, more machines, more capital, more land, and more total productive resources. In economic terms, industrialization made possible tremendous “economics of scale.” Industrialization created tremendous societal benefits, in terms of material gains, but it brought with it tremendous unintended social and ecological costs. Not the least among the growing costs is the current threat of industrialism to long run sustainability.

The characteristics of the industrial paradigm – specialization, standardization, and centralization of control – are in direct conflict with
the fundamental principles of sustainability. A sustainable system of development must work in harmony with nature, to ensure long run ecological integrity and productivity. And, nature is inherently diverse. The niches with nature are small. As Charles Darwin pointed out, in his *Origin of Species*, the great diversity of species is a direct reflection of the diversity of nature. Large-scale, specialized systems of farming, forestry, mining, and fishing are in direct conflict with the diversity of nature, and thus, are an inherent threat to the long run sustainability of the natural ecosystem.

Sustainable systems must be site specific and individualistic. To ensure ecological integrity and social responsibility, we must fit the things we do to the uniqueness of specific places and of the specific people involved in the processes. The concept of standardization is in direct conflict with site and individual specificity, and thus, represents an inherent threat to sustainability. “Socially just” systems of production require independence of thought and action by individuals working in harmony with the diversity of nature and individuality of people, by making free and independent choices. Industrial economies of scale, achieved through consolidation of decision-making and control, represent an inherent threat to long run sustainability.

Economists defend our current exploitative systems of economic development based on the theories of competitive capitalism. However, the consolidation of economic power, to achieve economies of scale, has fundamentally transformed our economic system, bringing in doubt, if not outright invalidating, its most fundamental principles.

Contemporary economics is based on the observations of a British economist, Adam Smith, in his landmark book, *The Wealth of Nations*, published in 1776. From Smith’s observations, economists developed the fundamental assumptions, which underlie all “free market” economic thinking even today. These basic assumptions must hold in order for
Smith’s “invisible hand” of competition to transform individual greed into the greater good for society in general.

Markets must be economically competitive – meaning numbers of buyers and sellers so large that no single buyer or seller can have any noticeable effect on the overall market. In such markets, the benefits of more efficient production are quickly passed on to consumers. It must be easy for new sellers to enter markets that are profitable and easy for sellers to get out of unprofitable markets, so that producers are able to respond to consumers’ changing wants and needs with changes in production. Consumers must have clear and accurate information concerning whether the things they buy will actually meet their wants and needs. And finally, the consumer must be sovereign – their tastes and preferences must reflect their basic values, untainted by persuasive outside influences.

None of these assumptions is valid in today’s society. Today agricultural markets are dominated by the large agribusiness corporations, certainly at every level other than the farm level, and increasingly even at the farm level. In addition, it is not easy to get into or out of any aspect of agriculture, and it is becoming increasingly harder even to get into or out of farming. Consumers don’t get accurate, unbiased information concerning the products they buy, but instead get disinformation by design, disguised as advertising. Finally, consumers are no longer sovereigns. The food industry spends billions of dollars on advertising designed specifically to bend and shape consumers tastes and preferences to accommodate mass production and mass distribution, which enables corporate control of agriculture. There is no logical reason to believe that the corporate agriculture of today is evolving to meet the needs or wants of consumers. Such a system may produce lots of “cheap stuff,” but there is no assurance that it is producing the “right stuff.”

There is no logical reason today to believe food costs will be less or food quality will be enhanced after even more family farmers are forced out of
business. There is no reason to believe that food will be cheaper or higher in quality when free market coordination is replaced with corporate contractual coordination of the food system, as is happening in agriculture today. On the contrary, there is every reason to believe that the corporatization of agriculture will lead to higher costs and lower quality as they seek to maximize profits and growth. Corporate agriculture today is designed specifically to generate profits and growth for corporate investors. And, we no longer have a competitive, capitalistic agricultural economy to transform corporate greed into societal good.

Virtually every environmental and social problem today can be traced to overuse, or misuse, of the corporate, industrial paradigm of development. And, there is nothing in contemporary economy theory that addresses the negative environmental and social impacts of industrialization – at least not in any meaningful way. In economics, environmental and social impacts are treated as “externalities” – something that must be dealt with outside the economic system.

With respect to the sustainability of agriculture, the threats to the natural environment to the quality of life of farmers, of rural residents and of society as a whole have continually risen as we have industrialized American agriculture. Today, the same technologies that support our large-scale, specialized system of farming, the systems through which we have achieved economies of scale, are now the primary sources of growing public concerns. Commercial fertilizers and pesticides -- essential elements in a specialized, industrialized agriculture -- have become a primary source of growing concerns for environmental degradation and food safety. And, industrialization has transformed agriculture, created for the fundamental purpose of converting solar energy to human-useful form, into a mechanized agriculture that uses more non-renewable fossil energy than it captures in solar energy from the sun.
Industrial systems of production also degrade the human resource base. Henry Ford is quoted as once saying the biggest problem in running a factory is that you have to hire whole people when all you need is two hands. Large factory farms transform independent decision-makers, into farm workers – into people who only know how to follow instructions or directions but not how to make decisions. At a recent conference in Minnesota, one farmer remarked that “any fool could grow a good crop of soybeans using the Roundup Ready system of Monsanto.” We have transformed our farms in biologically assembly lines and farmers into non-thinking, assembly line workers.

Industrial agriculture, inherently, is management extensive. It allows fewer farmers to farm more land by using more capital -- machinery and equipment -- and more purchased inputs. As farms have grown larger and more specialized, agriculturally dependent rural communities have withered and died. Larger farms meant fewer farms and fewer farm families to support local schools, churches, public institutions, and retail businesses. In addition, larger farms tend to bypass local communities in purchasing production inputs and in marketing their products. It takes people, not just production, to sustain local communities. The fundamental purpose of agricultural industrialization was to make it possible for fewer people to produce more.

No one set about intentionally to destroy the ecological integrity, social responsibility, and now, the economic viability of American agriculture. We simply lost sight of the fundamental purpose of agriculture to meet the needs of people – as consumers, as producers, as members of rural communities, and of society. In our preoccupation with increasing economic efficiency to bring down the cost of food, we neglected to monitor what was happening to the overall quality of life of people. In our preoccupation with increasing production today, we neglected to monitor the agricultural legacy we were leaving for people of the future.
Thankfully, a new type of agriculture is beginning to emerge to address the issues of sustainability. These new farmers may claim the label of organic, low-input, alternative, biodynamic, holistic, permaculture, practical farmers, or just plain farmer. But they are all pursuing the same basic purpose by the same set of principles. They are trying to build farming systems that are ecologically sound, economically viable, socially responsible, and thus, are sustainable. They are pursuing their self-interest, but a higher self-interest – satisfying the personal, interpersonal, and ethical dimensions of self. They realize that quality of life is a product of harmony among the economic, social, and spiritual dimensions of their lives. They refuse to exploit other people or exploit the natural environment for short run personal gain. They are building an agriculture that is sustainable over the long run, not just profitable for today.

While there are no “blueprints or recipes” for the new American farm, some fundamental principles are emerging. The new farms tend to be more diversified than are conventional farms. These farmers are committed to caring for the land and protecting the natural environment. They work with nature rather than try to control or conquer nature. They fit the farm to their land and climate rather than try to bend nature to fit the way they might prefer to farm. In most regions, this requires a variety of crop and animal enterprises. In some regions, however, diversity means crop rotations and cover crops. In other regions, diversity means managing livestock grazing to achieve diverse plant species or with multiple species of grazing animals. Through diversification, these new farmers substitute management for the off-farm inputs that squeeze farm profits and threaten the environment. Their farms are more economically viable, as well as more ecologically sound, because they farm in harmony with nature.

The new farmers tend to have more direct contact with their customers than do conventional farmers. Most either market their products direct to customers or market though agents who represent them with their
customers. They realize that each of us value things differently, as consumers, because we have different needs and different tastes and preferences. They produce the things that their customers value most, rather than try to convince their customers to buy whatever they produce. They market to people who care where their food comes from and how it is produced – locally grown, organic, natural, humanely raised, hormone and antibiotic free, etc. – and, they receive premium prices by producing what their customers value. Their farming operations are more economically viable, as well as ecologically sound and socially responsible.

To these new farmers, farming is as much a way of life as a way to make a living. They are “quality of life” farmers. To them, the farm is a good place to live, a good place to raise a family, and a good way to be a part of a caring community. Their quality of life objectives are at least as important as the economic objectives in carrying out their farming operations. Their farming operations reflect the things they like to do, the things they believe in, and the things they have a passion for, as much as the things that might make money. However, for many, their products are better and their costs are less because by following their passion they end up doing what they do best. Most new farmers are able to earn a decent income, but more important, they have a higher quality of life because they are living a life that they love.

Finally, these new farmers build relationships, among each other and with their customers, as well as with their land. They freely share information, they form partnerships and cooperatives, to buy equipment, to process and market their products, to do together the things that they can’t do as well alone. They are not trying to drive each other out of business; they are trying to help each other succeed. They are not trying to take advantage of their customers to make quick profits; they are trying to create lifelong social and economic relationships. They refuse to either exploit each other – or to exploit the land. The buy locally and market
locally. They are bringing people together in positive, productive relationships that contribute to their economic, ecological and social well being.

Some question whether a sustainable agriculture is physically capable of meeting the needs of a growing global population. They argue that “high-yield, high-input” systems are necessary to keep pace with population growth. First, “high-yield” systems rely heavily on non-renewable inputs such as commercial fertilizers and pesticides. Biotechnology isn’t going to reduce this reliance, but instead may even increase in the quest for maximum yields. There may be sufficient supplies of non-renewable inputs for another 50 or maybe 100 years. But, what will people do then? We will have twice or three times as many people on earth by then, and the resources will be gone.

Perhaps more important, many “low-input” farmers today are already achieving yields equal to or greater than conventional “high-input” systems of farming. The knowledge and expertise required to achieve high yields with low inputs are not nearly as widespread as is commercial agricultural technologies. However, many are capable of acquiring this knowledge and expertise, if they realized it was possible, and had an incentive, to do so. In addition, sustainable agriculture today is in its infancy – sustainable farmers are but the early explorers on a new frontier. As they accumulate increased understanding and know-how, their productivity abilities will undoubtedly increase as well. If we had invested a fraction of the research and development efforts on regenerative farming methods that we have invested in industrial methods, our ability to produce sustainably might easily surpass our ability to produce conventionally.

Over time, with more farmers with better understanding of sustainable farming, productivity will rise and cost of production will fall for sustainable systems. Over time, with rising costs of non-renewable inputs and further
chemical and biological degradation of the health of the soil and the natural environment, productivity will continue to fall and costs of production will rise for industrial systems. Over time, sustainable systems will be far more productive and far less costly than will industrial systems of farming.

Those who think that we can’t meet the legitimate food and fiber needs of humanity with a sustainable agriculture are the “new Malthusians.” Some 200-plus years ago an economist by the name of Thomas Malthus claimed that humanity was destined to starve to death because population increases geometrically and technology only increases arithmetically. Malthus was wrong, because he failed to appreciate the potential productivity of the human mind. Those who think we can’t feed the world without destroying the natural environment and without degrading human society fail to appreciate the potential of human creativity and ingenuity, coupled with caring and commitment, in developing more sustainable systems of farming. The perceived limits to sustainable farming arise from the assumptions of contemporary economics, which are hopelessly out of date, and an industrial mindset, which is rapidly losing its relevance to reality. But, we have only perhaps a 50-year window of opportunity during which we must learn to farm sustainably.

Some critics say that people simply are not willing to make the economic sacrifices required needed to ensure that those of future generations have opportunities equal to those of today. “What has the future generating ever done for us,” they ask, “so why should we do anything for them?” People are too preoccupied with their present self-interests to care about the long run sustainability of society. But, sustainability is not about personal sacrifice; it’s about personal gratification. Sustainability is about achieving a desirable quality of life – right now, not at some time in the future. Sustainability is about the present, not the future – it’s about living a better life now.
Our individual self-interest is an important dimension of our quality of life. If we don’t respect our own interests, we are unlikely to show respect for the interests of others. If we can’t meet our own needs, we are not in a position to meet the needs of others. Our economic self-interest is important, but our quality of life is not limited to our individual, personal well being.

Our relationships with other people are important to our own well being – even if such relationships return nothing in terms of our individual, economic self-interests. We are social beings by nature, and the quality of our relationships with others affects our own quality of life. It is not a sacrifice to care about other people – it is gratifying. It is not a sacrifice to share with other people – it is a privilege. Social responsibility is not a sacrifice; it is an important aspect of living a life of quality.

Stewardship of the natural environment is important to our well being – even if taking care of the resources of the earth returns nothing in terms of individual, economic self-interests. We humans realize that we are but a part of something much larger than ourselves – we exist within a higher order of things. The purpose and meaning of our lives is derived from our place within this “higher order” – from living in harmony with the fundamental laws of nature, including human nature. Stewardship of the earth is a part of our role and function within that higher order. Ensuring opportunities for those of future generations does not deprive our lives of quality, but instead, gives our lives purpose and meaning. Ecological stewardship is not sacrifice; it is part of what gives our lives quality.

People are individualistic, by nature, and are disinclined to make personal sacrifices. But, people are social, by nature, and will choose to nurture positive relationships – to be socially responsible. People also are spiritual, by nature, and will choose lives of purpose and meaning – to be ethically and ecological responsible. Sustainability is about pursuing self-interest, but a broader self-interest, a higher self-interest, a more
enlightened self-interest, than the narrow self-interests of economic materialism.

Sustainability is not a sacrifice; it is an opportunity. Sustainability is about achieving harmony and balance among the economic, social, and ecological – the personal, interpersonal, and the spiritual. A life of harmony and balance is a life of quality. Sustainability gives people an opportunity to achieve a more desirable quality of life. Sustainability, ultimately, is about people.

1 For 50 real life examples, see “The New American Farmer – Profiles in Agricultural Innovation,” the SARE Program, USDA, Washington DC. ($10 US – call: 802-656-0484 or e-mail: sanpubs@uvm.edu, also available free on line at http://www.sare.org/newfarmer )
Hallmarks of Sustainable Farming Systems

John Ikerd
University of Missouri

* Presented at Scientific Conference on Organic Agriculture – Building the Bridges, Saskatoon, Saskatchewan, Canada. November 14, 1999.

A new paradigm or model for American agriculture is emerging under the conceptual umbrella of sustainable agriculture. The focus of the concept of sustainability is on intergenerational equity – to meet the needs of the present while leaving equal or better opportunities for the future. But, in order to fulfill this purpose, sustainable systems must be economically viable, ecologically sound, and socially responsible. Systems of farming that are lacking in any one of these dimensions quite simply are not sustainable over time. Thus, sustainable agriculture requires that farmers find balance and harmony among the economic, social, and ecological dimensions of their farming operations.

Pursuit of Higher Self-interests

Sustainable farmers, like people in general, pursue their self-interest. It’s an inherent aspect of being human. But, people, by nature, do not pursue only their narrow, individual self-interest. It’s within the fundamental nature of people also to care about other people and to want to take care of the earth. People are perfectly capable of rising above selfishness and greed to pursue a higher concept of self-interest – a self-interest that values relationships and stewardship as important dimensions of individual well being.

This higher self-interests includes narrow self-interest (which focuses on individual possessions), but it also includes interests that are shared (which focuses on relationships, community, and social values) and interests that are purely altruistic (which focuses on interests one pursues only out of a sense of stewardship, ethics, or morality). All three – self-interests, shared-interests, and altruistic-interests -- contribute to one’s well being or quality of life, but not in the same sense that greed might enhance one’s material success. Each contributes to a higher sense of quality of life explicitly recognizing that each individual is but a part of the whole of society, which in turn must conform to some higher order or code of natural laws.

Farmers, in general, presumably would not use chemicals in ways that destroy their health, poison their own food, or pollute their water supply. But, the sustainable farmer must be willing to make ecological investments that will benefit of others solely. Sustainability requires that we consider the health and well-being of those down wind and down stream as well as ourselves. Sustainability requires that we conserve non-renewable resources – soil, energy, clean air, and clean water -- for future generations. Thus, ecological sustainability is deeply rooted in a strong sense of stewardship – our responsibility to take care of things for the benefit of others.

Farmers, in general, recognize they must make investments of time and money in family, community and society in general -- they may expect personal rewards for these investments, but the rewards must be shared with others. However, many may make social investments out of self-interest, for purely selfish reasons – they expect their share of the benefits to exceed their share of the costs. But, sustainable farmers must be willing also to make social investments for purely altruistic reasons – investments from which they expect no direct benefit for themselves. They benefit only from fulfilling their ethical and moral responsibilities for other. Such investments are economically rational, only from the perspective of an economics of enlightenment.

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The contemporary economic dimension is no less important than are the social and ecological dimensions in ensuring sustainability. A sustainable agriculture requires all three – an agriculture that is ecologically sound, socially responsible, and economically viable. Aldo Leopold, in his essay on land ethics, said we must consider the economics as well as the ethics and aesthetics. We cannot be expected to take care of others unless we are first able to take care of ourselves. Economic viability is necessary if a farmer is to maintain the authority to use the resources for which they are to be good stewards. Or to put it bluntly, if a farmer goes broke, they are not sustainable. Conflicts arise between economics and sustainability because too often economics are allowed to dominate everything else – including relationships and stewardship. Sustainability requires a measure of profitability, but short run maximization of profit invariable leads to ecological degradation and social exploitation. Sustainability requires balance and harmony among between economics and the other two.

The New American Farm

Farming sustainably is no simple task. But, thousands of farmers are finding ways to sustain a desirable quality of life for themselves and to support their local communities while being good stewards of the land and the natural environment. They may carry the label of organic, low-input, alternative, biodynamic, holistic, permaculture, or no label at all, but they are all pursuing common economic, ecological and social goals. By their actions, these farmers are defining a new kind of American farm.

These new American farmers are a diverse lot, but they share a common pursuit of a higher self-interest. They are not trying to maximize profit, but instead are seeking sufficient profit for a desirable quality of life. They recognize the importance of relationships, of family and community, as well as income, in determining their overall well being. They accept the responsibilities of ethics and stewardship, not as constraints to their selfishness, but instead, as opportunities to lead successful lives.

These farmers, these common people, are the architects of the New American Farm. These farmers, not the experts or the scientists, are the ones on the new frontier -- the explorers, the colonists, the revolutionaries, and the builders of a "New World." Life is difficult on the frontier because no one really knows how to do what these folks are trying to do – they are creating the future. They are getting little help from the government, their universities, or the agricultural establishment. They are doing it pretty much on their own. They will continue to confront hardships, frustrations, and there will be some failures along the road. But, more and more of these new American farmers are finding ways to succeed.

There are no blue prints for the New American Farm. But a few fundamental principles are beginning to emerge. In general, the new farming opportunities arise directly from exploiting the weaknesses resulting from misuses of industrialization -- specialization, standardization, and centralized decision making. The new American farm relies instead on the advantages of diversity, individuality, and decentralized networks of interdependent decision-makers.

New American farmers focus on working with nature rather than against it. The natural resource base that ultimately must sustain productivity is inherently diverse. Industrial systems have had to bend nature -- to augment, supplement, alter, and force it -- to create an allusion of conformity out of diversity in order to meet the demands of large-scale, industrial production. The ecological problems arising from industrialization are symptoms of natural resources being used in ways that are inherently degrading to their productivity. Thus, industrialization has created tremendous opportunities for farmers who learn to utilize the inherently productive capacity of a diverse natural resource base, rather than wasting time and money trying to force nature to conform.
These new American farmers utilize practices such as management intensive grazing, integrated crop and livestock farming, diverse crop rotations, cover crops, and inter-cropping. They manage their land and labor resources to harvest solar energy, to utilize the productivity of nature, and thus, are able to reduce their reliance on external purchases inputs. They are able to reduce costs and increase profits while protecting the natural environment and supporting their local communities.

New American farmers focus on value rather than costs. They realize that each of us values things differently, as consumers, because we have different needs and different tastes and preferences. Industrial methods are efficient only if large numbers of us are willing to settle for the same basic goods and services – so they can be mass produced. So, industrialization has to treat us as if we’re all pretty much the same. Customers have to be persuaded, coerced, and bribed to buy the same basic things rather than the things they really want. That’s why we pay more for packaging and advertising of food than we pay to the farmers who produce the food. The industrial system creates tremendous untapped opportunities for farmers who can tailor their products to conform to unique needs and preferences of individual customers, rather than try to bend the preferences of customers to conform to their products.

New American farmers market in the niches. They market direct to customers through farmers markets, roadside stands, CSAs, home delivery, or by customer pick-up at the farm. They use everything from the Internet to word of mouth to advertise their services. They market to people who care where their food comes from and how it is produced – locally grown, organic, humanely raised, hormone and antibiotic free, etc. They are often able to avoid some or all of the processing, transportation, packaging and marketing costs that make up 80 percent of the total cost of mass marketed foods. They increase value, reduce costs, and increase profits while protecting the environment and helping to build stronger local communities.

New American farmers focus on what they can do best. They realize that we are all different -- as producers as well as consumers. We have widely diverse skills, abilities, and aptitudes. Industrialization has had to "bend people" -- train, bribe, and coerce them -- to make people behave as coordinated parts of one big machine rather than as fundamentally different human beings. Many social problems of today are symptoms of people being used by industrial systems in ways that are inherently degrading to our uniquely human productive capacities. Thus, industrialization has left tremendous untapped economic opportunities for farmers and others who can use their unique capacities to be productive rather than attempt to conform to systems of production that just don't fit.

New American farmers may produce grass finished beef, pastured pork, free range or pastured poultry, heirloom varieties of fruits and vegetables, dairy or milk goats, edible flowers, decorative gourds, or dozens of other products that many label as agricultural "alternatives." They find markets for the things they want to grow and are able to grow well rather than produce for markets where they can’t compete. Or they may produce fairly common commodities by means that are uniquely suited to their talents. Their products are better, their costs are less, and their life is better because they are doing the things that they do best.

In general, new American farmers focus on creating value through uniqueness -- among consumers, among producers, and within nature. They link people with purpose and place. By linking their unique productive capacities with unique sets of natural resources to serve the needs and wants of unique groups of customers they create unique systems of meeting human needs that cannot be industrialized. The more unique their combinations of person, purpose, and place, the more sustainable will be the value to customers and producers alike. The sameness of industrialization creates opportunities for unique farmers who can create unique linkages with both resources and customers.
Critics argue that these new farm opportunities are limited. On the contrary, there is no limit to the diversity among people nor diversity within nature. There are as many niche markets as there are people. The question is one of how many different markets it is logical to serve, not how many different niche markets exist. Likewise, there as many differences in production capabilities as there are producers, and as many different niches in nature as there are fields or places to produce.

Some question whether a sufficient number of people who are both willing and able to learn can be found to farm in these new ways. Admittedly, the new American farm will require a lot more knowledge, understanding, and thinking that does farming by industrial standards. However, any future occupation which offers an opportunity for a decent living will require the use of one's mind. The days when someone could earn a good living by the sweat of their brow are in the past. The industrial era is over. There will be plenty of innovative, creative, hard working people to operate the new American farms, once their promise for a more desirable quality of life -- economically, socially, and ethically -- becomes widely know.

Others question whether people can afford to pay farmers the full costs of meeting their food and fiber needs without exploiting either the natural or human resource base for agriculture. However, today's consumer, on average, spends only a dime of each dollar for food -- from which the farmer gets only one penny. Thus, most consumers can afford to pay farmers to produce the food they really want and need rather than settle for something less, particularly if that something less degrades the social and ecological systems from which consumers also much derive their quality of life.

The ultimate strategy for valuing uniqueness is through personal relationships. Each personal relationship is different from all others. Many consumers are alienated from current mass marketing systems not only because they don't meet their specific needs, but because they have lost faith in the impersonal system of mass production for mass markets. They do not believe large corporations monitored by big government will really protect the natural environment or fulfill important social responsibilities. They trust neither corporate or government assurances that foods in the supermarkets are safe and healthful. They feel more personally secure and socially responsible when they support local and regional food systems rather than rely on international markets dominated by the multinational corporations. In other words, they want to know their farmer -- personally.

The most secure markets for the new American farm will be those based on personal relationships. Producers who develop personal relationships with their customers need not see other producers as their competitors. They can collaborate rather than compete. No two people are alike, thus, no two producers are likely to be viewed as close competitors in the minds of their relationship customers. Fortunately, meaningful relationships can only be spread so thin. Thus, there will be natural constraints, or limits to growth, in relationship markets. The necessity of maintaining personal relationships offsets the natural tendency to get bigger, and thus, helps farmers to resist the lure of the industrial treadmill. Local and regional markets will be developed and sustained over time by people who prefer to deal with people they know.

Strategies for Sustainability

Sustainable farming might at first seem so complex that few farmers would be willing to accept the challenges of management. However, the trails of this new frontier are being blazed by a host of visionaries who see the emergence of a new post-industrial society, of which managing for sustainability will be but one part. Peter Drucker, the time honored business scholar and consultant to industrial corporations, is among those
"Every few hundred years in Western history there occurs a sharp transformation. Within a few short decades, society rearranges itself -- its worldview; its basic values; its social and political structure; its arts; its key institutions. Fifty years later, there is a new world.... We are currently living through just such a transformation." (Post-Capitalistic Society, by Peter Drucker)

Drucker believes the current transformation began in the early 1970s some 25-plus years ago. If Drucker is on target, we should look to paradigms that have emerged over the past two-to-three decades for clues to the dominant paradigm of the twenty-first century.

According to Barker, new paradigms emerge when it becomes apparent to some people, not necessarily many, that the old paradigm is not going to be able to solve all the relevant and important problems. Thus, a new paradigm emerges while the old paradigm seems to be doing quite well -- at least in the minds of most. Consequently, Barker claims, new paradigms typically are met with initial rejection. Therefore, we must be willing to consider ideas still rejected by most, but gaining a following, for insights into new paradigms. New paradigms are almost always championed from the outside rather than from within. We must be willing to look outside rather than inside for guidance in pursuit of the new paradigm of sustainability. The new territory of agricultural sustainability is just now being settled by the post-industrial pioneers.

Some of the visionaries from the outside include Drucker, Toffler, Naisbitt, Hock, Reich, Capra, and others. These visionaries are gaining a following that spans the political spectrum from Hilary Clinton to Newt Gingrich and the business spectrum from Tom Franzen, an Iowa family farmer, to the Dee Hock, the founder of VISA Corporation. But the practical strategies for sustainability are being outlined by the outside pioneers which include Covey, Savory, Senge, Kriegel, Peters and others. These pioneers are teaching the day-to-day, nuts-and-bolts process of guiding the process of decision making using paradigms consistent with the emerging paradigm of sustainable agriculture.

Those who are ready to learn and teach strategies for a sustainable agriculture might do well to begin with strategies that have already been developed and move out conceptually from there. The following are but a few examples of readily available sources of uncommon wisdom, based on common sense, that is fundamental to the concepts of agricultural sustainability.

Allan Savory's approach to holistic resource management (HRM) is built on a set of four "ecosystem foundation blocks" -- water cycles, mineral cycles, energy flows and succession or community dynamics. These building blocks represent a down-to-earth, practical representation of the laws of nature -- rules of the sustainability paradigm. Savory contends that all new wealth is generated by energy flow -- the product of the solar chain that transforms solar energy into human-useful forms. The water cycle and mineral cycle are essential elements in this solar chain. The process ultimately is dependent upon biological diversity and community dynamics or biological succession -- processes by which water, air, and minerals are utilized in transforming solar energy.

The three-part, holistic goal of HRM essentially is sustainability -- despite Savory's claims that HRM is fundamentally different from sustainable agriculture. The quality of life, production, and future resource dimensions of HRM goals are essentially the same as the social, economic, and ecological dimensions of sustainability. The HRM "whole under management" includes the land base, people, and money -- very practical terms for the ecological, social, and economic resources that must be managed to sustain agriculture over the long run. HRM is far stronger in practical ecology than either the social or economic dimensions.
However, HRM recognizes explicitly that things economic, ecological, social are inseparable aspects of the same whole.

Steven Covey's "Seven Habits of Highly Effective People" is a principle-centered approach to life and relationships. Fundamental principles of human relationships are a practical representation of the law of human nature -- the other rules of the sustainability paradigm. Covey claims these natural laws of the human dimension are just as real, and just as unchanging, as laws such as the law of gravity of the physical dimension. He calls them "true north" principles -- not invented by individuals or society, but laws of the universe that pertain to all human relationships and human organizations. These principles surface in the form of values, ideas, norms, and teachings. But unlike values and norms, principles are objective, external, and unchanging -- reflecting some higher order of things.

Covey's Seven Habits of Effective People may be as good a place as any to start in understanding and teaching the laws of human nature within which a sustainable agriculture must be built. The seven habits begin with developing effective individuals -- (1) Be proactive, (2) Begin with the end in mind, but (3) Put first things first. These habits are designed to move beyond dependence to independence. But the next evolutionary step is to go beyond independence to interdependence -- to move beyond effective individuals to effective relationships. Dependent relationships arise out of necessity, but interdependence relationships arising out of choice. To develop effective relationships Covey suggests we must (4) Think win-win, (5) Seek first to understand and then to be understood, and (5) Synergize -- value interconnectedness. Finally, success is a process, not an attainment, in that we must continually (7) Sharpen the saw.

Savory and Covey both address organismic approaches to decision making through their emphasis on holistic management, synergism, and interdependence. However, neither goes as far toward developing a practical way of thinking about such issues as does Peter Senge, a MIT business professor and consultant. In his book the "Fifth Discipline," Senge proclaims that a new discipline is needed to integrate the other disciplines, to fuse them into a coherent body of theory and practice, to keep them from being separate gimmicks or fads. While his objective may be philosophical, his approach to developing this new discipline is very practical. For example he proposes a set of "laws of systems thinking."

- Today's problems come from yesterday's "solutions."
- The harder you push, the harder the system pushes back.
- Behavior grows better before it grows worse.
- The easy way out usually leads back in.
- The cure can be worse than the disease.
- Faster is slower.
- Cause and effect are not closely related in time or space.
- Small changes can produce big results -- but highest leverage areas may be least obvious.
- You can have your cake and eat it too -- but not all at once.
- Dividing an elephant in half does not produce two small elephants.
- There is no blame -- we and our problems are parts of the same system.

One could argue that today's questions of sustainability can be traced to the violation of nearly every one of the ten laws of systems thinking. This would seem to imply that a shift to systems thinking would be a logical approach to answering those questions. Thus, Senge's systems strategies for developing "learning organizations" may provide some practical, valuable insights into the strategies needed to manage sustainable systems of farming.
Savory, Covey, and Senge are just three of the more popular authors and educators who are teaching fundamentally new paradigms of personal, professional, and community decision making. All have expanded beyond their original scope of dealing with farm, individual, or business decision making. They all seem to agree that the same paradigm of decision making is both necessary and sufficient at all levels of aggregation, from managing one’s personal life to managing the resources of the biosphere. All have rejected mechanical-industrial models and have adopted organismic-sustainable approaches instead. All are based on the beliefs that there are limits to growth, that everything is interconnected, and that our decisions must be harmony with inviolate laws of nature. The beginning texts for understanding and teaching the strategies for sustainable agriculture already have been written. They have been written by Savory, Covey, Senge, and others outside of the agricultural mainstream.

The Hallmarks of Sustainable Farming Systems

Some look to farming practices and methods for the hallmarks of sustainable farming – organic farming, management intensive grazing, direct marketing, integrated crop and livestock systems, crop rotations, etc. However, these are but the means by which farmers practice the principles of sustainability. The hallmarks of sustainable farming strategies underlying these farming methods are diversification, individualization, and decentralization of decision making within interdependent networks. Sustainable farmers work with nature, they focus on value, they market in the niches. They value their uniqueness as individuals and the uniqueness of their relationships with others. Sustainable systems match unique farming operations to the uniqueness of the farmers, their potential markets, and the natural resources of their farm. The farming practices and methods of a sustainable farming system are unique to the farmer, farm, market, and community.

Sustainable farmers are linked by their common commitment to the principles of sustainability. Intergenerational equity is the hallmark of sustainability – meeting the needs of the present while leaving equal or better opportunities for the future. The hallmarks of sustainable systems, derived from intergenerational equity, are economic viability, ecological soundness and social responsibility – interdependent dimensions of the same whole. Thus, holistic management is a hallmark of sustainable farming -- balancing economic, ecological, and social objectives – in harmony with some higher order of things. Nature and society are within the bounds of their decision-making – they consider the environment and the community in every decision. Guided by a higher self interest sustainable farmers build relationships and practice stewardship, neither for economic gain nor personal sacrifice, but instead to enhance their overall quality of life. The principle hallmark of sustainable farming is the pursuit of higher quality of life -- for farmers, families, communities, for all people, both now and in the future.

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Hallmarks of Sustainable Farming Systems

York.


Lessons from the Past – Sustainable Agriculture in Missouri

After five years of hard work, deep thought, and furious activity on my part, the Sustainable Agriculture program at the University of Missouri was still virtually non-existent. I had come to the University of Missouri in early 1989 to build a new educational program around the newly emerging issue of sustainable agriculture. Much of my time during the first year or two was devoted to a USDA funded Low Input Sustainable Agriculture (LISA) project, but the intent from the beginning was to develop a strong sustainable agriculture educational program for the people of the state of Missouri. Missouri’s agricultural resources – its farms, its land, and its people – are inherently diverse and generally not well suited for specialized, large-scale agriculture. Sustainable agriculture -- with its emphasis on diversity, site-specificity, and individuality – seemed an ideal approach to farming in Missouri. But after five years, the results of the best efforts of an experienced extension professional – with a reasonably good record for past success – could most accurately be describes as a "dismal failure."

I only relate this personal story in the hopes that it might help keep others from making the same mistakes. With 20 years of professional experience in three states under my belt when I came to Missouri, I thought I knew how to develop an extension program. We would pull together all available research-based information relevant to sustainable agriculture and then gather as many as possible of the researchers who had developed it. We would inspire them to embrace sustainable agriculture as a means of bringing greater recognition of the value of their previous work and of gaining increased funding for the work they wanted to do in the future.

We would help establish a close working relationship between researchers and campus-based extension specialists. This would ensure the "packaging and delivery" of the most relevant and useful information by the most efficient means. We would help extension field staff discover the problems and opportunities of farmers as they relate to sustainable agriculture and would help them deliver the information farmers needed to solve their problems and realize their opportunities. Finally, we would keep the lines of two-way communication open -- from farmers, through extension workers, to researchers – to ensure the relevance of future research to solving farmers’ problems. That's the way good extension work is done.

The only problem was -- the "way good extension work is done" didn’t work. We conducted seminars on campus featuring outside experts as well as respected insiders. Quite a few people came at first, but few bought into the new agenda -- interest soon dwindled. We bought them lunches for program planning sessions and bought them breakfast for information sharing sessions -- but the modest numbers at first dwindled to a few and then only one or two. We brought together farmers and others from commodity groups and farm organizations to determine what farmers needed and wanted from the LISA program. But, our farmers – like our researchers and extension workers – were not so sure that they even liked LISA.

Even after the LI was dropped from LISA, interest in the "S word" was less than burning. We were successful in securing sufficient grant funds to keep the Center for Sustainable Agriculture going at MU. The University has never invested much more than half of a FTE in faculty support plus a few in-kind dollars here and there. Adding a few folks to the grant payroll resulted in at least a small core of three to four people actually working on sustainable agriculture projects at any given time. When we completed research projects, we disseminated the results by every means available – from journal articles to press conferences. We published a newsletter and manned a display at every exhibition we could find. We participated in every extension program planning activity that came down the pike. We presented our program at every opportunity to tell our own folks and others what sustainable agriculture was all about.
For Extension programming, we developed a sustainable agriculture "initiative" and a sustainable agriculture "work group," and even jumped through all the hoops for a sustainable agriculture "focus team" – although the latter request was denied by an administration that still had problems with the "S word." (Only later would it become apparent that the problem wasn’t really the S word, it was the implication of the S word for the way we did business in extension.) All of these programming efforts seemed to be yielding little fruit.

After three or four years of frustration, I decided maybe Missouri didn’t need a Center for Sustainable Agriculture, or even a Sustainable Agriculture Program. Maybe we needed instead to work the concept of sustainability into programs that were lead by other people. Maybe the problem was that others thought supporting sustainable agriculture would somehow diminish the perceived value of their own programs. Maybe we just needed to talk to folks one-on-one explain that we weren’t trying to build an empire and didn’t want to take over anything. We could explain that we just wanted to get people to thinking more long term – to help meet the needs of the current generation while leaving equal or better opportunities for those of generations to follow. How threatening could that be?

The Management Intensive Grazing (MIG) program in Missouri appeared to be a good place to start. The MIG folks were good people and had received a couple of Sustainable Agriculture Research and Education (SARE) grants to support their work. They knew what sustainable agriculture was about and at least were not ideologically opposed to the concept. In addition, Missouri ranks 2nd among states in beef cows and most of the beef cowherds are small, pasture-based operations. MIG had a good research base in Missouri and was a documented means of increasing productivity per acre. A Sustainable Grassland Farming program seemed a sure winner.

I visited every person in every office at the University and at the State Capital that had anything to do with cattle, pastures, or grazing systems in Missouri. We wanted to make sure there were no miscommunications this time. We asked the Dean of the College to form a planning committee – which he did – to discuss the possibility of a new Sustainable Grasslands Farming program. We suggested that he ask someone not affiliated with the Sustainable Agriculture program to provide leadership for the program. We even met with the Dean in his office. All appeared to be going well. So we planned a special program during Agriculture Science Week to present the new Sustainable Grasslands Farming program to the agricultural community. It would take the place of our annual Sustainable Agriculture Seminar that year.

The Sustainable Grassland Farming committee planned the Agriculture Science Week program – just to ensure that we had a diversity of perspectives represented. The program included a reaction panel that included a couple of extension workers, a farmer or two, and a couple of others from the agricultural establishment. Following my presentation of the outline of the program, the panel reacted. To my disbelief, the panel opened up with a "broadside" against just about everything I had proposed. Some of my colleagues had set me up for public humiliation. They had found others to say in public the things they had not had the courage to say in private. They said the program was not needed because our programs were already sustainable, that it was divisive because it implied that current beef production was not sustainable, that the needs of small farmers were no different than large farmers, and that farming for sustainability was no different from farming for maximum production or profits.

The Sustainable Grassland Farming program "crashed on take-off." Interestingly enough, a new college-wide, grazing task force was formed a year later. The new task force, with no sustainable agriculture connection, addresses the opportunities for grassland farming in Missouri, but from a conventional, commercial agriculture perspective. Following the "crash," or should I say "bombing," I asked that the Sustainable Agriculture Program be folded into the Center for Agricultural Resources and Environmental Systems and it ceased to function as a separate program. Sustainable Agriculture at Missouri went "underground."

Luckily, the Sustainable Agriculture Professional Development Program (SARE PDP, initially called SARE Chapter 3) received its first funding at about this time. A fortunate provision of the SARE PDP program was a mandated partnership between 1862 Land Grant Universities (University of Missouri) and 1890 Land Grant Universities

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Shared Leadership, Shared Responsibility and Shared Rewards

(Lincoln University) in each state having both. We had included Lincoln University in many of our earlier programming efforts, but this provision gave us an obligation to develop a single, integrated sustainable agriculture program. Lincoln University has primary responsibility for the Small Farm Family Program (SFFP) in Missouri. Approximately 20 Educational Assistants in this program work one-on-one with farmers over an extended period of time to help them achieve a decent quality of life using whatever land and capital they happen to have at hand. The focus is on people. Production and profit are important only if they enhance the quality of life of people. A marriage between the small farm and sustainable agriculture programs seemed to be a natural for Missouri.

With the Lincoln U/Missouri U partnership and a little seed money from the SARE PDP program, Sustainable Agriculture in Missouri moved off in a new and different direction. First, we went to the people – the farmers who worked the land and common rural people – rather than to commodity groups and the agricultural establishment. We asked for advice as to what we should do and how we should do it. Members of our first statewide, farmer-oriented planning group told us to travel around the state and listen to a lot more people before we did anything else. This program needed to be driven by the people on the land and in the small towns – not those in the offices and boardrooms.

Missouri’s SARE strategic plan for sustainable agriculture extension programs was based on input from about 250 people who attended eight "listening sessions" held all across the state. A serious effort was made to do something more than "round up the usual suspects" for these sessions. We tried to involve our extension field staff in getting those people to attend who generally wouldn’t go to something of this nature – those who thought no one would be interested in what they had to say. The people showed up and we listened to what they had to say. We only had two or three general questions developed before hand to get the discussion started and keep it going if needed. The latter generally wasn’t needed. For two to three hours at most locations, we would mostly just listen and take notes. The extension folks were also asked to take notes to minimize biased listening. Ultimately, those notes were included as an appendix to our state strategic plan.

In the process of conducting the listening sessions, we were able to identify a select group of extension field staff who shared our concerns for the well being of people – those farm families who have not been well-served by previous extension programs. The listening sessions validated the fact that needs of many farmers in the state of Missouri were not being met by our current educational programs. The sessions validated also that sustainable agriculture provided a logical, reasonable means of addressing those needs. The extension workers who attended these sessions were empowered by their constituents – if not by their administrators – to at least consider sustainable agriculture as a programming alternative. We invited all extension workers in Missouri to join in forming a Sustainable Agriculture Extension Work Group (SAEWG) and nearly 30 UM extension field workers responded. The LU Small Farm Family Educational Assistants (20 or so at the time) all become members of the SAEWG. Now, we not only had direction from the grass roots, but we had an all-volunteer workgroup to help write and implement the sustainable agriculture educational agenda for Missouri.

From that point on the sustainable agriculture program flourished and grew. Lacking funding and support from University administration, we were forced to delegate virtually everything to the volunteer group of extension regional specialists and educational assistants. We have hustled grant money at the state level to pay travel expenses and basic operating and materials costs of programs. But, SAEWG group members have decided what programs they wanted and which of those will be conducted – the latter by volunteering to assume leadership and to do the work involved in making a specific program happen. We have provided funding for those volunteers to enhance their expertise, through individualized professional development experiences, so they might carry out their volunteer responsibilities to the best of their capabilities. We also invited all members of the SAEWG to attend out-of-state regional professional development programs to broaden and deepen their understanding of sustainability. (The theme for one of these regional PDP, by the way, was Shared Leadership and Shared Responsibility.) We attempted to reward those who were willing to accept responsibilities.

In the three years following development of Missouri’s strategic plan, we have offered from seven to eleven
statewide professional development opportunities each year related to sustainable agriculture. The sustainable agriculture program has paid travel expenses and direct programming costs, but the field staff has done the rest. The programs have been well attended and highly evaluated. The numbers of programs and participants are not overly important, and descriptions of the programs are not particularly relevant. The important point is, by sharing leadership and sharing responsibilities, we have been able to carry out a "steak and salad" professional development program on a "beans and potato" budget. The rewards have been programs that met the needs of the people who attended them – basically the same people who planned and conducted them – and furthered the educational agenda for sustainable agriculture in Missouri.

The lessons learned from our experiences in sharing leadership, responsibilities, and rewards are now guiding us in another new direction in sustainable agriculture programming in Missouri. During the past year, our program emphasis has shifted toward greater involvement of farmers, far greater than ever before, in all programming activities. Our extension team is now sharing leadership, responsibilities, and rewards with our farmers – not in the usual sense of "extension advisory committees," but with farmers as full partners in the learning/teaching process.

This approach has some of its roots in the Missouri Sustainable Agriculture Demonstration Awards program -- a state-funded program that awards of up to $3,000 to a maximum of 23 farmers each year to explore their own ideas on their own farms and to share what they learn with other farmers. The program had been authorized in the early 90s but did not receive funding until 1995. Since that time, it has gained fairly wide recognition as a program that effectively meets the needs of a significant group of farmers – those ignored by most other programs -- at a very reasonable cost. Helping farmers who think for themselves to do things for themselves seemed to be an approach that was working well for sustainable agriculture in Missouri. But, farmer involvement also has been a cornerstone principle of the SARE program since its inception.

Now, every professional development program in Missouri is targeted to meet the expressed, immediate needs of farmers. For example, during 1998 our programming emphasis turned toward organic farming. This was a direct response to a growing awareness among farmers of viable organic markets and of the potential role of organic methods in sustainable farming. Extension workers and other information providers participated as co-learners with farmers in all of these programs.

In our sustainable agriculture programs, there are no experts and clients, no teachers and students – we are all co-learners. We have active, working farmers on every program planning committee. We have farmers as "instructors" on every program – sometimes as the only "instructors" on programs. We don't necessarily compensate farmers for their expertise, but we do give them enough money to pay someone to do the chores at home when we ask them to be on a program. Sometimes farmers make formal presentations and sometimes they are on panels, but they are always there – as much in the role of teacher as student.

We are also committed to helping farmers form their own sustainable agriculture network(s) in Missouri so they can more effectively provide leadership for, take responsibility for, and share in the rewards of their own programs. We did not attempt to form such a group in Missouri, but waited for one to form. In the spring of 1998, during our first statewide sustainable agriculture conference, the program included a farmer panel -- planned by a farmer -- on the topic of farmer networks. We had a couple of farmers representing networks from other states on that panel. A group of Missouri farmers attending this session decided on the spot that they wanted to call an ad hoc meeting that evening to explore the possibility of starting a farmer network in Missouri.

Since that time, the group has elected officers who have had several meetings, both in person and on the phone. They have started a newsletter, have participated in various hearings and advisory situations, have been on television and in the print medial several times, and show signs of becoming a viable grass roots farm organization. The group is planning their first statewide meeting for March 1999. The sustainable agriculture program is facilitating the work of the farmers’ network, but is neither leading, doing all the work, nor providing significant funding. The success or failure of the group rests clearly in the hands of the farmers.
Our goal has become to truly share in the leadership, responsibility, and rewards of every program in sustainable agriculture that we carry out in the state. Before we began to adopt this philosophy, our programs were a dismal failure. Since we have begun to adopt this philosophy, our programs have become increasingly successful. Our programs in Missouri are still not exemplary of what a statewide sustainable agriculture extension program could and should be – but our programs are a whole lot better today than a few years ago. Sure there has been a widening acceptance of sustainable agriculture as a legitimate issue for agriculture. But there are also growing attempts to co-opt sustainable agriculture and drown it in mainstream, industrial farming. Our Missouri experience proves nothing, but it is an illustration. Effective sustainable agriculture will require something fundamentally different from "business as usual" in carrying out extension education and outreach programs for farmers.

**Vision for the Future – A New Programming Model for Sustainable Agriculture**

"A Strategic Plan for Agriculture" – USDA’s agriculture and natural resource national program planning document adopted by ECOP in 1994 – includes the following statement in its opening paragraph:

> The Cooperative Extension System (CES) in this country is at a crossroads. The actions (or inactions) of today will determine Extension’s future, but one thing is certain – the days ahead will not consist of "business as usual." The clock is running; there simply is not much time to decide what changes are needed, and then to implement those changes.

The document goes on to point out that societal expectations for the environment and for agriculture have changed, and that the current system lacks the flexibility to truly address the needs and to determine what it can and will do. "In this era of rapid, unpredictable change, the current system cannot respond quickly enough to meet the needs of the clientele." The task force members and other resource people made it clear that the CES needs to identify and implement approaches that will improve its ability to respond to the needs of the agricultural sector and of society as a whole. The document pleads with CES as an organization to develop a new "Shared Vision and Mission" for agricultural programs suitable for the CES in the dynamic society of the future.

The strategic planning report was presented to the USDA and State CES leadership in Washington, DC and at the National County Agents Association meeting in Casper, WY in 1994. It was promptly buried in the files of most state ANR Program Leaders shortly thereafter and has rarely been mentioned since. However, that document outlines a "Collaborative, Networking Model for Extension Programming" that provides a clear logic for the early failures and later successes of Sustainable Agriculture Extension programs in Missouri – and I would bet for programs elsewhere all across the country.

The following is taken directly from the 1994 planning document (beginning on page 19).

> The traditional model for Extension programming may be characterized as a system of technology development and transfer. Research-based information is the foundation for Extension educational programs. Once research is completed, Extension workers translate the results into readily usable form and disseminate information back to their constituents. Using the traditional model, Extension workers attempt to identify problems and opportunities that are common among significant segments of their constituency that can be addressed using the research capacity of their respective land-grant universities. In cases where relevant research based information is not readily available, Extension workers either conduct adaptive research or encourage their research counterparts to conduct research that will address the relevant issues.

> The traditional information model (Figure 1) is relevant, efficient, and appropriate in situations (1) where common problems and opportunities have common solutions for significant segments of Extension’s constituency, (2) when problems are relatively static or persistent over time, and (3) when
information needed to address those issues is not available from other sources.

However, in many situations, problems and opportunities (1) may be site-specific and more or less unique to individual constituents or small groups, (2) must be addressed quickly if problems are to be solved, or (3) may be addressed by using information available from sources other than State land-grant universities.

A wide range of alternatives to the traditional model of technology development and transfer is needed to address problems and opportunities of constituents that are individualistic, site-specific, and dynamic; or when necessary information is readily available from some sources outside the Land-grant University.

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**Figure 1. The Traditional Model of Information Flow.**

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**Figure 2. Networking Model of Information Flow.**

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**Figure 3. Constituent Empowerment Process**

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The networking model allows Extension workers to focus on the empowerment of people.
A more universal model (Figure 2) incorporates the traditional model, which can be employed when needed, for information and education linked to technology transfer. The networking model (1) uses research-based information from all available sources, (2) enables constituents to bypass the CES to obtain information directly from research sources when the information is available in readily usable form, and (3) encourages and supports constituents in forming networks to exchange information and in conducting their own research where appropriate.

An important programmatic aspect of the networking modes is that it shifts program emphasis to the problems and opportunities of people and away from the programs focused solely on technology transfer, regardless of the origin of technology. Thus, it places greater emphasis on the role of Extension workers as facilitators of information exchange and networking and less emphasis on the traditional role of technology transfer. The networking model encourages people to fulfill their needs, solve their problems, realize their opportunities and shape their own destinies. In short, the networking model allows Extension workers to focus on the empowerment of people.

A shared vision of CES as an organization and its mission evolves naturally from continuous, meaningful communications among Extension workers throughout the organization and between CES and those within and outside the organization, including the Extension constituency. The people-oriented model of learning and teaching (Figure 3) can unleash the full knowledge-generating potential of CES as a dynamic learning organization.

Obviously CES as an organization has not embraced the proposed networking model for programming. CES is still very much an educational organization dominated by the traditional technology development and transfer model. The traditional model has served the needs of industrial agriculture very well, where technological fixes to common problems – typically labeled as “best management practices” – tend to be applicable under a wide range of physical and managerial environments. However, the traditional model simply is not compatible with the fundamental nature of problems and opportunities in sustainable agriculture.

A New Way of Programming for a New Way of Thinking

A sustainable agriculture must be capable of meeting the needs of those of the current generation -- while leaving equal or better opportunities for those of generations to follow. Sustainable farming systems must be ecologically sound, economically viable, and socially responsible. All are necessary and none alone or in pairs is sufficient. All are objectives and none are constraints. Thus, the goal is to develop farming systems that are in harmony with their economic, ecological, and social environment.

Sustainability presumes there is some higher order of nature, including human nature, to which farming systems must conform. We cannot simply do whatever we are capable of doing, wherever we choose to do it, whenever we choose to do it. We may be able to twist and bend nature to fit our needs in the short run, but nature fights back. We must farm in harmony with the God-given nature of the places in which we farm if our farms are to be sustainable. We must farm in harmony with the God-given nature of the people who farm – the farmer and the farm family – and the people who live and work in rural communities, if our farms are to be sustainable. Nature is inherently diverse and people are inherently individualistic. To farm sustainably, the diversity and individuality of our system of farming must match the diversity of the places we farm and the people who farm them.

Farming inherently is a biological and social process – a farm is a living organism made up of living organisms. Plants and animals are alive, the land is alive, the people who farm the land are alive and they all interrelate to form this entity we call a farm. Biological processes are inherently dynamic processes – things are born, they grow,
and they die, and the relationships among them are ever changing. To farm sustainably, our systems of farming must be as dynamic as the living systems we must manage in the process of farming.

Sustainable agriculture epitomizes the model of a site-specific, individualistic, dynamic system. Just as sustainable farming systems must be in harmony with the nature of things to which they are applied, I believe the nature of our sustainable agriculture educational programs must be in harmony with the nature of the things to which they are applied – to sustainable farming systems. Thus, it seems only logical that our models for educational programming should be models appropriate for site-specific, individualistic, dynamic systems of farming.

The traditional technology development and transfer model of extension is clearly not appropriate for site-specific, individualistic, dynamic systems. The people-empowering, networking model seems far more promising. Although the new model may seem complex at first, it is really quite simple to implement – we just need to learn to share leadership, share responsibility, and share the rewards. We will have to give up some of the prestige of being the "sage on the stage" and learn to become the "guide on the side" – as one on my colleagues likes to state it. Many additional lessons will most certainly be learned as we move toward broader implementation of the networking model for extension programming. However, the Missouri example provides strong evidence at least that it "can" work better than the way we traditionally have done things in Extension. One thing seems perfectly clear -- if we are to meet the needs of farmers and society with respect to sustainable agriculture, we simply cannot continue "business as usual."
Some Missouri Farmers’ Perspectives
Of Sustainable Agriculture
John E. Ikerd
Donald Osburn
J.C Owsley
University of Missouri

What is sustainable agriculture? Is it organic farming, diversified farming, soil conservation, or simply any kind of farming that is profitable? Does sustainable agriculture refer to specific farming practices, methods, or enterprises; or is it simply a broad set of guiding principles? Even though the issue of sustainable agriculture has been around for more than a decade, there is still no universally accepted definition. Among those who work in sustainable agriculture research and education, there seems to be a growing consensus that we need to spend less time trying to define sustainable agriculture and more time working to achieve it. However, among farmers and members of the general public there seems to be continuing confusion regarding what sustainable agriculture is all about.

This study reported here was designed to gain insights into Missouri farmers’ perceptions of sustainable agriculture what it means to them. However, it may be worthwhile to begin with a brief assessment of what the concept of sustainable agriculture has come to mean among the educators and researchers who have been supporting and helping to implement it.

"Sustainability is a question rather than an answer," as the late Robert Rodale was fond of saying. Sustainability is a direction rather than a destination, like a star that guides the ships at sea but remains forever beyond the horizon. The "question of sustainability" can be asked of any ongoing activity or process. It can be asked of "conventional" agriculture and of any proposed "alternative" agriculture: Is it sustainable? Is it moving toward the goal of sustainability?

In building a consensus on the goal of sustainability, it is important to find agreement on what is to be sustained, for whom, and for how long. Most, but not all, of those who support the sustainable agriculture issue probably agree that we are working to sustain "agriculture," for the benefit of "people," "forever."

Most of the definitional disagreements seem to stem from differing opinions concerning the "means" by which a sustainable agriculture can or should be achieved rather than the "goal or purpose" toward which those means are directed.

Agriculture, by its very nature, is an effort to shift the ecological balance so as to favor humans relative to other species in production of food and fiber. Thus, sustaining "agriculture" carries
The evolving discipline of agroecology provides the scientific unde
with it the assumption that it is being sustained for the ultimate benefit of people. There is a
general consensus also that agriculture must be sustained for the benefit not only of this
generations and for all generations to follow -- forever. No credible definition of sustainable
agriculture places a time horizon on how long agriculture should be sustained.

With respect to means, one cannot prove through empirical studies that one approach to
agriculture is sustainable or that another is not. It would quite literally "take forever" to collect the
data for such a study. Thus, the science of sustainability must rely on the science of logic.
Logically, a sustainable agriculture must be (1) ecologically sound, (2) economically viable, and
(3) socially responsible. Furthermore, these three dimensions are fundamentally inseparable
dimensions of the same whole. All three are essential, and thus, no one or two alone are
sufficient to ensure sustainability.

Most who are concerned about sustainability recognize an interconnectedness of humanity with
the other biological/physical elements of our natural environment. Through agriculture, we may
tip the ecological balance in our favor. But if we attempt to tip it too far or too fast, we will
destroy the integrity of the natural ecosystem, of which we ourselves are but a part. If we
degrad our natural resources and poison our natural environment, we will degrade the
productivity of agriculture and ultimately will destroy human life on earth. Nearly everyone
seems to agree that an agriculture that is not ecologically sound is not sustainable.

There may be less agreement regarding the contentions that a sustainable agriculture must also
be economically viable and socially responsible. However, agriculture, by its nature, involves
self-conscious attempts by humans to change or "manage" natural ecosystems. Humans are
unique among species in that we make purposeful, deliberate decision that can either enhance
or degrade the health of the ecosystems of which we are a part. Thus, and question of
sustainability must take into account the purposeful, self-conscious nature of individual and
collective human actions which are driven by the economic and social motives of people.

A sustainable agriculture must be profitable, at least periodically, for farmers if they are to be
able to maintain control over use of the land. If good stewardship is not rewarded financially,
good stewards will not be able to farm the land, and agriculture will not be sustainable. If such
rewards are not forthcoming from the marketplace, public policies must be devised so that the
farmers’ rewards will reflect both the private and public good associated with sustainable
farming. An agriculture that is not economically viable is not sustainable.

Agriculture is a creation of society and thus must be supportive of its societal purposes. The
most obvious of these purposes is the provision of an abundant supply of safe and healthful
food at a reasonable cost to consumers. That’s the purpose that comes first to mind. However,
agriculture, like any other sector of the economy, must provide opportunities for people to be
productive. In the long run, we can be consumers only if we are also producers. We must
produce something to exchange for the things we consume. So a sustainable agriculture must
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provide opportunities for people to lead productive, successful lives. An agriculture that cannot
sustain society will not be sustained by society.

Defining Sustainable Agriculture

From a growing consensus of purpose and principles, a definition of sustainable ultimately may
evolve. Many different definitions of sustainable agriculture have been proposed (Allen, et. al.,
Lockeretz, Altieri, Smit and Smithers). However, most definitions seem to agree in defining
sustainability as a characteristic of performance, outcomes, or consequences of farming
systems rather than attempting to define sustainable farming practices, methods, or enterprises.

The Food, Agriculture, Conservation, and Trade Act of 1990 defines sustainable agriculture, for
purposes of federally funded research and education programs, as "integrated systems of plant
and animal production practices having site specific application that will over the long term: (a)
satisfy human food and fiber needs, (b) enhance environmental quality and the natural resource
base upon which the agricultural economy depends, (c) make the most efficient use of
nonrenewable resources and on-farm resources, and integrate, where appropriate, natural
biological cycles and controls, (d) sustain the economic viability of farm operations, and (e)
enhance the quality of life for farmers and society as a whole" (U.S. Congress, Title XVI,
Subtitle A, Sect. 1603)

Discussions during the legislative process further clarified the intended meaning of quality of
life, at least as the concept applies to federally funded research and education. Increased
income and employment opportunities, especially self-employment opportunities, in agricultural
and rural communities, and a strong family farm based system of agriculture, with small and
moderate sized farms, principally owner operated, were identified as indicators of enhanced

Most definitions and the above legislation seem in agreement that a sustainable agriculture
must be ecologically sound, economically viable, and socially responsible. An agriculture that
meets all three objectives is logically capable of maintained productivity and value to society
over time, and thus, would be perpetually sustainable viable, and socially responsible? All three
are necessary and none alone is sufficient.

Allen, et al. offer the following definition: "A sustainable agriculture is one that equitably
balances concerns of environmental soundness, economic viability, and social justice among all
sectors of society." While this definition provides an appropriate set of objectives or principles, it
does not define the overall goal or purpose of sustainability. It does not answer the question;
what is to be sustained and for whom? An appropriate preamble may be added, however,
resulting in the following definition: A sustainable agriculture is one that is capable of
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maintaining its productivity and of value to society -- indefinitely. A sustainable agriculture, so
defined, must be ecological sound, economic viable, and social just.

This definition makes clear the anthropocentric, human-centered nature of agricultural
sustainability. We are concerned about sustaining agriculture for the benefit of humans, both
now and into the indefinite future. However, the definition is also eco-centric in that it explicitly
recognizes the critical interconnectedness of humans with the other biophysical elements of the
natural environment and with each other. The ecological, economic, and social dimensions are
all recognized as necessary and sufficient conditions for agricultural sustainability.

Missouri Farmers Perceptions of Sustainable Agriculture

In the spring of 1996 a survey instrument was developed to assess the perceptions of Missouri
farmers in relation to sustainable agriculture. The survey was designed for completion in two
phases. In the first phase a short survey instrument was utilized -- designed for direct mailing.
The instrument focusing primarily on producers’ opinions and attitudes. The second, longer
instrument was used to collect more detailed information about farming enterprises, production
methods, and cultural practices. The second phase of data collection was completed by in-
person interviews. The second instrument included all questions asked in the first, plus
additional information focusing on enterprises, methods and practices. Thus, information
concerning farmers’ opinions and attitudes was available for both phase one and phase two.

A mailing list of 600 farmers was derived from random samples of 100 farmers per county for
six south Missouri counties. Three counties were in the southeastern region of the state and
three in were in the southwestern region. Lists of farmers were obtained from the Farm Services
Agency of USDA. Well over 100 people responded to the mail survey, however, a significant
number of the respondents were not actively engaged in farming, as in the case of landlords, or
for a number of other reasons did not return usable information. The net result was 99 usable
responses to the mail survey.

The second phase of the project was completed through in-person interviews conducted by
Lincoln University’s Small Farm Family Program Educational Assistants. The sample from
phase two was selected from SFFP contacts and cooperators in the same counties as those
surveyed in phase one. No one was interviewed if they had been included in a random sample
during phase one. A total of 80 usable responses were obtained in phase two. Thus, the total
number of responses to the opinion and attitude questions in phase I was 179.

No claim is made that the sample of farmers’ included in this study are statistically
representative of Missouri farmers in general, or even of farmers in the six south Missouri
counties where the study was conducted. The intent of the study was more to formulate
hypotheses concerning farmers’ perceptions of sustainable agriculture than to test hypotheses
for validity. As the sustainable agriculture issue has evolved, opinions and attitudes have
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evolved and changed as well. This evolution quite likely has continued since the survey data
was collected and quite likely will continue into the future. This study simply provides a snap
shot of perceptions of 179 Missouri farmers in the summer and fall of 1996.

What is Sustainable Agriculture? The survey instrument was designed to explore some of the
basic attitudes that have evolved since sustainable agriculture emerged as a public issue. The
initial emphasis in sustainable agriculture was on specific farming methods and practices, such
as organic farming, integrated pest management, and crop rotations, all designed to reduce the
negative environmental impacts of farming. Later, the emphasis shifted from means to ends or
goals of farming, with a specific emphasis on reducing input cost and increasing farm
profitability. Still later, the social dimension of sustainability begin to receive attention as
concerns the future of family farms, rural communities, and opportunities for self-employment
became a part of the issue.

The first question on the survey asked: ?When you hear people talk about "Sustainable
Agriculture," what does it mean to you? Respondents were asked to select up to three items
from a list that "best" describe sustainable agriculture. The averages of their responses are
shown in figure 1.

![Figure 1](http://www.ssu.missouri.edu/faculty/jikerd/papers/tsu-surv.htm (5 of 19) [11/30/02 10:02:57 AM)

The results indicated a mixture of perceptions among farmers regarding the meaning of
sustainable agriculture. Some responded by selecting farming methods, such as diversified
farming and organic farming, and others choose farming practices, such as conservation tillage
and crop rotations. However, the two most frequently descriptive terms used to define
sustainable agriculture were profitable and environmentally sound, with more than half of the
respondents choosing profitable as one of their three choices.
Socially acceptable was the least frequently chosen term among those provided for consideration. This likely reflects a lack of understanding of what socially acceptability, social responsibility, or social justice has come to mean with respect to the sustainability issue on the part of farmers responding. In answers to later questions it became clear that viable family farms and healthy rural communities are closely linked with the issue of sustainability in the minds of farmers. But, community and family issues had just not yet been linked with "sustainable agriculture."

What are the most important challenges? Farmers were asked to rank the most important challenges or problems that they face on a day to day basis in farming. Rankings ranged from one to three – with a rank of three meaning "most important."

Figure 2.

The three options included (a) economic problems (prices, costs, profits, cash flow, debt burden), (b) environmental or natural resource problems (water quality, air quality, worker health and safety, food safety, soil loss, wildlife, rural landscapes, land use issues), and (c) social or community problems (income and employment, schools, churches, local government, and other quality of life issues).

Results in Figure 2 indicate that economic problems were rated nearly one full rank higher that environmental of social challenges facing the farmers in this survey. Environmental and social problems were rated nearly equal in importance. Note that the social dimension was ranked nearly as high as the environmental dimension when it was explained to include community problems of local income and employment, schools, and other quality of life issues, as it is defined in relation to sustainable agriculture.

What farming methods and practices have been tried? Farmers were asked to identify new farming methods or practices they had tried within the last five years to improve the overall sustainability of their farming operation. They were provided with a list from which they could
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check as many as they choose. The results are shown in figure 3.

Figure 3.

The new method most tried by farmers was conservation tillage. Conservation tillage included ridge tillage, minimum tillage, and no tillage. The conservation compliance provisions of recent farm bills may have played a significant role in the adoption of conservation tillage practices. The second most common new practice was pasture management, including management intensive grazing. The survey was conducted in an area of the state where livestock is a prevalent farm enterprise. Recent emphasis on pasture management in Missouri seems to have had a significant impact on farmers in the survey counties.

On farm fertility programs and manure management combined would have ranked about as high as pasture management as a new practice. The relatively lower rankings for cover crops, crop rotation, and IPM may be explained, at least in part, by the fact that many farmers in the survey did relatively little crop farming.

What are the reasons for trying new methods? Farmers were asked to identify the reasons for trying new farming methods as economic, environmental, social, or some combination of the three. The purpose of this question was to gain insights into how the different dimensions of sustainability were influencing farmers’ management decisions. The results for this question are shown in figure 4.
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Figure 4.

As in previous questions, economics was the dominant reason given for trying new farming methods and practices, with over 80 percent of all respondents listing economic as a reason for changes. Nearly half of those responding listed ecological or environmental issues and just under 25 percent listed social (community or quality of life) as a factor in their trying new methods. The results seem to confirm that all three dimensions are motivational factors, but that economics is still a dominant consideration.

Overall approach to farm decision making. After answering questions regarding the challenges of farming, new farming practices and methods and motivation for changes, farmers were asked to identify their overall approach to decision making. They were given three choices (a) each farming practice, method, or enterprise is evaluated on its individual merit or performance, (b) farming practices, methods, and enterprises are evaluated both individually and in terms of their positive or negative impacts on the overall farming operation or (c) the farm is evaluated as a total system. An assumption of sustainable agriculture is that farms ultimately must be managed holistically, as whole systems, if they are to be managed for long run sustainability. The results of the survey are shown in figure 5.

Figure 5.
Forty percent of the farmers in the survey indicated that they evaluate individual methods, practices or enterprises both on their own merit and in terms of their impact on the whole farm. Nearly 30 percent responded that the farm is evaluated as a total system. But, more than 30 percent evaluate individual alternatives on their own individual merit.

**General attitudes of farmers.** Farmers in the study were asked to indicate their degree on agreement or disagreement with a number of statements related to agricultural sustainability and its various economic, ecological, and social dimensions. The results of this question are shown in figure 6.

The strongest overall agreement was with the statement: "Farming is a way of life, as well as a business." This was followed closely by "Agriculture is essential to rural communities, humans are a part of and subject to nature, and farmers have a responsibility for maintaining the environment." These results make clear that these farmers are supportive of the multiple economic, ecological, and social objectives of sustainable agriculture.

Figure 6.
There was also strong support for the proposition that "agriculture is a business and must be treated that way." Lower levels of agreement were found on a number of more general questions related to economic, environmental and social issues. There was almost an even split between agreement and disagreement with most statements that mentioned the specific term, sustainable agriculture, by name. These statements included whether sustainable agriculture was practical on most farms, whether it is better for society, whether it has strong public support, and whether it is a passing fad. About an equal number of those interviewed agreed and disagreed with these statements. The variance of responses indicated that most had an opinion one way or the other, but did not agree.

Overall farmers seemed to perceive that the issues that underlie concern of the sustainability of agriculture are important. They also feel that the economic, ecological, and social dimensions of sustainability are very important as well. But they had not yet linked the general underlying
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issues of sustainability with the specific concept of "sustainable agriculture."

Differences between "conventional and sustainable" farmers

Farmers were asked to identify themselves as "conventional farmers, transition to sustainable, or sustainable farmers." Preliminary analysis failed to detect and differences in responses between those choosing sustainable and transition to sustainable, so the two categories were combined to form one. This resulted in approximately equal numbers of farmers in the conventional and sustainable categories.

A Chi Square statistical procedure was used to identify responses which tended to distinguish between the two self-identified groups of farmers: conventional and sustainable. The Chi Square procedure evaluates differences in frequencies of responses among all possible responses in estimating the probability that the population from which a sample of farmers surveyed was drawn would in fact respond differently to a question. The primary significance level used in this study was 0.10 indicating less than a 10 percent chance of drawing a wrong conclusion from the sample data.

Differences between sustainable and conventional farming

Analysis of the total data set yielded no significant differences in responses between those farmers identifying themselves as conventional and sustainable on questions related to (1) meaning of sustainable agriculture, (2) most important challenges or problems, (3) reasons for trying new farming practices, or (4) approach to farm decision making. Conventional and sustainable farmers only disagreed significantly on two of the eighteen statements regarding issues related to sustainable agriculture: (1) In agriculture, the primary emphasis should be on speed, quantity and profit and (2) Humans are a part of and subject to nature.

There were significant differences in farming methods tried by conventional and sustainable farmers, with sustainable farmers significantly more likely to have tried (1) Crop rotation, (2) On-farm fertility programs, (3) Cover crops, (4) Management Intensive Grazing, and (5) Pasture management. Thus for respondents in total, farmers seem to have selected themselves into either the conventional or sustainable group based primarily on the nature of farming practices they had tried on their farms. If they had tried several farming practices typically associated with more environmentally sensitive approaches to farming, they considered them either as sustainable or transitional. If they had not tried any or many of these environmentally friendly practices, they considered themselves to be conventional. But, the two self-selected groups were not significantly different in their perceptions and attitudes regarding the general concept of sustainable agriculture.

These results raised the question of whether the lack of significance might be due to continuing uncertainty regarding what sustainable agriculture means among those who consider
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themselves sustainable as well as those who call themselves conventional. If the result is due to
ambiguity regarding what sustainable agriculture means, the distinction between the groups
might be clearer among those farmers in phase two of the study than those in phase one.

The farmers in phase one were selected by random sample from USDA lists of all farmers. The
farmers in phase two of the study were selected and interviewed in- person by Educational
Assistants working with Lincoln University’s Small Farm Family Program (SFFP). Farmers
selected for interviews were farmers with whom the SFFP workers were acquainted or who had
previous professional contact. And, sustainable agriculture had been a significant thrust area for
the SFFP for at least a couple of years prior to the survey. Thus, farmers in phase two might be
expected to have a clearer understanding of what the sustainable agriculture issue is about.

Small farm differences between sustainable and conventional farming

Although no instructions were given to SFFP Educational Assistants to select operators of small
farms, survey results indicated those interviewed in phase two were primarily operators of small
farms, although there were clearly some larger farmers included in the sample. Thus, the
analysis reported in this phase of the survey is identified with small farms. A more accurate
description of farmers in phase two might be "farmers with prior contact working relationships
with SFFP workers."

There is not universally accepted definition of small farms, however, the general guidelines for
SFFP Educational Assistants is that a small farms are those will less than $50,000 in annual
sales of agricultural commodities. In south Missouri, this definition includes farms of several
hundred acres of unimproved pasture or marginally productive cropland as well as farms of only
a few acres of berries, vegetables, or intensively managed crops. In nearly all cases, families on
small farms in Missouri have significant sources of off-farm income. However, many such
families depend of farming for their place of residence and much of their family recreation, as
well as significant portion of their family income. The farms in phase two of this study, on
average, clearly fit the general description of Missouri’s small farms.

Meaning of sustainable agriculture. Responses were significantly different concerning
importance of environment soundness in defining sustainable agriculture between
"conventional" and "sustainable" farmers in the small farm group. In table 1, there appeared to
be some tendency for conventional farmers to identify sustainable agriculture more closely with
specific farming methods than did sustainable farmers, but differences were not statistically
significant. Sustainable farmers also had more of a tendency to identify sustainability with social
acceptability, but the difference was only significant at the 23% level. The two groups were
virtually identical in the their high degree of association of sustainability with profitability.

Table 1.

http://www.ssu.missouri.edu/faculty/jikerd/papers/tsu-surv.htm (12 of 19) [11/30/02 10:02:57 AM]
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Attitude differences between "sustainable" and "conventional" farmers

<table>
<thead>
<tr>
<th>What does sustainable agriculture mean?</th>
<th>Conventional</th>
<th>Sustainable</th>
</tr>
</thead>
<tbody>
<tr>
<td>Environmentally Sound**</td>
<td>12%</td>
<td>25%</td>
</tr>
<tr>
<td>Profitable</td>
<td>25%</td>
<td>24%</td>
</tr>
<tr>
<td>Socially Acceptable</td>
<td>5%</td>
<td>9%</td>
</tr>
<tr>
<td>Organic Farming</td>
<td>17%</td>
<td>15%</td>
</tr>
<tr>
<td>Diversified Farming</td>
<td>27%</td>
<td>25%</td>
</tr>
<tr>
<td>Crop Rotations</td>
<td>17%</td>
<td>12%</td>
</tr>
<tr>
<td>Conservation Tillage</td>
<td>17%</td>
<td>14%</td>
</tr>
</tbody>
</table>

** Only significant difference between Conventional and Sustainable.

Farming methods tried to improve sustainability. Conventional and sustainable farmers in the small farms group differed significantly in farming methods tried for same four categories as for the phase one and phase two group in total. All differences shown in table 2 are significant at the .10 or higher probability level. Sustainable farmers were significantly more likely to have tried on farm fertility programs, cover crops, and both management intensive grazing and other forms of pasture management. Thus, the difference which were key to the self-selection of conventional and sustainable farmers for the study group in total were also significant for the small farms group. However, for the small farm data, the two groups differed in several additional respects as well.

Table 2.

<table>
<thead>
<tr>
<th>Farming Methods and Approach to Decision Making</th>
<th>Percent that have tried</th>
</tr>
</thead>
<tbody>
<tr>
<td>New Farming Methods</td>
<td>Conventional</td>
</tr>
<tr>
<td>On-farm fertility program</td>
<td>10%</td>
</tr>
<tr>
<td>Cover crops</td>
<td>3%</td>
</tr>
<tr>
<td>Management intensive grazing</td>
<td>8%</td>
</tr>
</tbody>
</table>
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| Pasture management | 15% | 28% |

One of the more significant implications of these results may be that about 45% of sustainable farmers have tried some form of more intensive management of pastures. The lack of differences in tillage, pest management, and other crop related practices might have been due to lack of commercial crop producers in the sample rather than to any lack of differences among conventional and sustainable farmers in general with respect to these practices.

**Approach to decision making.** Sustainable farmers in the small farm group were significantly more likely than were conventional small farmers to take an approach to decision making which evaluates the farm as a total system than to evaluate practices, methods, or enterprises on their individual merit. This tendency was only significant at the .22 probability level for the concerning individual merit, but was significant at the .10 level for the option related to considering the farm as a total system. The two groups responded virtually the same to the middle option which considers both individual merit and whole farm impacts.

**Table 3.**

<table>
<thead>
<tr>
<th>Differences in Approach to Farm Decision Making</th>
</tr>
</thead>
<tbody>
<tr>
<td>Percent Response</td>
</tr>
<tr>
<td>Conventional</td>
</tr>
<tr>
<td>Evaluated on individual merit*</td>
</tr>
<tr>
<td>Evaluated individually &amp; as part of whole farm*</td>
</tr>
<tr>
<td>Farm evaluated as total system**</td>
</tr>
<tr>
<td>*significant at .22 ** significant at .10</td>
</tr>
</tbody>
</table>

**Agreement or disagreement with position statements.** The major disagreements between sustainable and conventional farmers in the small farm group with respect to the various position statements relate to perceptions of the sustainable agriculture movement. Conventional farmers were more likely to consider sustainable agriculture as a passing fad that is not practical for most farmers and has little support among farmers or the general public. Whereas, over half of the sustainable farmers strongly disagreed with the statement that sustainable agriculture is a passing fad. They are more likely to feel that it is practical for most farmers and that it has at least modest public support. The other differences in table 4, all of which were
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statistically significant, were subtler in nature.

Differences in attitudes regarding integrated pest management and emphasis on speed and profits are mainly due to differences in responses in the ratings for 2 and 3 categories, which do not indicate strong differences one way of the other. With respect to whether the farmers’ children would farm the same farm, differences were primarily with respect to the degree of disagreement with the statement.

Table 4.

<table>
<thead>
<tr>
<th>Agreement with Various Position Statements</th>
</tr>
</thead>
<tbody>
<tr>
<td>(Frequency: 1=strongly disagree; 5=strongly agree)</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>1</td>
</tr>
<tr>
<td>Lots of support for sustainable ag.</td>
</tr>
<tr>
<td>Conventional</td>
</tr>
<tr>
<td>Sustainable</td>
</tr>
<tr>
<td>Don’t like Int. Pest Management</td>
</tr>
<tr>
<td>Conventional</td>
</tr>
<tr>
<td>Sustainable</td>
</tr>
<tr>
<td>Sustainable ag not practical for most</td>
</tr>
<tr>
<td>Conventional</td>
</tr>
<tr>
<td>Sustainable</td>
</tr>
<tr>
<td>Sustainable agriculture is a passing fad</td>
</tr>
<tr>
<td>Conventional</td>
</tr>
<tr>
<td>Sustainable</td>
</tr>
<tr>
<td>My children will continue on this farm</td>
</tr>
<tr>
<td>Conventional</td>
</tr>
</tbody>
</table>
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Sustainable | 19% | 5% | 11% | 41% | 24%

Emphasis should be speed & profit

Conventional | 24% | 24% | 33% | 10% | 9%

Sustainable | 26% | 44% | 15% | 9% | 6%

Humans are part & subject to nature

Conventional | 0% | 10% | 24% | 43% | 33%

Sustainable | 0% | 0% | 14% | 36% | 50%

The only differences in opinion statements that were statistically significant for the total group turn out to be a matter of degree rather than direction. For the statement that emphasis should be on speed and profits, both groups disagreed, but the sustainable group disagreed more strongly. For the statement that humans a part of and subject to nature, both groups in general agreed with the statement, but the sustainable group agreed more strongly.

Long term effects of sustainable agriculture. A maximum likelihood statistical procedure was used to evaluate differences between the two small farm groups with to their perceptions of differences in the long run effects of adopting sustainable farming systems. This data was not available for the total group. Respondents were asked to estimate impacts on eight different factors: number of family farms, farm labor requirements, purchase of external inputs, enterprise diversification, operational risks, environmental quality, quality of rural life, and farm profitability. The respondents were asked to indicate increase, decrease, or no change for each factor.

The only significant differences when all factors were included in the analysis were for (1) purchase of inputs, (2) diversification, and (3) environmental quality. The sustainable farmers were more optimistic about the potential to reduce purchased inputs, increase diversification, and improve environmental quality than were the conventional farmers. When all other non-significant variables were removed from the analysis, significant differences were observed for (4) quality of rural life and (5) farm profitability. Again, the sustainable farmers were more optimistic about the ability of sustainable agriculture to sustain increased profits and quality of life.

Selected differences in characteristics of farming operations. Information regarding various characteristics of overall farming operations were gathered and examined for differences between conventional and sustainable farming operations in the phase two, small farm portion of the analysis. Comparisons for some of the more interesting differences are shown in table 5.

Table 5.
The most significant difference between the two groups would appear to be in terms of numbers of acres farmed. Conventional operations farmed an average of 295 acres, more than twice as large as the 129 acres average for sustainable farmers. Asset/liability liability ratios were somewhat larger for conventional farms, indicating a more favorable financial status. The sustainable farmers were three years older on average, but both averaged in the 50-plus range. Sustainable farmers had a slightly higher level of formal education than did conventional farmers, but averaged 2 years less in farming experience.

Data for household income derived from farm and non-farm sources indicate that at least the average of both groups would be consistent with most definitions of small farms. Sustainable farm operators reported higher average off-farm incomes both for themselves and for their spouses than did conventional farmers. At the same time, they reported a higher percentage of their total income came from farming, 26% compared with 23%. The implied average total household income for conventional farmers is $15,700 with $3,600 derived from the farm. For sustainable farmers, average total household income is $22,800 with $5,900 derived from farming. The financial results are consistent with previous studies, which indicate that farmers utilizing sustainable approaches to farming can generate higher household incomes while farming less than half as many acres as are needed with conventional approaches to farming.

Summary and Conclusions
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The farmers in this study were uncertain regarding what the sustainable agriculture issue is all about. They clearly agree that farms must be profitable to be sustainable. There is also growing agreement that farms must be environmentally sound if they are to be sustainable over the long run. They agreed that viable family farms, healthy rural communities, and desirable quality of rural life are necessary for sustainability, but had not yet identified these as elements of a socially responsible agriculture. In addition, most Missouri farmers apparently have not integrated the economic, ecological, and social dimensions of sustainability into a holistic concept of sustainable agriculture.

The farmers in this study tended to separate themselves into "conventional" and "sustainable" categories based on specific farming practices, such as crop rotations and management intensive grazing, rather than their perceptions regarding the relative importance of economic, environmental, or social considerations in farming. However, farmers who were more likely to have had greater exposure to sustainable agriculture concepts, indicated more clearly defined differences between what they considered to be conventional and sustainable farming.

Among farmers selected by small farm workers, sustainable farmers were significantly more likely than conventional farmers to self-identify with environmental soundness. The sustainable small farmers were also more likely to manage their farms as a whole system rather than focus on individual practices or enterprises. In terms of general opinions and attitudes, conventional farmers in the small farm group were more likely to see sustainable agriculture as a passing fad with little public support or relevance to most farmers. Sustainable farmers apparently view sustainable agriculture as just the beginning of a fundamental change of long run importance to farming in general and to society as a whole.

The farm households in both the sustainable and conventional small farm groups rely significantly on non-farm income sources. However, farmers who identified themselves as sustainable reported higher farm and non-farm household incomes, while farming less than half the acres of those who identified themselves as conventional. Thus, sustainable farmers, at least those on small farms, seem to have found ways to maintain or enhance their farm profits while maintaining their commitment to a healthy environment and to a desirable social quality of life – while farming less than half as many acres as their conventional counterparts. They may still have difficulty defining sustainable agriculture in words, but they are clearly defining it in the ways they are learning to farm.

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Farming is fundamentally biological. The essence of agriculture begins with conversion of solar energy through the living process of photosynthesis. The food that sustains our lives comes from other living things. If life is sacred, then food and farming must be sacred as well. Throughout nearly all of human history, both food and farming were considered sacred. Farmers prayed for rain, for protection from pestilence, and for bountiful harvests. People gave thanks to God for their "daily bread" -- as well as for harvests at annual times of Thanksgiving. For many, farming and food are still sacred. But for many more, farming has become just another business and food just something else to buy. Those who still treat food and farming as something sacred may be labeled as old-fashion, strange, radical, or naïve.

But, the time to reclaim the sacred in food and farming may well be at hand. The trends that have desacralized farming may have run, even overrun, their course. There is a growing skepticism concerning the claim that more "stuff" – be it larger houses, fancier cars, more clothes, or more food – will make us more happy or satisfied with life. There is growing evidence that when we took out the sacred, we took out the substance, and have left our lives shallow and empty. Humanity is beginning to ask new questions. The old questions of how can I "get" more is being replaced with questions of how can I "be" more?

The answer to this question, at least in part, is that we must reclaim the spiritual dimension of our lives. But, how can we reclaim the spiritual or sacred? And, how will doing so change the way we farm and live? These questions will be addressed, but first we need to understand why we took spirituality out of food and farming in the first place and why we now need to put it back in.

Until some four hundred years ago, nearly everything in life was considered spiritual or sacred. The religious scholars were the primary source of knowledge in the intellectually "enlightened" world. Kings, chiefs, clan leaders, the people who other people looked to for wisdom were assumed to have special divine or spiritual powers. It was only during the seventeenth century that the spiritual nature of the world became seriously challenged. Among the most notable challengers was Decartes who proposed the spirit/matter dualism. "The Cartesian division allowed scientists to treat matter as dead and completely separate from themselves, and to see the material world as a multitude of different objects assembled into a huge machine" (Capra, 1983. p.22). Sir Isaac Newton also held this mechanistic view of the universe and shaped it into the foundation for classical physics.

Over time, the mechanical model was expanded to include the living as well as the "dead." Plants, animals, even people, are now treated as complex mechanisms with many interrelated, yet separable parts -- in spite of the emergence of quantum physics that now challenges the old mechanistic worldview. Reductionism, which attempts to explain all biological processes as purely chemical and mechanical processes, has come to dominate the applied biological sciences from agriculture to medicine.
The spiritual realm, to the extent it was considered at all, was assumed to be in the fundamental nature of things – the unchanging relationships of which scientists sought to discover. There was no active spiritual aspect of life, only the passive possibility that spirituality was somehow involved in the initial creation of the universe that we are now exploring. The more we understood about the working of the universe, the less we needed to understand about the nature of God. The more we "knew" the less we needed to "believe." As we expanded the realm of the "factual" we reduced the realm of the "spiritual" until it became trivial, at least in matters of science.

Farming was one of the last strongholds for the sacred in the world of science. The shift in scientific thinking had been from a "science of understanding" to a "science of manipulation" (Schumacher). Over time, the goal of science shifted from increasing "wisdom" to the goal of increasing "power." We didn’t want just to understand the universe; we wanted to dominate it. The purpose of science had become to enhance our ability to influence, direct, and control. "Mechanical" processes – using machines to manufacture things from "dead" matter – were relatively easy to understand and manipulate. "Biological" processes – involving living organisms, including humans – proved much more difficult to both understand and manage. Farming and food are fundamentally biological. So it took far longer to learn to manipulate and control agriculture. Farmers continued to pray for rain, and people continued to give thanks for food – although scientists would have advised us that both were either unnecessary or futile.

But, science eventually succeeded in taking the sacred out of farming – at least out of modern, scientific farming. People tend to be difficult to understand and manipulate. But machines took laborers out of the fields, so farming became more manageable. Selective breeding brought genetic vagaries more or less under control. Commercial fertilizers gave farmers the power to cope with the uncertainties of organic-based nutrient cycling. Commercial pesticides provided simple scientific means of managing predator, parasites, and pests. Deep-well irrigation reduced the grower’s dependence on rainfall. Processing, storage, and transportation – all mechanical processes – removed many of the previous biological constraints associated with form, time, and place of production. Farms have become factories without roofs. Supermarkets and restaurants are but the final stages in a long and complex food assembly line. Why pray for rain when we can drill a deep well and irrigate? Why thank God for food created by ConAgra? Who needs God when we have modern science and technology?

But today, as in the seventeenth century, we are in a time of "great transition." "We are at that very point in time when a 400-year-old age is dying and another is struggling to be born – a shifting of culture, science, society, and institutions enormously greater than the world has ever experienced. Ahead, the possibility of the regeneration of individuality, liberty, community, and ethics such as the world has never known, and a harmony with nature, with one another, and with the divine intelligence such as the world has never dreamed." These are the words of Dee Hock, founder of the Visa Corporation and creator of the Chaordic model of business organization. Hock is certainly not alone in this thinking. A whole host of futurist, including Alvin Toffler, Vaclav Havel, Tom Peters, Peter Drucker, John Naisbitt, Robert Reich, and others agree that we are in a time of fundamental change. They talk and write of a shift in worldview from the mechanistic, industrial era where power is derived from control of capital and the technical means of production to a post-industrial era where human progress is derived from knowledge -- the new source of wealth and human satisfaction. They agree that knowledge is fundamentally biological rather
than mechanical in nature and will require a new "science of understanding" to replace the old "science of manipulation."

The transition to a more sustainable agriculture is but one small part of the "great transition" that is taking place all across society. The questioning that is driving the sustainable agriculture issue, however, exemplifies the broader questioning of society that is fueling the "great transition." We are questioning the sustainability of agriculture because we have come to believe that our natural resource base is finite, that we and the other elements of our environment are all interconnected, that there is a higher and unseen order of things to which we must conform. Sustainability concerns seem foolish to those who believe that human ingenuity is infinitely substitutable for natural resources, that our environment and we are separable, and that the laws of nature are but temporary obstacles to be overcome through science. Conflicts regarding the legitimacy of the sustainability issue are conflicts of beliefs, not of facts. But, there is a growing body of evidence to support the questioning of whether agriculture or any other aspect of our current society is sustainable.

In agriculture, the litany of sustainability concerns has become a familiar theme. Agriculture – with its fundamental purpose of transforming solar energy into human useful form – now uses far more energy from fossil sources than it captures from the sun. Water and air pollution -- associated with commercial fertilizers and pesticides and large-scale confinement animal feeding operations – have become major public concerns. Declining numbers of family farms – a consequence of agricultural industrialization – has left many rural communities in decline and decay -- places without a purpose. The ethical and moral commitment to stewardship and community among farmers seems to have given way to concern for the economic bottom line. Increases in agricultural productivity have become more illusionary than real as the farmer’s role in food production declines and the role of input and marketing firms rises. Small farms are considered largely irrelevant to agriculture, even though most U.S. farm families still live on small farms. There is a growing disillusionment and a sense of hopelessness, even among larger farmers, as multi-national corporations take over a larger and larger share of agricultural production.

Similar concerns are apparent in the larger society. As population and per capita consumption increase, the ultimate scarcity of natural resources -- such as land and fossil fuels – seem obvious to many if not most of us. The environmental movement, born only in the early sixties with Rachel Carson’s Silent Spring, has grown to permeate the global society as evidence of environmental pollution abounds. The disintegration of families and communities is beginning to have major negative impacts on our societal quality of life. Increasing drug use, violence, and crime are attributed to the decline in ethical and moral values of a disconnected society. Declining productivity of labor, a symptom of treating people as if they were machines, has lead to growing underemployment and economic and social inequities. These and other factors contribute to a growing disillusionment and sense of hopelessness that permeates much of society. At a world conference of intellectuals reported in the book, "Reinventing the Future," degradation of the environment, breakdown of public and private morality, and growing social inequities between the North and South were three of the four items on the global agenda.
But what do these concerns for sustainability have to do with spirituality? The answer, these concerns share a common source in the removal of spirituality from science and society. The science of manipulation, the quest for power and control, provided the conceptual foundation for the industrial revolution. The fundamental concepts of industrialization – specialization, mechanization, routinization, and control -- are based on a mechanistic worldview. The science of Descartes and Newton became a science that sought to separate, sequence, compartmentalize, and control. Growing concerns for ecological, social, and economic sustainability all are consequences of growing industrialization. And, in the mechanistic worldview supporting industrialization, there is no active role for the sacred.

The science of manipulation is a science which separates – mind from matter, people from nature, people from each other, the body from the mind, and the mind from the soul. It’s the science of modern economics that assumes the greatest good arises spontaneously from the greatest greed – that the interest of society is a consequence of the vigorous pursuit of self-interest. The same science that made the industrial era possible is the science that removed the sacred from matters of economics and politics and removed spirituality from the day-to-day matters of both individuals and their communities. We were lead to believe that good science would bring about success and happiness without any help from "on high."

But, biological and social phenomena never really fit the mechanistic, manipulative view of the world. Living things of nature had to be bent, twisted, bribed and coerced to bring them under control. But, nature inevitably fights back. Questions of sustainability invariably can be traced to unintended consequences of treating living things as if they were inanimate, programmable, controllable machines. A science of understanding – of wisdom rather than power and control – must provide the foundation for a sustainable society.

Using almost anyone’s definition, concerns for sustainability imply concerns for intergenerational equity – a need to meet the needs of our current generation while leaving equal or better opportunities for those of generations to follow. Thus, sustainability is about "equity, forever." The three corner stones of sustainable agriculture – ecological soundness, economic viability, and social equity – rest upon a foundation of intergenerational equity. Intergenerational equity, in turn, has its foundation in human spirituality. Concern for sustainability reflects a felt need to treat fairly those in whom we have neither self-interests nor shared-interests, in any sense other than spiritual.

Conventional economic theory deals with short-run self-interest. Economic efficiency defines the optimum means of using things up. There is nothing in economics to ensure long run sustainability. Economics is about "me, now." Conventional public choice theory deals with collective decisions concerning matters of current shared-interest. There is nothing in this theory concerning allocating societal goods and services to ensure a sustainable society. Public choice is about "us, now." Likewise, many of the current environmental concerns are related to a desire to protect "us, now" rather than our concern for future generations. But, sustainability includes concern for "us and them, forever." Only the spiritual is capable of transcending the present to address the fundamental issues of long run sustainability. Only the spirituality transcends "me, us, and them, both for now and forever."
What is this thing called spirituality? First, spirituality is not religion, at least not as it is used here. Religion is simply one of many possible means of expressing one’s spirituality. William James, a religious philosopher, defined religion as "an attempt to be in harmony with an unseen order of things." Paraphrasing James, one might define spirituality as "a ‘need’ to be in harmony with an unseen order." This definition embraces a wide range of cultural beliefs, philosophies, and religions.

A Native American, Chief Sealth, or Seattle, said: "Whatever befalls the earth befalls the sons and daughters of the earth. We did not weave the web of life; we are merely a strand in it. Whatever we do to the web, we do to ourselves." (Roberts and Amidon, p.10).

From another culture, "the most important characteristic of the Eastern world view – one could almost say the essence of it – is the awareness of unity and mutual interrelation of all things and events, the experience of all phenomena in the world as manifestations of a basic oneness" (Capra, p. 131).

An example of a Polynesian worldview: "The Kahuna told me, if you are looking for God, look out at the sea. Look to the horizon. Get in your canoe and go to the horizon. When you get there, you will meet God. God is nature. God is everything" (Pearsall, p. 121).

And, from a Jewish Prayer: "And God saw everything he had made and found it very good. And he said: This is a beautiful world I have given you. Take good care of it; do not ruin it…I place it in your hands: hold it in trust" (Roberts and Amidon, p. 62).

Finally, from the Bible: "To everything there is a season, a time for every purpose under the sun: A time to be born a time to die; a time to plant and a time to pluck up that which is planted; a time to kill a time to heal; a time to weep a time to laugh;… a time to love and a time to hate; a time for war and a time for peace" (Ecclesiastes 3:1-8).

A common thread of all these expressions of spirituality is the existence of an unseen order or interconnected web that defines the oneness of all things within a unified whole. We as people are a part of this whole. We may attempt to understand it and even influence it, but we did not create nor can we control it. Thus, we must seek peace through harmony within the order of things beyond our control. This harmony may be defined as "doing the right things." And, by "doing the right things;" for ourselves, for others around us, and for those of future generations, we create harmony and find inner peace.

The sustainable agriculture issue ultimately is rooted in a perceived "need to be in harmony with the order of things" -- in spirituality. Finding harmony with a higher order requires an understanding of that order – wisdom not power and control. Sustainable farming means farming in harmony with nature – nurturing nature rather than dominating or manipulating it. Sustainable agriculture means fitting farming to the farmer and the farm – not forcing either to fit some predefined prescription for progress. Sustainable farming means farming in harmony among people – within families, communities, and societies. Sustainable farming means farming in harmony with future generations – being good stewards of finite resources. A life of quality is a shared life. A life of quality is a spiritual life.
The goal of sustainability is to sustain a desirable quality of life. Quality of life is not something we can buy at Walmart or Disney World with the money we earn from farming for the "bottom line." Quality of life is determined by our ability to "do the right things," for me, for us, and for them. Quality of life, inherently and inseparably, is personal, interpersonal, and spiritual in nature.

A sustainable agriculture, likewise, has personal, interpersonal and spiritual dimensions. A sustainable agriculture must be ecologically sound, economically viable, and socially just. Protecting our own environment is not enough. We must conserve and protect resources for those of the future. Profits are necessary but not sufficient. The economics of short run, self-interests are inadequate to ensure that there will be anything left for future generations. A society without justice is not sustainable -- no matter how profitable and environmentally sound it may seem. The economic, ecological, and social dimensions are all essential and inseparable. Sustainability requires harmony among things personal, interpersonal, and spiritual. We can begin reclaiming the sacred in food and farming by reclaiming, up front and without compromise, the spiritual nature of sustainability.

As we reclaim the sacred in food and farming, it changes the way we farm and live. We learn to pursue peace and happiness rather than success. We seek "harmony" among things economic, social, and spiritual – not maximums or minimums. If we focus on any one, we tend to deplete the others, and lose rather than gain what we seek to achieve. Farming solely for the bottom line, for example, invariably takes time and resources away from family and community, degrades the natural resource base, degrades the human spirit, and eventually destroys the ability of the farm to even generate a profit. However, ignoring farm economics for short-run family or religious reasons can be just as devastating in the long run for both family and spirituality.

Our common sense tells us that we must have balance in our lives among the personal, interpersonal, and spiritual. Yet we are bombarded from every corner with the message that having more stuff will make us happy, that success means having more money. Or we may be told that happiness is found only in love of family and friends, and that money doesn't matter. On Sunday, the message is likely to be that happiness comes only from the love of God, that we should deny ourselves and follow Him. The thesis of sustainability is that "all these things matter, but than none alone is sufficient." To sustain the sacred in farming, we must find harmony among things economic, social, and ecological – among the personal, interpersonal, and spiritual.

Spirituality does not mean that our rewards must be delayed until after-life, any more than sustainability means we must sacrifice quality of life today for some future reward. We live only in the present, not the past or the future. If we are unhappy today, reaching some future tangible goal is likely to leave us unhappy. If we are happy today, we are quite likely to be happy in the future regardless of whether we reach some goal we now have in mind. The focus of faith and hope may on things expected or hoped for in the future, but the true benefits of both are in the here and now. "Living in faith and hope" defines a life worth living far more than does achieving whatever is expected or hoped for. Faith and hope are about "now, not when." Faith and hope are fruits of the spirit.
Likewise the spirituality of sustainable farming is about here and now, not there and when. The rewards come from having adequate, not maximum, income; from having positive relationships with family, friends, and others; and from being a responsible steward of resources for the future. All of those things have rewards here and now, as well as somewhere else at some time in the future. The key point is that the reward comes from knowing that we are "in harmony with some unseen order." An adequate income, friends and family, and a clean environment are all products, not sources, of our overall sense of peace and happiness.

A desire to declaiming the spiritual does not guarantee peace and happiness. Reclaiming the sacred simply recreates a "possibility or hope" for a desirable quality of life. We still must seek to understand so we may learn to accommodate rather than dominate and nurture rather than conquer. We need to be wise, not smart. And wisdom may be more difficult to achieve than is cunning. We need to learn to humble, not powerful. Humility may be more difficulty to master than is control. We need to seek and accept the spiritual in everything we see and do. The physical may be far easier to see and to manipulate. We need to learn to dance with life rather than try to push life around.

To farm and live sustainably, is to farm and live spiritually. Sustainability certainly is not a religion, but it is fundamentally spiritual. Sustainable farming and sustainable living are attempts to work and live "in harmony with an unseen order of things" -- to work and live spiritually. To farm and live sustainably, we must be willing to openly proclaim the spirituality of sustainability. We must reclaim the sacred in food and farming.

REFERENCES


Sustainability is a goal. The goal of a sustainable agriculture, quite simply, is agricultural sustainability. Most definitional disagreements stem from differing opinions concerning the "means" by which the goal of agricultural sustainability can or should be pursued. Few people question the nature or worthiness of the "goal" to be achieved. No one wants an unsustainable agriculture.

How will we know when agriculture is sustainable? The answer: we won’t. "Sustainability is a question rather than an answer," as the late Robert Rodale was fond of saying. Sustainability is a direction rather than a destination, like a star that guides the ships at sea but remains forever beyond the horizon. But sustainability can still be an important guiding principle. The "question of sustainability" can be asked of any ongoing activity or process. It can be asked of "conventional" agriculture and of any proposed "alternative" agriculture: Is it sustainable? It should not be presupposed that questioners have, or even think they have, the answer simply because they ask the question. But asking the right question can greatly improve the odds of finding the right answer and making the right decision.

Agreement on the goal of sustainability may not be as clear-cut as it might at first seem. First, we must agree on what is to be sustained, for whom, and for how long? If we can agree on the answers to these questions we should be able to move forward toward the common goal. There is not universal agreement, but most who are concerned about sustainability seem to agree that we are working to sustain agriculture, for the benefit of humanity, forever.

Some argue that agriculture is the problem rather than the solution, but most seem to agree that we need to sustain, rather than replace or abandon, agriculture. Agriculture, by its very nature, involves efforts to shift the ecological balance so as to favor humans relative to other species in production of food and physical protection. Thus, if we sustain agriculture we are sustaining it for the ultimate benefit of humankind. A general consensus also seems to exist that agriculture should benefit people of this generation and for all generations to follow. Among the many definitions of sustainable agriculture, none places a time horizon on how long agriculture should be sustained.

The Dimensions of Sustainability

We cannot prove through empirical studies that one approach to agriculture is sustainable or that another is not. It would quite literally take forever to collect the data for such a study. Thus, we must rely on the science of logic to answer the question of sustainability. What are the logical prerequisites for agricultural sustainability? An answer can be found in a growing consensus: a sustainable agriculture
must be (1) ecologically sound, (2) economically viable, and (3) socially responsible. Furthermore, these three dimensions, in so far as they relate to sustainability, are inseparable. All three are essential, and thus, all are equally critical to long run sustainability.

If there are no ecological limits to growth, there is no legitimate question of sustainability. Thus, the sustainability issue presumes an interconnectedness of humanity with the other biophysical elements of our natural ecosystem. Through agriculture, we may tip the ecological balance in our favor. But if we attempt to tip it too far or too fast, we will destroy the integrity of the natural ecosystem, of which both we and agriculture are parts. If we degrade our natural resources and poison our natural environment, we will degrade the productivity of agriculture and ultimately will destroy human life on earth. Nearly everyone seems to agree that a sustainable agriculture must be ecologically sound.

There may be less agreement regarding the contentions that a sustainable agriculture must also be economically viable and socially responsible. The social sciences of economics and sociology are fundamentally different from the physical sciences of agriculture and the natural science of ecology. However, agriculture, by its nature, involves self-conscious attempts by humans to change or "manage" natural ecosystems. Humans are unique among species in that we make purposeful, deliberate decisions that can either enhance or degrade the health of the ecosystems of which we are a part. Thus, the question of sustainability must take into account the purposeful, self-conscious nature of individual and collective human actions which are driven by the economic and social motives of people.

Sustainable systems must be economically viable, either by nature or through human intervention. In many cases, farmers have economic incentives to adopt ecologically sound systems of farming. A healthy agroecosystem tends to be a productive and profitable agroecosystem. However, inherent conflicts exist between short run interests of individuals and long run interests of humanity. In such cases, society must find ways to provide economic incentives for individuals to act in ways consistent with long run societal interests.

*Human nature*, fundamentally, is a part of nature. Even when our physical survival is ensured and our basic needs are met, the nature of we humans is to act in our own self-interest. The whole of self-interest is not captured in dollars and cents. Thus, we need not *maximize profit* to maximize our self-interest. But people cannot persist in actions inconsistent with their economic survival, regardless of their personal preferences, values, or principles. Enterprises that lack economic viability will lose control over use of ecological resources to their economically viable competitors. In other words, farmers who can't survive financially ultimately will lose their farms to their economically viable neighbors. However, agriculture cannot be sustained over the long run if the only economically viable neighbors are those who degrade the agroecosystem in pursuit of short run profits.

A fundamental purpose of public policy is to resolve conflicts between the short run interests of individuals and the long run interest of society as a whole. Ecologically sound systems of farming can be made economically viable through the policy making process. However, society ultimately must pay the economic costs of such policies, either through availability and prices of food and fiber, or through
government taxing and spending. By one means no another, farming systems must be made economically viable as well as ecologically sound if they are to be sustainable. Neither is more important than the other; both are necessary and neither is sufficient.

A consensus that sustainable agriculture must be socially responsible is still emerging. However, to argue that an economically viable and ecologically sound system of agriculture can be sustained in the absence of social justice is to ignore the fundamental nature of humans. At their very core, such arguments beg the question of sustainability for whom, or at least for how many and at what level? No set of ecological possibilities can sustain the maximum population that humankind might possibly choose to procreate on this earth. Nor is it ecologically possible to sustain even the current human population at any level of per capita resource consumption we might choose.

Some argue that economic development is the key to reducing population growth rates and ensuring long run sustainability. However, if rates of population increases can be held in check only by increasing per capita resource consumption, economic development simply shifts the balance from over-population to over-consumption. The history of human civilization provides little evidence to support a hypothesis that either regional or global population and consumption will automatically adjust to optimum sustainable levels. To the contrary, over-population and unrestrained greed seem more likely to result in destruction and degradation of the natural resource base. Evidence suggests that this degradation will continue to a point where only a fraction of the population can be sustained.

Human societies that lack economic equity and social justice are inherently unstable, and thus, are not sustainable over time. Such systems will be characterized by reoccurring social conflicts which may do irreparable damage to both the economic and ecological systems that must support them. In an age of nuclear weapons and other forms of mass destruction, one instance of societal failure can destroy the ecosystem of an entire region. Even without war, deserts, droughts, floods, and famines are more frequently the ultimate result of failed social systems than of any naturally occurring ecosystem phenomena alone. Agriculture is a creation of human society that can be destroyed by human society. An agriculture which fails to sustain a society will not be sustained by that society. A socially responsible agriculture -- one that equitably meets basic human food and fiber needs, provides economic opportunity, supports self-determination, and ensures social equity -- is no less critical to long run sustainability than is an ecologically sound and economically viable agriculture.

Questions concerning what is socially responsible and what is not ultimately must be answered by society, by families, communities, and others collectively affected by agricultural decisions. Science provides no definitive answers to such questions. However, it is logically imperative that we recognize ecological soundness, economic viability, and social responsibility all as essential and thus equally critical to the sustainability of agriculture.

We must have social incentives to create economic rewards for ecological protection. An important dimension of human nature is our ability to learn, discover new options, and to choose new and different responses. This ability to change our stimulus-response patterns is unique to the human species.
Sustainability is not possible unless we develop our collective will to exercise this uniquely human social trait -- unless we choose to share our resources with others of this generation and of all generations to come.

Some may question the wisdom of placing the burdens of global sustainability on American agriculture. One might logically conclude that American agriculture is but one part of global agriculture, and that agriculture is but one small part of the larger global ecosystem. If risks arising from lack of sustainability within American agriculture can be counteracted elsewhere within global agriculture, or within the rest of the global ecosystem, the system as a whole can be sustainable. This conclusion is valid, but only within limits. When one part of a system places stress on the other parts, the sustainability of the entire system may be threatened.

It is important to monitor and control the social stress an agricultural system places on farm families and others in rural communities, the economic stress agriculture puts on food and fiber consumers, and the ecological stress agriculture puts on its natural environment. A system that destroys any critical element of its agroecosystem system will degrade the other elements as well, and eventually, will destroy the system as a whole.

We should be willing to ask of any agricultural technology, enterprise, or activity: Is it ecologically sound, economically viable, and socially responsible? We can never know for sure whether our conclusions or decisions are right or wrong. Sustainability is about "forever." However, we will at least be asking the right questions. And, by focusing our efforts on gathering the right information and pursuing the right knowledge, we should at least improve the odds of finding the right answers.

The Pursuit of Sustainability: A Question of Paradigms

Disagreements concerning alternative means of pursuing sustainability will not likely be resolved, at least not in the foreseeable future. However, the sustainability issue is causing many people to question the prevailing paradigm for economic development and human progress -- the industrial model. Some of the most challenging questions of sustainability are linked directly to either the consequences or failures of the industrial model -- environmental degradation, reliance on non-renewable resources, disappearing opportunities for productive employment, and growing social inequities, just to name a few. In their search for answers to these questions, a growing number of people are turning to fundamentally different developmental models for the future.

Joel Barker, in his book Paradigms, defines a paradigm as a set of rules that do three things: (1) establishes or defines boundaries, (2) sets standards for success, and (3) defines rules of behavior within the boundaries. He uses the game of tennis as an analogy to illustrate these concepts. Tennis courts are standard in size and out-of-bounds are clearly marked. The ball must hit within these bounds to "stay in play." The ball must be struck with a tennis racket, not a baseball bat, a hand, or anything else, and the ball is allowed to bounce only once before it is returned over the net.
Paradigms may be simple, as in the case of games, or extremely complex, as in the case of a model for economic development. However, the industrial model has some clearly defined boundaries. The natural environment is considered to be "external," or out of bounds, by industrial managers. Society likewise is considered to be an "external" factor which constrains or sets bounds on what industrial firms can do. Success for an industrial firm is measured in terms of profits and growth. Within the limits allowed by nature and society, industrial firms may take a wide range of actions to maximize short run profits and longer run growth. Almost anything that is possible and legal is encouraged if it leads to profits and growth. The dominant paradigm of U.S. agriculture, following the rest of the U.S. economy, has become the industrial paradigm.

Paradigms become dominant because they are found to be capable of exploiting new opportunities or solving problems that previous paradigms could not solve. The industrial era was fostered by a host of interrelated and complex developments. But among the most important of the past century was accessibility to large supplies of fossil fuels. The industrialization of agriculture was brought about to support the industrialization of the economy as a whole. People had to be freed from the tasks of producing food and fiber to provide workers for the factories and offices of the growing industrial society. Food and fiber costs had to decline if consumers were to have discretionary income to buy the things that the factories and offices would produce. U.S. agriculture was mechanized, specialized, and routinized. The agricultural sector has been among the last to become fully industrialized. But the driving forces of modernization have been to make farms perform as factories without roofs with fields to produce as factory assembly lines.

The industrial paradigm succeeded in exploiting the opportunities of cheap fossil energy. It freed farmers and others from the subsistence living that characterized earlier times and reduced the claim of food and fiber on consumer incomes. However, fossil energy supplies are being quickly depleted. In addition, most of the benefits to be gained from agricultural industrialization have already been realized. Today less than two percent of the people are left on farms. Only a penny of the dime of each dollar of disposable income the average consumer spends for food goes to pay the farmer. There is little left for society to gain from having fewer farmers or further squeezing the farmer’s penny.

In addition, industrialization has generated a whole new set of environmental and social costs that may soon, if not already, outweigh its declining benefits. Champions of industrialization are searching desperately to find industrial solutions to problems caused by industrialization. Others, see such efforts as futile and are searching for something fundamentally different. They are searching for a new paradigm capable not only of solving the problems created by industrialization but of realizing a whole new set of opportunities for human progress in a post-industrial era. The sustainable agriculture issue is characterized by this fundamental conflict between those who are trying to fix the industrial model of farming and those who are seeking a new paradigm for farming in the post-industrial era.

A new post-industrial paradigm for agriculture is emerging under the conceptual umbrella of sustainable agriculture. The emerging paradigm may not be widely understood for some time to come. However, this post-industrial approach to farming is fundamentally different from the industrial paradigm in several ways. The new paradigm clearly considers ecological and social impacts to be within rather than outside
of its boundaries. The new goal is sustainability with its inseparable ecological, social, and economic dimensions. Healthy ecosystems and healthy societies are goals rather than constraints to profits and growth. The new rules are the *laws of nature*, including those of human *nature*.

Industrialization is based on an economic model designed for optimum resource *use*. Under optimum conditions, a free enterprise economy optimizes the rate at which resources are *extracted or used up*. Industrialization *uses up* natural or ecological resources as well as human and social resources, but it does nothing to regenerate or replenish the *stocks* of either. Society and the environment are *outside or external*. The sustainability paradigm brings natural ecosystems and human communities into the decision making process. The new paradigm deals directly with decisions for regenerating the natural resource base and rebuilding stocks of social capital -- both of which may have been seriously depleted by decades of industrial extraction. The new boundaries are *natural* limits to economic growth and *natural* requirements for human progress.

Success in the new paradigm in measured against the goal of sustainable economic, ecological, social progress, rather than profits and growth. The ultimate objective is to sustain a desirable quality of life, which requires a balance of economic, social, and ecological success. Quality of life is unique to the individual, has elements common to the human species. For example, all humans need air, food, and water -- most would agree. But humans also are a social species. A baby may live longer without love than without milk, but ultimately must have both to survive. Our perception of our image in the eyes of others is inseparable from our image of ourselves. Humans are spiritual as well as physical and social. Most of us believe our lives have meaning and purpose that transcends ourselves and goes beyond even other people around us. For example, the rewards that motivate acts of true resource stewardship are spiritual rather than economic or social.

The rules of the new paradigm are laws of nature. The underlying assumption is that humanity must conform to nature rather than dominate nature. Thus, the laws of nature, including human nature, hold the keys to sustained productivity. Nature is biological as well as physical. The sustainable paradigm is a biophysical or organistic model, whereas industrialization is a geophysical or mechanistic model.

Every organism (or organization) is a whole -- each has a definable purpose or function. Organisms must be managed holistically. But, every organism is made up of smaller organisms and is a component of larger organisms. A unique challenge in holistic management is to comprehend the complexities of the whole under management, the purpose and functioning of the organism, rather than attempt to reduce wholes to their more simple and easily understood elements. The essence of a whole is in its interconnections, not in its component parts.

Each person, family, or community is a unique whole with a unique set of individual, collective, and spiritual goals and aspirations, and thus, has a unique quality of life. Each person, family, or community has a unique set of ecological, social, and economic resources, and thus, requires a unique resource management strategy. Holistic management is a complex process. In fact, the human mind may be the only mechanism capable of coping with the multitude of complexities implied by this new paradigm for
agriculture. Success of the new paradigm for farm decision making may well depend on success in empowering people with the information and knowledge needed to manage holistically.

Despite their uniqueness, each organism or whole is subject to the same set of universal laws of nature -- including human nature. These laws define the rules of what we can and can’t do, or should and shouldn’t do, both in the short run and over the long run. The industrial paradigm, on the other hand, considers nature as something to be conquered through human ingenuity. Any constraint represented by nature is simply a temporary obstacle to be overcome. *The impossible just takes a little longer* -- so the industrial paradigm boasts. Thus, the scientific community has given little attention to defining those laws of nature that cannot be defied without threatening long run sustainability. A major challenge to the scientists under the new paradigm is to begin to define those laws of nature to which our decisions and actions must conform.

**Strategies for Agriculture Sustainability**

One might assume the task of managing for sustainability to be so complex and difficult that that no one would be willing to accept the challenge. However, many have already accepted the challenge. The trails toward agricultural sustainability already have been blazed by the visionaries who see the emergence of a new post-industrial society, of which an agriculture managed for sustainability will be but one part. Peter Drucker, the time honored business scholar and consultant to industrial corporations, is among those visionaries.

> Every few hundred years in Western history there occurs a sharp transformation. Within a few short decades, society rearranges itself -- its worldview; its basic values; its social and political structure; its arts; its key institutions. Fifty years later, there is a new world.... We are currently living through just such a transformation.” (Post-Capitalistic Society, by Peter Drucker)

Drucker believes the current transformation began in the early 1970s some 25-plus years ago. If Drucker is on target, we should look to ways of thinking that have emerged over the past two-to-three decades as clues to the dominant paradigm of the twenty-first century.

According to Barker, new paradigms emerge when it becomes apparent to some people, not necessarily many, that the old paradigm is not going to be able to solve all the relevant and important problems. Thus, a new paradigm emerges while the old paradigm seems to be doing quite well -- at least in the minds of most. Consequently, Barker claims, new paradigms typically are met with initial rejection. Therefore, we must be willing to consider ideas still *rejected* by most, but gaining a following, for insights into new paradigms. New paradigms are almost always championed from the *outside* rather than from *within*. We must be willing to look *outside* rather than *inside* for guidance in pursuit of the new paradigm of sustainability. The new territory of agricultural sustainability is just now being settled by the post-industrial pioneers.
Some of the visionaries from the outside include Drucker, Toffler, Naisbitt, Hock, Reich, Capra, and others. These visionaries are gaining a following that spans the political spectrum from Hilary Clinton to Newt Gingrich and the business spectrum from Tom Franzen (an Iowa family farmer) to the VISA Corporation. But the practical lessons of sustainability are being outlined by the outside pioneers which include Covey, Savory, Senge, Kriegel, Peters and others. These pioneers are teaching the day-to-day, nuts-and-bolts process of guiding the process of decision making by fundamentally new and different paradigms -- paradigms consistent with the emerging paradigm of sustainable agriculture.

Those who are ready to learn and teach the principles of sustainable agriculture might do well to begin with the territory that has already been settled and to spread out conceptually from there. The following are but a few examples of readily available sources of uncommon wisdom, based on common sense, that is fundamental to the concepts of agricultural sustainability.

Allan Savory’s approach to holistic resource management (HRM) is built on a set of four "ecosystem foundation blocks" -- water cycles, mineral cycles, energy flows and succession or community dynamics. These building blocks represent a down-to-earth, practical representation of the laws of nature -- rules of the sustainability paradigm. Savory contends that all new wealth is generated by energy flow -- the product of the solar chain which transforms solar energy into human-useful form. The water cycle and mineral cycle are essential elements in this solar chain. The process ultimately is dependent upon biological diversity and community dynamics or biological succession -- processes by which water and minerals are utilized in transforming solar energy.

The three-part, holistic goal of HRM is sustainability -- despite Savory’s claims that HRM is fundamentally different from sustainable agriculture. The quality of life, production, and future resource dimensions of HRM goals are essentially the same as the social, economic, and ecological dimensions of sustainability. The HRM "whole under management" includes the land base, people, and money -- very practical terms for the ecological, social, and economic resources that must be managed to sustain agriculture over the long run. HRM is far stronger in practical ecology than either the social or economic dimensions. However, HRM recognizes explicitly that things economic, ecological, social are inseparable aspects of the same whole.

Steven Covey’s "Seven Habits of Highly Effective People" is a principle-centered approach to life and relationships. Fundamental principles of human relationships are a practical representation of the law of human nature -- the other rules of the sustainability paradigm. Covey claims these natural laws of the human dimension are just as real, and just as unchanging, as laws such as the law of gravity of the physical dimension. He calls them "true north" principles -- not invented by individuals or society, but laws of the universe that pertain to all human relationships and human organizations. These principles surface in the form of values, ideas, norms, and teachings. But unlike values and norms, principles are objective, external, and unchanging.

Covey’s Seven Habits of Effective People may be as good a place as any to start in understanding and teaching the laws of human nature within which a sustainable agriculture must be built. The seven habits
begin with developing effective individuals -- (1) Be proactive, (2) Begin with the end in mind, but (3) Put first things first. These habits are designed to move beyond dependence to independence. But the next evolutionary step is to go beyond independence to interdependence -- to move beyond effective individuals to effective relationships. To develop effective relationships Covey suggests we must (4) Think win-win, (5) Seek first to understand and then to be understood, and (5) Synergize -- value interconnectedness. Finally, success is a process, not an attainment, in that we must continually (7) Sharpen the saw.

Savory and Covey both address organistic approaches to decision making through their emphasis on holistic management, synergism, and interdependence. However, neither goes as far toward developing a practical way of thinking about such issues as does Peter Senge, a MIT business professor and consultant. In his book the "Fifth Discipline," Senge proclaims that a new discipline is needed to integrate the other disciplines, to fuse them into a coherent body of theory and practice, to keep them from being separate gimmicks or fads. While his objective may be philosophical, his approach to developing this new discipline is very practical. For example he proposes a set of "laws of systems thinking."

1. Today's problems come from yesterday's "solutions."
2. The harder you push, the harder the system pushes back.
3. Behavior grows better before it grows worse.
4. The easy way out usually leads back in.
5. The cure can be worse than the disease.
6. Faster is slower.
7. Cause and effect are not closely related in time or space.
8. Small changes can produce big results -- but the areas of highest leverage are often the least obvious.
9. You can have your cake and eat it too -- but not all at once.
10. Dividing an elephant in half does not produce two small elephants.
11. There is no blame -- we and our problems are parts of the same system.

One could argue that today’s questions of sustainability can be traced to the violation of nearly every one of the ten laws of systems thinking. This would seem to imply that a shift to systems thinking would be a logical approach to answering those questions. Thus, Senge’s systems strategies for developing "learning organizations" may provide some practical, valuable insights into the organistic strategies needed to develop sustainable systems of farming.

Savory, Covey, and Senge are just three of the more popular authors and educators who are teaching fundamentally new paradigms of personal, professional, and community decision making. All have expanded beyond their original scope of dealing with farm, individual, or business decision making. They all seem to agree that the same paradigm of decision making is both necessary and sufficient at all levels of aggregation, from managing one’s personal life to managing the resources of the biosphere. All have rejected mechanical-industrial models and have adopted organistic-sustainable approaches instead. All are based on the beliefs that there are limits to growth, that everything is interconnected, and that our
decisions must be ruled by inviolate laws of nature.

Our beginning texts for understanding and teaching the fundamentals of sustainable agriculture already have been written. They have been written by Savory, Covey, Senge, and others outside of the agricultural mainstream. The ideas of the outsiders are rapidly gaining in acceptance among farmers and others while the agricultural establishment struggles to minimize the necessity for change. Efforts continue, even among those committed to the goal of agricultural sustainability, to make sustainable agriculture a part of mainstream agriculture.

Should sustainable agriculture be brought into the mainstream? Not if it requires a fundamentally different paradigm of decision making. If sustainability requires a different paradigm, it must remain a separate stream of thought and action. Perhaps the sustainable and industrial paradigms of agriculture should coexist during a period of transition. But ultimately paradigms of decision making must be consistent with the goal of sustainability. The current economic paradigm, which drives industrial model, does not even recognize the legitimacy of sustainability as a question.

Robert Kriegel makes the case for abrupt, rather than gradual, change. He advocates using "unconventional wisdom" in his book "If it Ain't Broke... Break it." His unconventional wisdom includes:

- Believe in providence... Ride the waves of change.
- Light a fire in your heart... Passion is contagious.
- Keep the fire hot... Stoke it, don't soak it!
- Don't be realistic... Dreams are goals with wings.
- Speed kills! (slowly)... Try easy!
- The best time to change is when you don't have to... Always mess with success.
- Trying to "hold the fort" may bring it down on your head... Playing it safe can be dangerous.
- Competition encourages conformity... Don't compete. Break the rules and change the game.
- Sacred cows make the best burgers... Get in the habit of breaking your habits.
- Experts know too much to learn anything new... Think like a beginner.
- Expect the unexpected... Make exceptions the rule.
- If you don't make waves you may drown... The biggest risk is not taking risks.
- Expect to be afraid... But fear tells lies.. break the cycle, look beyond it.
- Mistakes are a good investment... The biggest mistake is not making any.
- It's not a mistake to fail.. Failure is the best place to start toward success.
- Trust the unexpected... Plan on changing your plans.
- If you strive to be well rounded, you will probably end up flat... Play your own best game.
- Thinking about what you don't want to happen increases the odds that it will... Don't look where you don't want to go.
- Celebrating past success is not wishful thinking... Like it?... Log it.
- Joy pays off... Play -- to win.
- Life begins outside the egg shell... You have to "break it" to begin.
Kriegel’s unconventional wisdom has as much or more relevance to researchers and educators as it has to farmers, business people, or members of the general public. Public institutions, including public universities, are notorious for defending the status quo. If we are to remain relevant during the great transition to a post-industrial era, we must be willing to break it.

American agriculture isn’t broke... yet. But, if one believes in finite limits to growth, in the inherent interconnectedness of things, and in fundamental laws of nature and human behavior, then one must conclude that the industrial model of agriculture is not sustainable. It ain’t broke, but ain’t sustainable either. We must have the courage to break it while we still have an opportunity to fix it.

Susan B. Anthony once said that "cautious, careful people, always casting about to preserve their reputation and social standing, never can bring about reform. Those who are really in earnest must be willing to be anything or nothing in the world’s estimation." Those who would bring about reform must be willing to "break it" even if it "ain’t broke" yet.

What if only a few are "willing to be anything or nothing in the world’s estimation?" Margaret Mead has the answer: "never doubt that a small group of thoughtful, committed citizens can change the world. Indeed it’s only thing that ever has." Why shouldn’t a small group of thoughtful, committed advocates of sustainability expect to go out and change the world? Indeed it’s the only thing that ever has.

REFERENCES


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As we approach the turn of a new century, all eyes seem to be focused on visions of the future. High-tech, bio-tech, and info-tech are the "buzz words" most frequently used among those in the agricultural establishment to describe the future of U.S. agriculture. With few exceptions traditional agriculturists foresee a continued trend toward fewer, larger, and more specialized production units. They see current trends continuing until a half-dozen or so large, multinational corporations control virtually all processing and distribution of agricultural commodities in a single global food and fiber market. Many also forecast increasing vertical integration of production, processing, and distribution functions -- spanning activities from the design of germ-plasm to shaping of consumer preferences -- and increasing reliance on biological technologies and information technologies at all levels within the global agricultural system. Forecasts of the continued industrialization of agriculture permeate both professional agricultural publications and the popular farm press.

Such forecasts may be right, but a lot of well-informed, educated people see a very different future -- a "post-industrial" future for agriculture and the U.S. economy in general. They see a future in which "thinking," -- not just by the intellectually-gifted, highly-educated, and highly-paid few, but by people in general -- is the key to success. The human mind will be the source of progress for individuals, families, farms, businesses, communities, and nations. "High-think" rather "high-tech" will be "buzz word" of the 21st century. A "post-industrial" paradigm for agriculture implies a future very different from the typical "high-tech" vision of continued agricultural industrialization.

The "high-tech" future of agriculture assumes that trends of the past one-hundred years will continue. The biological and electronic tools are different but the objectives are still the same: to specialize, mechanize, separate, sequence, and control all processes of production -- to make farms work like factories and fields and feed lots run like assembly lines.

There were logical economic and social motives for industrializing U.S. agriculture during the twentieth century. And there are reasons to think the industrialization of agriculture might continue. But, there are also logical reasons to question further industrialization and to believe that the future will be very different from the past. An alternative paradigm for U.S. agriculture, a new paradigm arising under the conceptual umbrella of sustainable agriculture, represents a logical, realistic, positive alternative to industrial agriculture.

Three Reasons to Question the Continued Industrialization of Agriculture

New paradigms (mental models, mindsets, or ways of thinking) arise to replace old paradigms. New paradigms arise when it becomes apparent, at least to some people, that old paradigms are not capable of solving important problems, or that old paradigms have begun to create more problems than they solve.
Peter Drucker, a noted business scholar and time-honored consultant of twentieth century industrial managers, discusses the transformation from an industrial to a post industrial society in his book: the Post-Capitalist Society. He states: "Every few hundred years in Western history there occurs a sharp transformation. Within a few short decades, society rearranges itself -- its worldview; its basic values; its social and political structure; its arts; its key institutions. Fifty years later, there is a new world.... We are currently living through just such a transformation." (1994 p. 1).

American agriculture is in the midst of this great transition. Three basic factors foretell end of dominance for the industrial paradigm of agriculture. First, the logical, economic and social gains from industrialization of agriculture have already been realized. There is very little left to be gained from further specialization, mechanization, and routinization -- industrialization -- of agricultural production and marketing. Second, there are increasing problems -- environmental, social, and economic problems -- associated with continuing the industrialization process. The marginal costs of industrialization may have exceeded its marginal benefits as far back as two or three decades ago. Third, there is growing evidence the Industrial era has already ended in many sectors of the economy outside of agriculture and that agriculture will soon follow.

The Old Job is Done. In the early 1900s, before we began to industrialize agriculture, the potential gains from continuing the industrial revolution in the larger society were undeniable. At that time we were still an agrarian society. More than half of the people of this country were either farmers or lived in rural communities and it took about half of our total resources - money, time, and effort, just to feed and cloth ourselves. If we, as a nation, were to realize the emerging opportunities of the industrial revolution - to become the modern society we know today - we had to do two things.

First, we had to free people from the task of farming to go to work in factories and offices of the emerging industrial economy. Second, we had to free up income and other resources spent on food and clothing so people could buy the things these new industries were going to produce. In short, we had to make American agriculture more efficient. We had to make it possible for fewer farmers to feed more people better at a lower cost.

The industrialization of agriculture allowed us to accomplish those two things. Through specialization, mechanization, simplification, and routinization we bent nature to serve our needs. We gradually harnessed the vagaries of nature and transformed farms into factories without roofs. Fields and feed lots became biological assembly lines with inputs coming in one side and commodities coming out the other. We achieved the economies of large-scale, specialized production as we applied the principles, strategies, and technologies of industrialization to farming.

This industrialization of American agriculture resulted in the most efficient agriculture in the world, at least in terms of the dollar and cents costs of production. This in turn made it possible for this nation to build the strongest economy in world. The agricultural sector can be proud of its past successes. But the objectives of industrialization have been achieved. The benefits that industrialization could offer America have been realized.
Today, less than two percent of the people in this country are farmers. As a nation, we spend only about ten percent, or a dime out of each dollar, of our disposable income for farm produced food. Equally important, the farmer gets only a single penny out of that dime, while nine cents goes to the marketing and input firms. We now pay more for packaging and advertising than we pay the farmer to produce the food.

Future gains from the further industrialization of agriculture must be squeezed from the farmer's penny. There just isn't much left in to be squeezed out to benefit either farmers or society. It simply doesn't make much difference to society anymore whether there are more or fewer farmers or whether farmers are more or less efficient. There are no good paying factory jobs left for displaced farmers or for anyone else. If farmers got nothing for their part in producing food, the average consumer would only save a dime of each dollar spend for food and a penny of each dollar they spend in total. We just can’t make food much cheaper by putting more farmers out of business.

**Industrial Agriculture Now Creates More Problems Than It Solves.** At the same time that the benefits to society of an industrial agriculture have declined, the perceived threats of agriculture -- threats to the environment, threats to the natural resource base, and threats to the quality of life of farmers, of rural residents and society as a whole -- have risen. The same technologies that support our large-scale, specialized system of farming -- the industrial systems through which we have increased agricultural productivity -- have now become the primary focus of growing public concerns.

Industrial systems historically have degraded their environment and depleted their natural resource base. Commercial fertilizers and pesticides -- essential elements in a specialized, industrialized agriculture -- have become a primary source of growing concerns for environmental pollution. Industrialization has transformed an agriculture created for the purpose of converting solar energy to human-useful form, into an agriculture that uses more non renewable fossil energy than it captures in solar energy from the sun. Industrial systems of crop and livestock production also degrade the human resource base. Factory farms transform independent decision makers into farm workers -- people who know how to follow instructions or directions but not necessarily how to think. Henry Ford is quoted as once saying "the biggest problem in running a factory is that you have to hire whole people when all you need is two hands".

Agriculturally dependent rural communities have withered and died as farms have grown larger and more specialized. Larger farms mean fewer farms and fewer farm families to support local schools, churches and public institutions, and retail businesses. In addition, larger farms tend to bypass local communities in purchasing production inputs and in marketing their products. The fundamental purpose of agricultural industrialization was to make it possible for fewer people to produce more. But it takes productive people, not just production, to sustain local communities. The social costs of industrialization continue to grow as rural communities wither and die.

**Emergence of a New Post-Industrial Era.** If current trends were to continue indefinitely, the future of rural America would appear to be dismal. However, no trend goes on forever. A couple of scientists recently
proposed to the world scientific community a list of their "Top 20 Great Ideas of Science." Some of the ideas on their top 20 list were the first and second laws of thermodynamics and the universal laws of motion. But also on that list was the proposition that "everything on earth operates in cycles" - physical, biological, economic, and social (Science, p.1309). Not all scientists agreed, but, if this proposition is correct, the industrial era will end. The question is not whether but when.

Alvin Toffler -- a futurist quoted frequently by people with views as different as House Speaker Newt Gingrich and President Bill Clinton -- points out that many forecasters simply present unrelated trends, as if they would continue indefinitely, without providing any insight regarding how the trends are interconnected or the forces likely to reverse them. The professional and popular agricultural press is filled with such forecasts for the future of agriculture.

Toffler contends that the forces of industrialization have run their course and are now reversing, that the industrial models of economic progress are becoming increasingly obsolete, and that old notions of efficiency and productivity are no longer valid. He contends that mass production is no longer a symbol of "modern" business operation. The new "modern" model is to produce customized goods and services aimed at niche markets, to constantly innovate, to focus on value-added products and specialized production. Toffler contends that mass production of basic commodities were the trends of the past, not the trends of the future.

He states: "the most important economic development of our lifetime has been the rise of a new system of creating wealth, based not on muscle, but on the mind" (Toffler, p. 9). Drucker agrees: "the biggest shift -- bigger by far than the changes in politics, government and economics -- is the shift to a knowledge society". The social center of gravity has shifted to the knowledge worker." (Drucker, p. 173). The conventional factors of production -- land, labor, and capital -- become less important and less limiting as knowledge becomes the dominant source of productivity.

Drucker points out an important, fundamental difference between knowledge work and industrial work. Industrial work is fundamentally a mechanical process whereas the basic principle of knowledge work is biological. He relates this difference to determining the "right size" of organization required to perform a given task: 'Greater performance in a mechanical system is obtained by scaling up. Greater power means greater output: bigger is better. But this does not hold for biological systems. There, size follows function. It would surely be counterproductive for a cockroach to be big, and equally counterproductive for the elephant to be small. As biologists are fond of saying, 'The rat knows everything it needs to know to be a successful rat.' Whether the rat is more intelligent than the human being is a stupid question; in what it takes to be a successful rat, the rat is way ahead of any other animal, including human beings" (Drucker, 1989, p. 259).

He concludes that differences in organizing principles may be critically important in determining the future size and ownership structure of economic enterprises. Other things equal, the smallest effective size is best for enterprises based on information and knowledge work. "'Bigger' will be 'better' only if the task cannot be done otherwise" (Drucker, 1989, p. 260).
Some point to the trend toward large industries tailoring specialized products for niche markets as the trend of the future. But the advantage of being big comes from being able to produce large quantities of the same basic things rather than from producing small quantities of lots of different things. Large firms realize that profitable markets of the future are in the niches, but most also realize that, as they target these markets, they become increasingly vulnerable to competition from small firms and independent producers. Thus, we see large firms beginning to decentralize, down-size, outsource, and otherwise begin to dismantle themselves to forestall their eventual competitive destruction by more flexible, innovative, creative, dynamic, smaller competitors. Toffler refers to "mass customization" as only a "half-step" toward a future where wants and needs of consumers are met individually.

Dee Hock, former CEO and founder of the VISA Corporation states: "The most abundant, least expensive, most under-utilized, and frequently abused resource in the world was human ingenuity: the source of that abuse the archaic, Industrial Age institutions and management practices they spawn" (Hock, p.10). He contends that the era of knowledge and information-based human progress ahead may well be fundamentally incompatible with the industrial model or organization.

Opportunities for the Future. Opportunities for the future arise from both successes and failures of the past. First, as a result of past successes in reducing food cost, almost anyone can now afford to pay for the quality of food they really want or need. It may well cost more to grow food on farms than to manufacture food in factories. However, if farmers expand their margins by reducing their reliance on purchase inputs, and by reducing the costs of marketing services, consumers need pay no more for food at retail, and quite possibly could pay less. Even if food prices increased by an amount equal to 50 percent of the farmers gross margins, retail food prices would only be five percent higher, and the average consumer would only spend one-half percent more of their income for food. Industrialization has made food so cheap that consumers can now afford to pay more to get what they need or want.

Second, the environmental and social costs of industrialization are becoming a growing concern among the general public. As these concerns become more widely reflected in regulations to protect the environment, the economic costs of industrial agriculture will rise, allowing more ecologically sound systems of production to become more economically competitive. Concerns among consumers regarding the negative impacts of industrial agriculture on the environment and on family farms and rural communities is creating a niche market for products produced by ecologically sound and socially responsible means. Also, as industrial systems of production have been applied in situations were they just don’t fit, the benefits are few and the problems are great. These situations mark prime opportunities for application of a new and fundamentally different paradigm for agriculture.

Third, the emergence of a post-industrial paradigm in other sectors of the economy provides models of success which farmers may adapt in solving problems and realizing opportunities in farming and marketing. The success of post-industrial approaches elsewhere also sends a message of hope for the continued success of those farmers who already are venturing into the new era of agriculture. They march under the banners of organic farming, alternative agriculture, boidynamic farming, community supported agriculture, local food systems, and a host of other movements which, by one means or another, address the broad question of agricultural sustainability.
The Post-Industrial Alternative: Sustainable Agriculture

Why are we seeing the rapid industrialization of some sectors of the agricultural economy, specifically in hog and dairy production, if the industrial era is ending? In his book, Paradigms, Joel Barker points out that new paradigms (including developmental models) tend to emerge while, in the minds of most people, the old paradigm is doing quite well. Typically, "a new paradigm appears sooner than it is needed" and "sooner than it is wanted." Consequently the logical and rational response to a new paradigm is rejection (Barker, p. 47).

New paradigms are first applied in situations where they are best suited to solve the most important problem. Over time, established paradigms are applied in situations where their marginal advantage becomes smaller and smaller. Eventually aging paradigms are applied -- mostly out of habit -- in situations where they are ill suited, creating major new problems while contributing little in terms of new solutions.

American agriculture provides a prime example of over application of the industrial paradigm. The early gains of appropriate specialization in agriculture lifted people out of subsistence living and made the American industrial revolution possible. But agriculture was the most ill-suited of all sectors for fully-industrialized, factory-like operations. Thus, full industrialization of agriculture occurred last, generated fewer benefits, created more environmental and social costs, and as a consequence, will likely last for a shorter period of time.

However, many agriculturists cling to the industrial model, firmly convinced that it only needs a bit of fine tuning to make it fit agriculture.

The paradigm of sustainable agriculture has emerged to solve problems created by the industrial model, primarily pollution of our environment and degradation of our natural resource base. However, this new paradigm seems capable of creating benefits the industrial model is inherently incapable of creating, such as greater individual creativity, dignity of work, and attention to issues of social equity.

Agricultural sustainability is a goal rather than a specific set of farming practices or methods. Sustainability, as a goal, implies some basic principles and characteristics of sustainable systems. A sustainable agriculture must be ecologically sound, economically viable, and socially responsible -- all are necessary and none is sufficient. Short run profitability is necessary, but not sufficient, to ensure long run sustainability. In the sustainable paradigm, the environment and society are not seen as "constraints" to profitability, but are seen as essential prerequisites to long run economic viability. The sustainable paradigm balances economic, environmental, and social concerns in moving toward systems which can sustain a desirable quality of human life on Earth indefinitely.

The sustainable agriculture paradigm is consistent with the visions of Toffler, Drucker and others of a post-industrial era of human progress. Sustainable systems must be individualistic, site-specific, and dynamic. Thus, sustainable farming is inherently information, knowledge, and management intensive.
rather than management extensive. Complexity, interdependence, and simultaneity are fundamental elements of the sustainable model, which is clearly biological rather than mechanical in nature. For such systems, size must follow function. Sustainable farms are inherently diverse -- biologically, economically, and culturally -- both within and among farming operations. Diversity allows sustainable systems to rely far less on the fossil fuels and manufactured inputs upon which large-scale, mechanized agricultural production is totally dependent.

Industrialization separates people from the land and from each other -- within families, within communities, and within nations. Sustainable agriculture reconnects people to each other and reconnects people to the land. Sustainability links people with purpose and place. It poses the question of what can we do here, in this place, that can be sustained indefinitely?

Economics of Post-Industrialization Farming. The principles of sustainable agriculture are becoming fairly widely accepted and generally understood. However, the challenge of turning those principles into practices still lies ahead. How can farmers develop farming operations that will be ecologically sound, socially responsible, and economically viable over time?

At this point an agricultural economist usually enters the discussion and says: "All this dreaming about a healthy environment and strong communities is quite noble, but there is no way these ‘sustainable' farmers are going to be able to compete with large-scale, corporate agriculture in the future." The logical response is: "They are not going to ‘compete' with industrial agriculture. Future opportunities for farmers of the future will come from farming in ways which are fundamentally different from ways of both past and present." The economic logic for a post-industrial agriculture today is just as sound as was the logic for agricultural industrialization a century ago.

Four fundamental characteristics determine the value or "utility" of any good or service: form, space, time, and possession. This basic economic concept will not change. Form is the physical characteristic of a thing. What is it? Space refers to the location at which the value of something is determined. Where is it? Time refers to point in time when the value of something is determined. When is it available and when is it needed? Finally, possession refers to the people involved in evaluating something. Who has it and who wants it? What is it? Where is it? When is it there? Who has it and who wants it? We must know the answers to all four of these questions before we know the value of anything -- know how much it is worth.

Something can be of great personal or human value but be of little economic value. Air, for instance, is absolutely essential for human life, but under normal conditions, has little "economic" value. Diamonds, on the other hand, are used mostly for trinkets which most would agree are of little basic human value, but diamonds may have great "economic" value. Why the difference between basic human value and "economic" value? Economic value -- the price of something -- is determined by "scarcity."

Something is scarce only if there is not enough of it for people to have all they want without doing without something else. In general, air in not scarce but diamonds are. Scarcity is not a matter of a lot of people wanting something or only a few people wanting it. Scarcity is all a matter of how much there is
available relative to how much people want. Something can be scarce even if a few people want it, if there is not very much of it available.

Scarcity is also affected by the availability, or unavailability, of good substitutes. If the price goes up for a good or service that has a lot of good substitutes, far fewer people will want it. They will just buy something similar from someone else. On the other hand, if the price goes up on something with few good substitutes, most people will continue to buy it. It will remain scarce even at a higher price. Every grain farmer knows that his corn and wheat are pretty much the same as other farmers’ corn and wheat. If one farmer were to try to price his grain above the going "market" price, buyers would simply buy from other farmers -- either down the road or on the other side of the world.

**Economic Keys to Success.** Why are concepts of value, scarcity, and substitution important? Because they help explain why industrialization succeeded in the past and why it is now failing. These same concepts provide the economic logic for the successful practice of sustainable agriculture in the post-industrial era of the future.

First, industrialization succeeded, in large part, by focusing on creating value by changing the form (processing, manufacturing, packaging), place (assembly, transportation, distribution), and time (accumulation, storage, allocation), of things. The benefits of industrialization have come from being able to carry out activities such as processing, transportation, and storage more efficiently, by specializing and doing them on a larger scale. Mass production and mass marketing are fundamental characteristics of industrialization. Mass production and mass marketing means that a lot of different producers have to produce the same basic things (or that producers have to be very large), and that a lot of consumers have to be willing to buy the same basic thing.

Second, farmers who followed the industrial model were able to cut costs by increasing the size of their operations to capture the economies of large scale production. But, as they expanded production, food and fiber, in general become less scarce, and prices fell, forcing them to reduce costs even more to stay in business. This is the process by which the industrial model succeeded in providing for the food and fiber needs of people at a continually declining economic cost.

Third, as food became less scarce, consumers benefited but farmers did not. There were almost always good substitutes for whatever farmers had to offer for sale. There are no good substitutes for food and fiber, in general, but one farmer’s agricultural commodities were pretty much the same as those of other producers. Thus, while food and fiber in general, had economic value, no individual farmer was able to capture that value in terms of a sustainable profit. The only way farmers could survive during the industrial era was to continue to find ways to reduce costs.

**Positive Alternatives to Industrial Agriculture.**

The strength of an industrial agriculture was its ability to provide for the basic food and fiber needs of people at a low dollar and cents cost. But it’s primary weakness was that it had treated things as if they
were the same, even if they are inherently different, to achieve those low costs. Some things are pretty much alike and there may be no great harm in treating them as if they were the same. But the more we industrialized, the more things that were fundamentally different were treated as if they were the same. Finally, the fundamental objective of industrialization was cheap food rather than profitable farming. Sustainable farm profits are inherently inconsistent with an industrial agriculture.

Opportunities for successful farming in the future arise directly exploiting the weaknesses of industrialization by focusing on the relative strengths of the post-industrial, sustainable agriculture alternative.

Focus on value rather than costs. Market in the niches. Remember, most people can afford to pay for the food they really want -- for food they value. We value things differently because we have different needs and different tastes and preferences. Industrialization is efficient only if large numbers of us are willing to settle for the same basic goods and services. If it can be mass produced and mass marketed, it can be produced at a lower cost. Customers have to be persuaded, coerced, and bribed to buy the same basic things rather than the things they really want. Thus, industrialization creates economic opportunities for farmers who can meet the different needs and wants of individual consumers that cannot be met by mass markets.

Niche marketing simply means tailoring the product to conform to the values of the customer, rather than bending the preferences of the customer to conform to the product. A niche market is any market that is too small to be served effectively by impersonal, mass marketing methods. A niche market only needs to be large enough to meet the needs of a single producer to be a viable market. Larger market niches may be served either individually or cooperatively by a small group of producers. The best opportunities for ‘value-added’ marketing also are associated with niche markets. Profitable value-added activities require more than just replacing the existing "middlemen." The functions those middlemen perform add value as well as cost. If a farmer can’t add value at a lower cost, nothing is gained by their value-adding efforts. The odds of success are far better when value-added marketing is coupled with profitable niche markets to give customers something they can’t get elsewhere.

Focus on what you can do. We are all different -- as producers as well as consumers. We have widely diverse skills, abilities, and aptitudes. Industrialization had to "bend people" -- train, bribe, and coerce them -- to make people behave as coordinated parts of one big machine rather than as fundamentally different human beings. Many social problems of today are symptoms of people being used by industrial systems in ways that are inherently degrading to our uniquely human productive capacities. Thus, industrialization has left tremendous untapped economic opportunities for farmers and others who can use their unique capacities to be productive rather than attempt to conform to systems of production that just don’t fit.

Focus on working with nature. The natural resource base that ultimately must sustain productivity is also diverse. Industrial systems have had to "bend nature" -- to augment, supplement, alter, and force it -- to create an allusion of conformity out of diversity in order to meet the demands of large-scale, industrial production. The ecological problems arising from industrialization are symptoms of natural resources
being used in ways that are inherently degrading to their productivity. Thus, industrialization has created opportunities for farmers who learn to utilize the inherently productive capacity of a diverse natural resource base, rather than wasting time and money trying to force nature to conform.

Focus on creating value through uniqueness. Link people and purpose with place. The linking of unique productive capacities with unique sets of natural resources in serving the needs and wants of unique groups of customers creates a unique system of meeting human needs that cannot be industrialized. Economic value arises from scarcity. Scarcity exists only if people want more of something than they can get without giving up something else. Scarcity is sustainable only if the process and product cannot be replicated. Scarcity can sustain profitability only if there are few good substitutes for whatever is valued. The more unique the combination of person, purpose, place, the more sustainable will be the value to customer and producer alike. The sameness of industrialization creates opportunities for farmers who can create unique linkages with both resources and customers.

Focus on building personal relationships. There are no good substitutes for personal relationships. Many consumers are alienated from current mass marketing systems not only because they don’t meet their specific needs, but because they have lost faith in the impersonal system of mass production for mass markets. They do not believe large corporations monitored by big government will really protect the natural environment or fulfill important social responsibilities. They trust neither corporate or government assurances that foods in the supermarkets are safe and healthful. They feel more personally secure and socially responsible when they support local and regional food systems rather than rely on international markets dominated by the multinational corporations. In other words, they want to "know their farmer." Farmers who produce in ecologically sound and socially responsible ways have much to gain and little to lose from cultivating personal relationship with their customers.

Finally, fight the urge to fall back into an industrial mind-set. The desires to get bigger and make more money have been the driving forces of industrialization. Knowing when to say "enough" may be the mark of success in the post-industrial era. Niche markets may grow over time. There will be a strong urge to promote their growth or to at least grow with them. The current attempt to establish national organic certification as a means to expand the organic food market may be a case in point. Maybe organic production is at a point where it needs to expand its niche. But, as niche markets become larger, they become vulnerable to competition from "mass customization," and, if they grow larger still, become mass markets best served by industrialization.

The most secure markets of the future will be those based on personal relationships. Producers who develop personal relationships with their customers need not see other producers as their competitors. They can collaborate rather than compete. No two people are alike, thus, no two producers are likely to be viewed as close substitutes in the minds of their ‘relationship’ customers. Meaningful relationships can only be spread so thin. Thus, there will be natural constraints, or limits to growth, in relationship markets. The necessity of maintaining personal relationships offsets the natural tendency to get bigger and make more money. Local and regional markets will be sustained over time by people who prefer to deal with people they know.
Industrialization separated people from each other. Perhaps this necessity of separation was the most important single flaw of the industrial paradigm. If so, reconnecting people to each other may be the most important single strategy one can pursue in breaking away from industrialization and moving toward sustainability. Valuing people over things may be the most important single key to realizing the value of sustainable agriculture as a positive alternative to industrial agriculture.

REFERENCES


* Presented at the Heartland Roundup in Manhattan, KS -- a conference sponsored by the Heartland Network, Lawrence, KS and the Kansas Rural Center, Whiting, KS, December 7, 1996.
The May, 1996 issue of Today's Farmer included a centerfold article in "Defense of High-Yield Farming." Farmers need to be exposed to a wide range of viewpoints on important issues -- of which Mr. Avery's is but one. There are at least as many fantasies in Mr. Avery's defense of High-Yield farming as there are the positions he attributes to the "eco-activists."

Farmers need to realize that Mr. Avery's fantasies are no more capable of saving wildlife, feeding people, or generating farming profits than are fantasies of "eco-activists."

Fantasy #1: A sustainable agriculture won't sustain people.

Mr. Avery dismisses all credible definitions of sustainable agriculture and chooses his own: "low-yield farming." He infers that sustainable agriculture advocates would consider starvation of half the human population to be an acceptable strategy for sustainability. He is wrong. All of the many credible definitions of sustainable agriculture include statements such as: "a sustainable agriculture must be productive, must provide for the food and fiber needs of society, must meet the needs of the current generation, must be economically viable and socially just, or must be capable of maintaining its productivity and value to human society." Avery chooses to ignore all these credible definitions of sustainable agriculture and instead creates his own definition -- one which he can easily attack.

Fantasy #2. High-yield technologies have no limits and organic technologies have no potential.

Avery refers to "sustainable" as a euphemism for "organic." Again, he is wrong. Organic farming may or may not be sustainable. The sustainability of organic farming, or any system of farming, depends on whether it is ultimately found to be economically viable, ecologically sound, and socially responsible. He has stated, without any credible supporting evidence, "the best yields on field crops grown using organic methods are roughly half those of mainstream high-yield farms." He considers documented cases of organic farmers who attain yields equal-to-or-higher than their high-input neighbors to be aberrations rather than examples of what can be achieved even with today's knowledge of organic farming methods. He seems to have a blind faith in the ability of high-input farming methods to expand production, seemingly without limits, but will not concede that organic farming could ever be any more productive than it is today. Neither position is consistent with either current scientific evidence or good common sense.

Fantasy #3. Nature can be protected only by segregating people, wildlife, and farming into separate spaces.
Avery's whole case for "high-yield" agriculture as a necessity for feeding people and protecting wildlife is build upon this fallacy. It appears that in Avery's world, specialization is "good," diversification is "old fashioned," and integration is "impossible." He would have us believe there is no alternative to setting aside space for agriculture and forestry, separate from spaces for wildlife, and presumably separate still from spaces for people to live. He has no apparent realization that everything on earth is ultimately connected. We may well have to learn to farm, harvest timber, and live in harmony with wildlife all in the "same" spaces -- if we are to sustain the global ecosystem of which we are a part. The necessity of separating people from agriculture and agriculture from wildlife may be a condition for Mr. Avery's "high-yield" farming. But, learning to live as part of nature, not separate from nature, is a primary goal of most who are working seriously toward agricultural sustainability.

Fantasy #4. Population, consumption, and production are the results of separate and largely independent decisions of human societies.

Mr. Avery projects human population trends, consumption trends, and production trends as if there were no relationships among the three. In fact there is abundant evidence that such trends are highly interrelated if not inseparable. When people give no conscious consideration to future generations, history suggests they will exploit their resource base -- either through increased per capita consumption or increased population. There is no conceivable way the earth can support as many people as humanity might choose to procreate at any level of consumption to which they might aspire. No one can possibly know with any degree of certainty how many people the earth can sustain or what level of per capita consumption is sustainable. The one thing we do know is that population and consumption cannot expand indefinitely. Avery's "high-yield" agriculture, at best, can do no more than delay the inevitable day when we must find acceptable ways to balance production, population, and consumption. At that time, the earth may be capable of sustaining far fewer people than it could sustain with today's resource base.

Fantasy #5. Research on High-Yield Farming is the best bet for a sustainable agriculture.

The successful pursuit of a "high-yield" agriculture might allow humanity to ignore its responsibility for conserving our resource base, protecting our environment, and building a more responsible society for another 50 years. If so, at that time we quite likely will be faced with twice as many people, a seriously depleted natural resource base, and an exploding world population. If we wait 50 years to get serious about agricultural sustainability, it just might be too late. Desperate and starving people, historically, have destroyed their resource base and in so doing have destroyed their civilizations. Apparently, such is the nature of being human. The current period of agricultural plenty gives us a window of opportunity to develop new and better ways to farm. We need to explore a wide range of alternatives for sustaining "people" through agriculture --
including the people who farm and live in rural communities. We can't afford to bet our scarce public research dollars on any single approach to the future agriculture, certainly not on the fantasies of Mr. Avery's High-Yield Farming.

Finally, the fundamental questions of agricultural sustainability are more about people than about ecology or economics. Will we exercise our uniquely-human capability for self-discipline and make the ecological, social, and economic investments needed to sustain people on the land and human life on earth? Or will we continue to contrive self-delusional scenarios of "the supremacy of man over nature" and, thus, justify our continuing greed?

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Can American Farmers Compete?

John E. Ikerd


Until a decade or so ago, few questioned the ability of American farmers to compete with farmers anywhere in the world. We were the global leaders in agriculture. We had the most highly educated and efficient farmers in the world using the latest production technologies to cultivate the best agricultural land in the world. However, in recent years, the US share of global agricultural exports has plummeted, dropping farm profits, and shaking confidence in the American farmer’s ability to compete.

The U.S. market share of global exports of soybean and soybean product, for example, shrank from 80 percent during the 1960s to just 35 percent in 1998-2000. Over that same period, the combined share for Argentina and Brazil grew from less than 10 to nearly 50 percent. Abundant land and favorable climates, coupled with low-cost labor and a favorable exchange rate, have given Argentina and Brazil a clear competitive advantage. It’s not that American farmers are abandoning soybeans in favor of other crops – in fact, acres planted to soybeans in the U.S. have continued to expand. Harvested acres of wheat in the U.S., on the other hand, are down more than one-third from the peak in 1981, as U.S. farmers have abandoned wheat for other, more profitable, crops. Corn acreage has remained relatively steady over the years, bolstered primarily by strong domestic demand for sweeteners, while the U.S. faces continued strong competition from Argentina in export markets for corn (USDA, ERS Agricultural Outlook).

U.S. livestock producers face strong competition from Canada and Mexico in domestic livestock and meat markets, causing some livestock producers to question the wisdom of the NAFTA, which opened our markets to
competition from the North and South. Threats by agribusiness to move their large-scale confinement animal feeding operations to Mexico or elsewhere, to avoid growing environmental and animal welfare restrictions, also cast a shadow on the future of U.S. meat production. Large-scale animal feeding operations have been the primary source of the U.S. competitive advantage in production of high quality meat and poultry. South America and Australia are lower cost producers of range cattle, and countries such as Mexico and China could gain competitive advantages in restructured global pork and poultry industries.

Declining exports have led American farmers into their fourth straight year of economic “emergency” – resulting in $5-$9 billion per year in “emergency” government payments, in addition to already generous farm program benefits. American farmers today are among the most heavily subsidized in the world, and Congress shows little inclination toward risking a return to free markets in the new farm bill. Without generous subsidies from taxpayers, American farm exports would be far less, and we would be in the midst of an American “farm financial crisis” at least as severe as that of the 1980s. Without continued large subsidies, American farmers quite likely will not be able to compete in a free market global economy, regardless of what the free market promoters may say.

The General Economic Situation
The USDA has persistently forecast modest economic recovery for the agricultural sector over the next few years, based on the assumption of recovering global and U.S. economies and strengthening markets for U.S. agricultural exports. However, such optimistic forecasts would appear to be founded at least as much in “wishful thinking” as in objective economic analysis. There are legitimate reasons to question whether or not the global and U.S. economies will return to their previous levels of strength, and whether U.S. farmers could compete, even if global and national economic conditions improve.

Any discussion of the economic situation and outlook should be prefaced
with the frank admission that economists can not predict the future – at least with any reasonable degree of accuracy. Economists didn’t forecast the booming U.S. economy of the 1990s, nor did they forecast the recent record-level federal budget surpluses. When President Clinton took office in 1992, economists were projecting a continuing sluggish national economy through the end of the decade, making a growing federal budget deficit one of the major economic problems confronting the new administration. “It’s the economy, stupid,” was the rallying cry of the successful Clinton-Gore campaign. Economists didn’t forecast the skyrocketing stock market, and economists are no more likely to forecast its ultimate decline – or collapse. It was Alan Greenspan, arguably the most respected of American economists, who talked of “irrational exuberance” in the stock market, long before the Dow Jones approached 10,000.

Although I have been out of the “economic forecasting business” for more than a decade, I spent much of the first twenty years of my professional career as an economic analyst. For the first fifteen, I was a livestock market analyst, and for the next five or so was an analyst of agricultural policy and trade issues. During a seven-year period in late ‘70s and early ‘80s, I kept accurate records of my quarterly forecasts of livestock prices, along with those of several other nationally known market-analysts, including the USDA. I know for a fact that we couldn’t forecast very well then, and have no reason to believe that anyone is doing significantly better today – whether forecasting specific commodity prices or general economic conditions.

Certainly, economic analysts can provide some very useful insights into the nature of the economic phenomena affecting such things as interest rates, employment levels, wage rates, imports, exports, commodity prices, land prices, and net farm income. Economic analysis can help us understand more quickly what is happening, when it happens, and why it is happening. But, economists are not much better than any other well-informed “person on the street,” in foretelling our economic future. Given
this limitation, many analysts have resorted to providing “future scenarios” rather than forecasts of the future. They lay out a set of reasonable assumptions concerning future economic conditions and derive the logical economic implications of those assumptions. Following this seemingly more reasonable approach, I will provide some logical economic scenarios for the future.

The US economy is in a period of “slowdown” – if not an “outright recession.” The initial official estimate placed overall economic growth in the second quarter of 2001 at 0.2 percent. Since the generally accepted definition of “recession” has become two consecutive quarters of “negative economic growth,” i.e. economic decline, some economists feel that a recovery is now underway, and that the economy has avoided a “recession.” Others, including myself, believe that it is at least as likely that the economy is still in decline, and that the second quarter growth estimate could easily be revised downward to a negative number. Thus, a revised negative second quarter and a negative third quarter would qualify as a statistical “recession.” But even more important, such an admission of economic weakness could burst the bubble of consumer optimism that has been virtually the only thing propping up the US economy for at least the past year.

The US economy is vulnerable to an outright “depression” – although we have yet to develop a generally accepted definition of this dreaded phenomenon. The U.S. accounts for about a quarter of all global economic activity. For at least the past year, the U.S. economy has been about the only source of strength in the global economy. The Japanese, Korean, and the other Pacific Rim economies have been struggling, without much success, to recover from a financial crisis resulting from deregulation of their financial institutions – similar to American’s savings and loan fiasco of the 1980s. The Japanese economy recorded a 2.7 percent decline in the first quarter of 1997, and has shown no real signs of recovery since. This is the longest period of economic decline in a major industrial nation since the great depression of the 1930s. Only a strong
cultural commitment to providing employment has kept large numbers of Japanese workers out of the “soup lines.” Like in the 1930s, monetary policy has proven ineffective in Japan, where “real” interest rates are now negative, with no sign of increased investment in response.

As the US economy has moved toward recession, the Federal Reserve has announced six consecutive reductions in interest rates, totaling 2.75 percent, with little indication thus far of any positive response in the economy. As the interest rate approaches the rate of inflation, the real interest rate approaches zero, greatly limiting the ability of the Federal Reserve to do anything more to stimulate economic recovery. Such was the case during the Great Depression of the 1930s, when money for investments was essentially free, but potential investors still lacked the confidence needed to borrow and invest. During the depression of the 1930s, the federal government eventually took the initiative to borrow and spend, and with spending greatly accelerated to pay for World War II, eventually pulled the US economy out of recession.

The recent federal tax cut might seem to be a move in the right direction to address the growing risks of recession through expansionary federal “fiscal policy.” However, there is little to indicate that the recent reduction in taxes was anything more than the usual “fiscal policy by accident of politics.” There is nothing to indicate that the tax cut was motivated by a desire to stimulate the economy rather than simply to cut taxes, period. Does anyone really believe that Republicans, or Democrats for that matter, would support the massive “deficit spending” necessary to recover from a depression, if consumers, as well as investors, were to suddenly lose confidence and quit spending? Neither the President nor Congress seems to have any real sense of fiscal purpose, neither of the fundamental nature of fiscal economic policy nor of their responsibility to adjust federal taxes and spending to help manage the general economy.

I am not forecasting an economic depression. The economy could be leveling out and could begin a modest recovery in 2002. However, if the
current slowdown becomes a recession, and if the Fed loses its ability to stimulate the economy through monetary policy, the risk of national depression will become real and significant.

The Agricultural Economic Situation

The optimism that led to the “Freedom to Farm” act of 1995 was supported by the illusion that all American farmers needed to win the competition for global markets was a “level playing field.” If we could force the European Community to reduce farm subsidies and could open Japanese markets for our exports, our farmers could export their way to economic security. However, as expanding global production and shrinking global demand depressed global commodity markets, prices of agricultural commodities plummeted to unprofitable levels, dashing farmers’ hopes for achieving prosperity through the global free market economy.

Some of the export problems of American farmers were of their own making, such as their insistence on using growth hormones in livestock feeding and genetically modified organisms (GMOs) in crop production. If you want to succeed in a “free market” economy, at the very least, you have to produce something that your customers are willing to consider buying. Some of their export problems were due to unfortunate circumstances, such as the financial crisis in Japan and Pacific Rim countries, which reduced U.S. export demand. But, the loss of US agricultural export markets were not a consequence of an “unlevel playing field.” In fact, the farmers of Europe, Canada, Australia, and South American now have legitimate reasons to complain about the unfair farm subsidies being paid to U.S. farmers.

Had there been a truly “level playing field,” many more U.S. farmers would have been forced out of the export game. American farmers are losing their competitiveness in world markets because the rules of the game are changing in the global food and fiber market.

Not so long ago, most agricultural technologies were “public information,”
developed through publicly funded research programs at major agricultural universities and at the USDA. Even in cases where a public technology wasn’t “the best,” the best public technology was nearly as good as the best private technology. Implementation of a better technology was limited only by the willingness and ability of farmers to adopt it. American farmers were the best educated in the world, a consequence of well-funded public educational programs in agriculture at the high school and college levels. And, American technologies were disseminated through university extension programs and promoted by private agribusinesses, to ensure that American farmers remained on the cutting edge of productivity. So American farmers were the clear technological leaders of the world.

American farmers also had ready access to the capital needed to support large-scale, specialized, mechanized, agricultural production systems. The federal government was committed to ensuring access to adequate investment funds for potentially profitable ventures proposed by farmers with proven business skills – whether for costly complements of new machinery, or new buildings and equipment for confinement animal feeding operations. Investment tax credits and accelerated depreciation of capital investments, further subsidized adoption of capital-intensive farming methods. As American farmers invested in these large-scale, industrial-like production systems, each farmer could produce more at a lower cost, and thus, became increasingly competitive in world markets.

In addition, the U.S. has natural advantages with climatic growing conditions that are favorable for most crops traded in global markets and with some of the most productive soils in the world. The highly industrialized U.S. economy also provides farmers with the transportation, marketing, and financial infrastructure needed for efficient interregional and international trade. Thus, American farmers became the most efficient producers of agricultural commodities in the world.

But, the economic rules of farming have changed. Our climate, soils, and infrastructure have not changed significantly, at least not so much as to
create a competitive disadvantage for agriculture. Today, however, agribusiness corporations “own” many of the cutting-edge agricultural technologies. Our public institutions seem to have lost their commitment to producing truly “public information.” Instead, they are forming research partnerships and joint ventures with private corporations, which ensures that the most significant discoveries will be “commercialized” under private patents and copyrights. Research that might empower the individual farmer to “manage” their operation more efficiently, so they might enhance productivity by reducing their reliance on costly inputs, is pursued only rarely in our public institutions. Such research can’t be “commercialized” – meaning there is no potential profit in it for corporate investors.

Research instead is focused on technologies that can be controlled by agribusiness, technologies designed to control the production process, to simplify management, and to make farmers more dependent on purchased inputs. A prime example is “Roundup Ready” soybeans, developed and owned by Monsanto, which have quickly captured roughly half of the U.S. soybean seed market. As one farmer said at a recent meeting in Minnesota: “Any fool can raise a good crop of soybeans using the Roundup Ready program.” Soybean farmers now “buy their technology,” through tech fees, and get their production information from their seed and pesticide sales rep. Farmers suspected of saving seeds from one crop to plant the next have been sued for breech of contract by Monsanto. As future technologies are developed, still more university researchers will be working on industry supported projects, extension educators will be increasingly “out of the loop,” and there will be less and less need to be “educated to farm.”

The agribusiness corporations will be increasingly in control of decisions regarding how much of each crop is produced, where it is produced, and by whom. Agribusiness will also be in a position to control many of the decisions regarding who has access to capital for investment in agricultural technologies and who does not. The federal government has reduced its commitment to providing investment capital for American
farmers. Increasingly, federally supported farm loans are evaluated by the same criteria as by any other business loan, and increasingly are made in partnership with private lenders. If fact, the House version of the new Farm Bill would eliminate all direct federal loans to farmers. There seems to be little sense of any “public service” dimension of farming that would justify special consideration of agriculture in lending decisions.

Increasingly, agricultural lending decisions are being linked with contractual arrangements between producers and agribusiness firms. Contract production in the poultry industry provides the basic model that pork, dairy, and eventually, crop production seems destined to follow. The producer provides the land, labor, buildings, and equipment. The contractor provides the live animals or seed stock, the technology, production inputs, and markets, and makes all of the significant management decisions. The producer takes the risk associated with the fixed investment, including waste disposal, but the contractor takes most of the production and market risks. Producers earn a minimal return on their investment, if they are lucky, and get some minimum wage for their labor. But, the contractor earns the return to management and takes virtually all the profit. Quite logically, contract producers can’t expect to earn much, because they don’t really do much.

Whenever contracting becomes dominant in an agricultural sector, such as poultry and hog production, it becomes difficult for producers to secure an investment loan without a contract that ensures a market for whatever is to be produced. Thus, a contractual relationship with a corporation – under which the corporation provides the production technology, management expertise, and market – becomes a precondition to securing the necessary investment capital. Thus, the contractor, in effect, determines who does and does not have access to agricultural capital in those sectors. Variations of this same basic model eventually will be implemented for crop production, by suppliers of seeds, pesticides, fertilizers, and other inputs, as they use their patents for genetically modified crops to gain control of crop production.
The economic rules of farming have changed. The competitiveness of American agriculture is no longer determined by its educated farmers, its land, its infrastructure, or its climate. The competitiveness of American agriculture is increasingly determined in the boardrooms of the multinational agribusiness corporations.

The corporations now decide what types of research will be funded and what types of research will be ignored. If they can’t “commercialize” the results, they don’t support the research, and it isn’t done. The corporations decide which farmers get to use their technology and which farmers don’t – and the competition is not just among American farmers. Education and training of farmers doesn’t matter much when “any fool can grow a good crop.” And increasingly, the corporations will decide which farmers get financing and which farmers don’t – and the competition will not be just among American farmers. If a farmer resists contracting, insists on making their own decisions, on managing their own operations, they will have a difficult time finding funding. In essence, the corporations are now making the rules of farming.

Increasingly, the multinational agribusiness corporations are finding it more profitable to apply their technologies and to lure capital investment to countries other than the United States. American farmers can’t compete in world markets because agribusiness corporations increasing control global agriculture and they are finding it more profitable to invest their resources elsewhere. The economic rules of farming have changed.

In his book, “The End of Agriculture in the American Portfolio,” economist Steven Blank foresees a future time when the U.S. will not only lose its export markets, but also will import nearly all of its foodstuffs from other countries. He argues that the costs of land and labor in the U.S. will be too high for American farmers to be competitive in a global food economy. We have higher valued alternative uses of our land and labor than do most other countries of the world, which will price them too high.
for agricultural uses.

First, he says, American farmers will be forced to abandon production of basic agricultural commodities – corn, soybeans, hogs, cattle, cotton, rice, etc. – in favor of high-investment, high-risk crops – such as wine grapes, berries, organic vegetables, etc. High-risk, high-return enterprises will be the last agricultural alternatives offering farmers any hope of realizing profits from employing high cost land and labor. However, high paying jobs and increasing affluence will allow increasing numbers of people to escape from the cities in search of a quieter, safer, healthier lifestyle in the countryside. As land prices and labor costs continue to rise, agribusiness eventually will abandon America completely because they will be able to employ their management and capital more profitably in other countries.

Corporations have no sense of citizenship. Once corporate ownership becomes separated from management, through public stock offerings, a corporation becomes incapable of pursuing any objectives other than maximum profit and growth – its stockholders will accept nothing less. Corporations are not human; they have no heart or soul. Thus, corporations have no sentimental attachment to any particular parcel of land, community, geographic region, or even to a nation. If economic costs of production are less in some country other than in the US, as they almost certainly will be, then that’s where America’s food will be produced. Agricultural technology, capital, and management can be shifted easily from America to other countries around the globe – as we have seen in the production of other industrial goods.

However, Blank claims we should not be concerned because Americans still will be well fed. This is all a quite logical result of the working of a free market economy, he says. It simply will be more efficient in the future to produce America’s food elsewhere on the globe. In fact, America’s transition out of agriculture is a sign of our national economic progress. Agriculture is any nation’s first step toward economic develop – abandoning hunting and gathering for a more efficient means of providing
Can American Farmers Compete

food and fiber. However, agriculture requires only low-skilled, manual labor and few management skills, and thus, farming is not capable of sustaining economic progress over time. Manufacturing represents a natural evolution from unskilled labor to skilled labor, to mechanization, and management of large, complex industrial systems of production. Over the past two centuries, industrialization has been the mark of economic progress as nations move from agriculture to manufacturing.

However, as we enter the 21st century, America is moving beyond industrialization – to a new post-industrial era of economic development. We already have seen the foundation of the US economy shift from manufacturing to the service sector of the economy. Some service jobs tend to be low-skill and low paying, such as fast food and electronic data entry. However, many service positions are high-skill office work, requiring high levels of education and training – such as finance, brokerage, marketing, communications, education, research, systems design, and all sorts of consulting. Such jobs are more productive and command higher salaries than do manufacturing jobs.

In the 21st century, America will become part of the “new economy” – new information systems will allow corporations in the “more advanced” nations to create, manage, and control the agricultural, manufacturing, and service sectors of the economics of other nations. Those who create, manage, and control things inevitably reap greater economic benefits than to those who actually produce, manufacture, and do things. Agriculture and manufacturing are but stepping stones to higher levels of economic development. Blank contends that it’s simply time for America to abandon agriculture and move ahead to its next stage of economic development.

Regardless of whether Blank is right or wrong about the ultimate abandonment of American agriculture, his arguments are economically rational and sound. Rising costs of land and labor will make it increasingly difficult for American farmers to remain competitive in a world markets for basic commodities, in which they no longer have competitive advantages
Can American Farmers Compete in technology, management skills, or access to capital.

Implications for Midwest Agriculture
The Midwest is perhaps more vulnerable than any other region of the U.S. to loss of global agricultural competitiveness. The Midwest is more dependent than any other region on basic agricultural commodities that are more vulnerable to loss of export markets. The Midwest is not a big producer of wine grapes, tree fruits, organic vegetables, or other “high-value” crops. Wheat, soybeans, corn, and cattle would seem to top the list of “low-value” commodities that can be produced more efficiently elsewhere in the world. As new biological technologies increase corporate control of agriculture and “dumb-down” production processes, and as land costs continue to rise, these commodities would seem most vulnerable to competition from farmers elsewhere. Loss of competitiveness in feed grain production and increasing environmental regulations would seem the greatest long term threats to the competitiveness in pork and poultry production – both of which are important in the Midwest.

Corporate contracting is making major inroads into the Midwest – making Midwest agriculture increasingly vulnerable to eventual abandonment. The large-scale contract hog operators have openly threatened to take their production operations to Mexico or South America, if they continue to be confronted with costly environmental regulations in the U.S. Environmental problems associated with large-scale poultry feeding operations are less than for hogs, but only because poultry creates less odor – their threats to water quality being very similar. Even if the environmental problems of “animal factories” could be addressed, the negative impacts of corporate agriculture on market access for independent family farmers, and the consequent social and economic impacts on rural communities, cannot. The threats that agribusiness corporations will take their large-scale confinement animal feeding operations out of the Midwest, and out of the U.S., cannot be lightly dismissed. They will never be welcome in rural America, and thus, may very well choose to locate in countries where rural people have less...
political power and fewer economic options.

Midwestern agriculture is also more reliant on government programs than are other major regions of the U.S. Certainly, elimination of government programs for crops important to other regions, such as cotton, rice, sugar, peanuts, and tobacco, would leave farmers in those regions highly vulnerable to lower cost competition from farmers in other countries. However, no region of the country is more vulnerable to complete elimination of government programs than is the Midwest. Imagine what the financial conditions of Midwest agriculture would be today if there had been no government programs for wheat, corn, and soybeans over the past five years. That image might provide a fairly accurate picture of Midwest agriculture in the future.

Why should we worry about elimination of government farm programs? After all, the House has already passed their version of a new farm bill, which would continue the generous farm subsidy payments of the past five years. The counter-cyclical payment provision of the new bill would virtually duplicate the annual “emergency” payments of the past four years. In addition, they have written in a $1 billion-plus direct subsidy to large confinement animal feeding under the disguise of an expanded Environmental Quality Enhancement Program – to subsidize clean up of waste from “animal factories.” The bill also increases the ceiling for payment limitations to ensure that large producers get a proportionately large space at the “public trough.” So, it might appear that the continuing taxpayer’s subsidization of America’s competition in world commodity markets is secure.

However, the Senate has a different vision for the new farm bill. Senator Harkin’s Conservation Security Bill places far more emphasis on environmental protection and resource conservation issues. It represents a clear attempt to separate even further government payments from commodity production – even from the “historic” base acres that determine current program payments. The Senate bill would emphasize rewarding
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farmers for conserving soil and protecting the environment rather than for having produced specific program crops. It would further limit individual program payments, targeting benefits more clearly to individual farmers than to agricultural production. The Senate bill would retain direct, government loans to smaller family farms and beginning farmers. It would also attempt to maintain market access for independent farmers by ensuring the competitiveness of domestic markets.

The agricultural establishment supports the House bill because it continues to support large-scale, corporate agriculture. Thus, the House version quite likely will dominate the ultimate version of the new farm bill. However, the different vision for the future of American agriculture reflected in the Senate bill will not go away. Ultimately, we must address the ecological and social implications of our industrial system of agriculture. Eventually, our elected representatives will be forced to stop taking money from less-affluent taxpayers and giving it to more-affluent land owners and agribusiness corporations. If government programs for agriculture are to continue, they eventually will have to be targeted to using public dollars to secure truly “public benefits,” such as environmental quality and thriving rural communities, rather than padding the pockets of corporate investors.

The primary advantage of the Midwest relative to agriculture in other regions might seem to be lower land and labor costs. However, these are the primary factors that have allowed Midwest agriculture to remain dependent on low-value, commodity production. Farmers in other regions, particularly those on the West Coast and in the Northeast, have already made the transition to high-value crops. They have been forced to change by rising land and labor costs in urbanizing areas.

Today, more than one-third of all U.S. farmers live in “metropolitan” areas, as defined by the Census Bureau, and these farmers produce about one-fourth of total U.S. agricultural output. As “urban sprawl” continues to consume the countryside, these percentages will continue to grow. These
urbanizing areas are less prominent in the Midwest than most other regions. Farmers currently on the urban fringe may be producing products for niche markets, such as organic vegetables, or for mass markets, such as wine grapes. But they invariably are producing something with a high potential value per acre of land and per dollar of capital invested – even if at a greater risk. If Midwest farmers eventually are forced to abandon low-value commodities, they may well find them at a competitive disadvantage relative to producers in other areas who have already transitioned to higher-valued, higher-risk enterprises.

These new, high-value, farmers are finding ways to remain economically viable also by addressing consumers’ ecological and social concerns. These issues tend to be even more critical among those who are living among “urban” farms. A growing number of consumers are concerned about the impacts of agriculture on the water quality, soil productivity, and the ecological health of the land. Increasingly, concerns for food safety, health, and nutrition are directly linked to an industrial agricultural system that focuses more on profits than on people. Consumers also are concerned about the impacts of agricultural industrialization on the welfare of animals, but even more so, about the welfare of farm families and of people of rural communities. These new farmers’ products may be labeled as organically grown, hormone and antibiotic free, free range or pasture raised, pesticide-free, or simply locally grown by local farmers. Most are marketing direct by farmers to customers who really do care where their food comes from and how it is produced – not just whether it is quick, convenient, and cheap.

The American Farm of the Future
New, innovative approaches to farming certainly are not limited to those farming in the urban fringe. Thousands of farmers all across the country, and around the world, are abandoning the industrial model of agriculture in search of a more sustainable agriculture\(^1\) They realize that an industrial agriculture quite simply is not sustainable over the long run. The industrial paradigm of farming, characterized by specialization, standardization, and
centralization of control, creates inherent conflicts with the natural and social environment upon which agricultural productivity must ultimately depend. It is neither ecologically sound nor socially responsible, and thus, is not economically viable over time.

These new American farmers are succeeding by exploiting the weaknesses and excesses inherent in industrial farming. These new farmers rely on the advantages of diversity, individuality, and decentralized networks of interdependent decision-makers. They are realizing the opportunities that industrial agriculture has ignored, and they are solving the problems that industrial agriculture has created.

These new farmers focus on working with nature rather than against it. The natural resource base that ultimately must sustain productivity is inherently diverse. Industrial systems have had to bend nature – to augment, supplement, alter, and force it -- to create an illusion of conformity out of diversity in order to meet the demands of large-scale, industrial production. The ecological problems arising from industrialization are symptoms of natural resources being used in ways that are inherently degrading to their productivity. The new ways of farming utilize the inherently productive capacity of a diverse natural resource base, rather than wasting time and money trying to force nature to conform. The new farmers rely on harvested solar energy rather than mined fossil fuels, and thus, reduce their reliance on external purchased inputs. They reduce costs and increase profits while protecting the natural environment and supporting their local communities.

These new farmers focus on providing value to their customers. They realize that each of us value things differently, as consumers, because we have different needs and different tastes and preferences. Industrial methods are efficient only if large-numbers of us are willing to settle for the same basic goods and services – so they can be mass-produced. Customers have to be persuaded, coerced, and bribed to buy the same basic things rather than the things they really want. That’s why we pay
more to those who package and advertise food than we pay to the farmers who produce the food. New farmers tailor their products to conform to unique needs and preferences of individual customers. Many of their customers value the ecological and socially responsible ways in which their food is produced as much as the physical quality of the food.

New farmers focus on what they can do best. They realize that we are all different -- as producers as well as consumers. We have widely diverse skills, abilities, and aptitudes. Industrialization has had to bend people -- train, bribe, and coerce -- to make them behave as coordinated parts of one big machine rather than as fundamentally different human beings. Many problems of today’s society are symptoms of people being used by industrial systems in ways that are inherently degrading to our uniquely human productive capacities. New ways of farming provide opportunities for farmers and others to use their unique capacities to be productive rather than attempt to conform to systems of production that just don’t fit.

These new farmers link people, purpose, and place. By linking their unique productive capacities with unique sets of natural resources to serve the needs and wants of unique groups of customers they create unique systems for meeting human needs that cannot be industrialized. The more unique their combinations of person, purpose, and place; the more sustainable will be the value to customers and producers alike. New farmers work together, share information, and cooperate rather than compete. They don’t see customers as markets to be exploited, but relationships to be nurtured. These new ways of thinking and farming create opportunities for farmers, as people, to form positive, productive relationships with each other, with their customers, and with the earth.

This new kind of farming is not the first step beyond hunting and gathering; it is the next step beyond industrialization. Sustainable farming represents agriculture’s entry into the “new economy.”

Implications for Midwest Agricultural Lenders
I am not “predicting” the end of American agriculture nor the end of farming in the Midwest. I realize that economists can’t forecast the future with any reasonable degree of confidence, and I am no exception. However, logical economic analysis indicates that midwestern agriculture is facing some serious challenges that none of us can afford to ignore. Nowhere are the challenges more relevant, or the implications potentially more important, than in agricultural lending in the Midwest.

Agriculture remains the heart of the overall economies of most states in the midwestern region. At least as important, agriculture remains the primary reason for existence for many rural midwestern communities. In spite of the growing importance of other sectors of the economy, agriculture, including off-farm agribusiness in the food and fiber systems, still accounts for 20 percent or more of total economic activity for most states in the region. In the Great Plains states of Kansas, Nebraska, and North and South Dakota, farm production and food processing account for about one-fifth of total regional economic output and almost one-tenth of regional employment. Understandably, the Midwest also claims a large share of the remaining agricultural dependent counties in the U.S. – meaning more than 20 percent of total employment is in “farming.” So, the future of agriculture is critically important to the future of the Midwest.

Increasingly, off-farm processing, distribution, and marketing, and manufacturing of agricultural inputs, overshadow farming in terms to contribution of agriculture to both economic activity and profits. In recent years, farming has accounted for less that ten-percent of the retail value of food, with the rest is attributed to the input and marketing sectors. In times of surplus production and low farm prices, most agricultural input and marketing firms tend to prosper because high levels of production mean strong demand for their services – notable exceptions being manufacturers of farm machinery and equipment. Low prices for farm commodities also mean cheaper raw materials for processors and marketers. So, low prices for farm commodities brought on by over-supply can mean relative prosperity for the overall agricultural economy.
However, an agricultural recession resulting from loss of markets would mean lower volume and less profit spanning from input supply through wholesaling, thus having a far greater impact on the overall midwestern economy than does a recession caused by oversupply.

The actions of agricultural lenders may be important in shaping the future of midwestern agriculture. Currently, the industrialization of American agriculture is being promoted by agricultural lenders who insist that farmers follow industrial farming methods – specialization in specific enterprises, standardized production systems, and large-scale centralized control – in order to qualify for loans. An industrial agriculture is inherently tied to production of basic, low-value, agriculture commodities, in which the U.S. is least likely to maintain a global competitive advantage. Integration of farmers into value-adding “food chains” does not free the “farmer” from being a producer of low-value, raw material to which someone else will add value and someone else will reap the profit. And successful “value added” sectors ultimately will be controlled by large corporations, not farmers or even groups of farmers.

The corporatization of American agriculture is being promoted by those agricultural lenders who insist that farmers have contracts or business relationships with agribusiness corporations in order to qualify for loans. More than 30 percent of all U.S. agricultural production is already produced under corporate contracts. As corporations gain increasing control, American agriculture becomes increasingly vulnerable to eventual abandonment.

American farmers will continue to plant another crop or place another batch of cattle on feed for as long as they can borrow enough money to do it. It doesn’t really matter all that much to most if they could make more money doing something else or if they could make more farming in another country. As long as the government sends them enough money to buy seed and fertilizer they are going to grow something, even if they are “free not to farm,” if they choose. They are committed to farming in
Can American Farmers Compete

America. Corporations have no such commitment to America and certainly not to farming in America. They will take the government check and invest it in farming in South America, or wherever in the world they can make the most money. It doesn’t matter if lower costs are the result of exploitation of the land or the people of another country. The public corporation is the epitome of economic rationality. It has no heart, it has no soul, and it has no commitment to country. Lenders who demand such complete economic rationality from their borrowers may be supporting the ultimate abandonment of American agriculture.

No one can possibly know the future with certainty. Thus, we simply cannot afford to bet the future of American agriculture, and ultimate the future of humanity, on any one vision of the future. Perhaps an industrial agriculture can be sustained and is capable of sustaining humanity. Perhaps there are no limits to growth. Perhaps we can find a replacement for any finite resource we use up and maybe we can clean up any mess that we might make. But, what happens if there are limits to growth, if we can’t replace the things we are using up, and can’t clean up the messes we are making? Our current industrial systems of farming can be sustained perhaps another fifty years before we have to get serious about finding fundamentally new resources and actually cleaning up our messes. By then, we will have roughly twice as many people to feed worldwide, so it only seems prudent that we have an alternative plan, just in case we run out of something or mess up something we can fix. We simply cannot afford to bet the future of humanity on any one vision of the future.

Sustainable agriculture offers an alternative vision. It seeks to work in harmony with nature – to restore, renew, regenerate, and sustain the productivity of the natural environment. A truly sustainable agriculture would support humanity from the inflow of solar energy, with enough surpluses to sustain the integrity of the resource base. A truly sustainable agriculture would empower people to enhance their social and ethical quality of life, thus, eliminating their need for continual economic
exploitation of the earth and of each other. A sustainable agriculture is based on the belief that there are fundamental laws of nature, including human nature that we humans violate only at our own peril. We have perhaps a fifty-year window of opportunity, at most, during which to learn to farm sustainably. What if we develop a truly sustainable agriculture and find out later that we don’t really need it? What will we have lost?

I am not suggesting that agricultural lenders in the Midwest somehow force farmers to farm more sustainably in order to qualify for loans. I am simply suggesting that thousands of Midwest farmers are already trying to find ways to farm sustainably, and these farmers sometimes need to borrow money to finance their efforts. These farmers are trying to build fundamentally different farming operations than are conventional commodity producers. They are more likely to be trying to reduce their reliance on off-farm inputs through more intensive management of on-farm resources. They are more likely to be trying to develop their own marketing channels, to marketing direct to customers, to market in the niches, rather than sell bulk commodities to processors. They are more likely to be involved with alternative enterprises – something other than corn, soybeans, wheat, cattle, or hogs. And, they are more likely to be working together with other farmers and with their customers to develop profitable relationships. These farmers are different, but they deserve a chance to succeed. They should not be turned down for a loan just because they are proposing something different.

These sustainable farmers are not in direct competition with other farmers around the world. They are not in some exploitative “race to the bottom” to see who can produce the cheapest by exploiting the earth and its people. Sustainable food systems will be local systems wherever local needs can be met using local resources – regional and national, only when needs cannot be met locally. Sustainability implies a responsibility of nations to protect their people and their resources from exploitation through appropriate international trade policies. Sustainability implies that nations have both rights and responsibilities to maintain some level of food
security – that they not abandon agriculture. A sustainable American agriculture would require that America’s farmers produce “public services” as well as “private goods.” A sustainable agriculture must protect the natural environment, contribute to civil society, while maintaining national food security. Sustainable agriculture is not just a matter of economics.

Perhaps in a sustainable society, America’s farmers won’t feed the world, but the people of the world will be well fed. Perhaps, America’s farmers won’t export a third, or even a tenth, of their production, but the American food and farming system would be secure – for the long run benefit of farmers, rural residents, and consumers alike. Perhaps it is not all that important whether U.S. farmers are the “most efficient” farmers in the world, but instead that they lead the way toward a more sustainable future.

REFERENCES


1For 50 real life examples, see “The New American Farmer – Profiles in Agricultural Innovation,” the SARE Program, USDA, Washington DC. ($10 US – call: 802-656-0484 or e-mail: sanpubs@uvm.edu , also available free on line at http://www.sare.org/newfarmer )
Hope for the Future of Farming: Rediscovering Agriculture

John Ikerd

Presented at the 100th Anniversary Gala of Prince Edward Island Department of Agriculture and Forestry, Charlottetown, PEI, October 10, 2001

Things are not going well in agriculture. In fact, farming is in crisis. People will continue to eat, and someone will continue to produce their food. But farming, as we have known it, almost certainly is coming to an end. As agricultural production becomes increasingly specialized and standardized, decision making is becoming centralized among a few large multinational agribusiness corporations. As farms continue to become larger in size, fewer in number, and increasingly under the control of these large corporations, at some point farming is no longer farming, but instead becomes agribusiness management. Farming is associated with agriculture, not agribusiness. Agribusinesses may be capable of producing food and fiber, but if the occupation of farming is to have any hope for the future, we must rediscover agriculture.

So what’s the difference between a farm and an agribusiness, and why does it matter? First, farmers historically have worked with nature. They attempted to tip the ecological balance to favor humans over other species, but still worked with nature. Farmers recognized that the laws of nature must prevail over the laws of “man.” Farmers depended on unpredictable weather and worked with living systems that they could never expect to completely control. Farming always was as much a “way of life” as a “way to make a living.” A farm was a good place to live and to raise a family, and farming was a good way to be a part of a community. The benefits of farming were never solely, or even predominantly, economic in nature. Farming carried with it a set of beliefs, behaviors, and customs that distinguished it from any other occupation. It was the “culture” part of agriculture that made a farm a farm and not an
agribusiness.

Certainly most farmers have had times when they wished they could control the weather and longed to be more independent. If they could gain more control they could reduce risks, improve production, and make the farm more profitable. It always seemed easier to achieve the social and ethical rewards of farming than to keep pace with other occupations in terms of income and return on investment. Down deep, most probably knew that if they were to succeed in achieving independence and control, they would lose some of the things they valued most about farming. But little did they realize that they would lose the ability to continue being farmers.

As new technologies gave producers more control over production – commercial fertilizers, pesticides, livestock confinement, and now biotechnology – they took the physical culture out of agriculture. As new farming methods made farmers more independent – mechanization, hired labor, and financial leverage – they took the social culture out of agriculture. As “man” gained control over nature they took the spiritual culture out of farming. As farmers took the culture out of farming, they transformed agriculture into agribusiness.

As new technologies and methods succeeded in freeing farming from the constraints of nature, community, and morality; agricultural production became attractive to corporate investors. Corporations are not “real” persons – they have no heart or soul, they have no community nor national citizenship. Certainly, a family corporation may reflect the personal values of the family and closely held corporations can reflect the value of the stockholders. But once corporations acquire thousands of stockholders, including institutional investors, corporate managers lose the option of doing anything other than maximizing corporate profits and growth. National corporations may still reflect some allegiance to their country of origin, but multinational corporations soon abandon any sense
of corporate citizenship for the sake of their multinational stockholders.

Such corporations place no value on working in harmony with nature – instead they must control nature to reduce risks and to ensure profitability and growth. Such corporations place no value on relationship within families, communities, or nations – instead they must separate people to ensure that each produces to their full economic potential. When management becomes separated from ownership, the corporation takes on a life of its own. The people who choose to work for corporations are powerless to change their fundamental nature. The multinational corporation has no sense of ethics or morality. The only thing it can possibly value is profit and growth.

Crisis is chronic in agriculture. But, the current crisis is different from those of the past. This crisis is not just a matter of farms continuing to become larger and fewer, instead it is a matter of completing the transformation of agriculture into an industry. If agribusiness has its way, everything from “dirt to the dinner table” will be corporately controlled – either through outright ownership or through various types of strategic alliances. A few giant multinational corporations will control each commodity sector and production will be stabilized at levels, which maximize profits for their stockholders. Consumers will become nothing more than faceless, nameless markets, and “farmers” will become contract laborers, at best, and in most cases, corporate hired hands.

With corporations firmly in control of the economic system, and seemingly in control of the political system as well, where is the hope for farming in the future? How can farming families hope to compete with the giant agribusiness firms? How can people who are committed to stewardship compete with corporations that have no choice but to exploit nature? How can people who are committed to being good neighbors and responsible members of society compete with corporations that have no choice but to exploit other people? The answer is that real farmers can’t
compete with corporate agribusiness – at least they cannot compete as bottom line, profit-maximizing businesses. So where is the hope for the future of farming?

Hope is found in those who, in the midst of crisis, are rediscovering agriculture. Paraphrasing Vaclav Havel, writer, reformer, and President of the Czech Republic, Hope is not the same as joy when things are going well or the willingness to invest in something that seems almost certain to succeed. Instead, hope is the *possibility* that something good *could* happen. It is hope that gives us the ability to work for something to succeed, even when the odds are against us.

Hope definitely is not the same as optimism. It is not the conviction that things will turn out well. Instead, it is the certainty that something makes sense, regardless of how it turns out. Hope gives us the courage to do things simply because they are the right things to do. Hope gives us the strength to live and continually to try new things, even when the odds of success seem small. It’s the possibility that something good could result that gives us the courage to continue trying.

Hope for the future of farming is in agriculture, not in agribusiness. Thus, farmers must rediscover agriculture. This does not mean that farmers should go back to technologies and methods of the past, although some may have merit for the future. Instead, they must choose technologies and methods that respect the fundamental nature of farming and that keep the culture in agriculture, regardless of whether they are old or new.

Certainly, farming in the future must yield an acceptable economic return to the farmer’s resources – land, labor, capital, and management. But an acceptable economic return does not mean the same thing as maximum profits and growth. Farmers of the future must regain the realization that there is value in relationships among people – within families, communities, and nations. Farmers of the future must regain the
realization that there is value living an ethical and moral life – in being good stewards or caretakers of nature and of human culture for the benefit of future generations. These are things that make sense regardless of how they turn out – they are the right things to do. In these things there is hope for the future.

The values that arise from relationships and stewardship cannot be purchased with dollars and cents, and thus they have no economic value. The industrial corporation views society and nature as constraints that must be minimized or removed to allow maximum profit and growth. The corporation is not human, and thus, cannot possibly realize the social value of human relationships or the spiritual value of human stewardship. Economics and business deal only with the individual, personal self. A corporation is the ultimate “economic man;” it is driven only by the need to prosper and to perpetuate itself.

We people, on the other hand, are real live human beings. Farmers, farm families, and their customers are people, not corporations. And, people are multidimensional. We have an individual or personal self, but we also have a social or interpersonal self, and an ethical or spiritual self. As whole people we have these three layers of self.

A part of us, our social self, is embodied in our relationships with other people. This part of us does not exist separate from others, and thus is not a part of our personal self. Its value does not exist in individuals; its value exists only in relationships among individuals. Its value is in such things as friendship or a sense of belonging – things that yield no individual economic rewards.

Humans are social animals. We simply value relationships with other living beings. Most people say that their relationships with their spouse, their children, or their friends are the most valued aspects of their lives. Yet we allow our economy to be dominated by corporations, which have
no such feelings. We continue to be driven by an economic system that places no value on relationships. Economics considers families, communities, and nations as nothing more than collections of individuals. Our society is driven by a system that does not make sense regardless of how it turns out. The hope is in the people, not in the system.

Beyond the interpersonal layer, is the ethical or spiritual layer of self. This dimension of us exists only within the context of some higher order of things. Life gains its purpose and meaning from this spiritual concept of self. The purpose or meaning of a life cannot be discerned by considering only the individual. Nothing exists only for itself. If it did, it would have no value to anything or anyone else, and thus, would be irrelevant to the rest of reality. Nor can purpose and meaning be derived from our relationships with other people or things. The meaning of relationships among the parts or members of anything take on meaning only when viewed from the perspective of the whole. For example, we cannot derive the purpose of the brain from its relationship with the heart or the lungs. But rather, the purpose of each organ is discernable only in terms of their function within the whole of the human body. The body, the higher order of things, is the whole within which the organs gain their purpose and meaning.

As people, the value of ethical or moral behavior arises from our acting and living in ways that we believe to be in harmony with some higher order. A belief in a higher order of things, a sense of spirituality, is a prerequisite for realizing the ethical or moral value of our actions. In this sense, it makes no difference whether our belief in some concept of “God” arises from what we see in nature, or our respect for nature arises from our belief in a higher power. Both are consistent with a belief in some higher order. The vast majority of people, in all nations and cultures around the globe, admit to a belief in such a higher power. Yet we continue to be driven by an economic system that gives no consideration to the spiritual dimension of self. Our hope is not in the current system of economics. It doesn’t make sense, regardless of how it turns out. Our
hope in that people will again awaken to the spiritual dimension of self.

The hope is that farmers of the future will return to farming – that they will rediscover agriculture. Prior to the past half-century, farming had been about working with nature – about finding harmony with some higher, unchangeable, and uncontrollable order of things. Farming historically has had a strong spiritual dimension. Harmony was a means of ensuring productivity – of letting nature do more of the work. But, more direct rewards also arose from living and working in harmony with nature. Historically farmers valued stewardship because they felt a moral and ethical responsibility to take care of the earth for future generations. They would care for the land even if it obviously costs them more money than they could possibly ever expect to recoup in their lifetime. They practiced stewardship because it was of value to the spiritual dimension of self – not because of personal or individual motives. This kind of farming made sense, regardless of how it turned out.

Prior to the past half-century, farming had been about working with other people – in families, communities, and nations. On a family farm, the farm and the family were inseparable parts of the same whole. The farming operations were designed to build character and self-esteem in children as they grew up. Farm work kept the family together, not just because employing the whole family improved the bottom line, but because building a strong family was a valued purpose for farming. Farm families valued the sharing of equipment and labor with neighbors beyond just getting the work done quicker and less costly. There was value in being part of a farming community. States and nations also had strong agricultural identities. People realized that changing occupations and shifting production among regions and nations does not occur without large costs in terms of social well being. Historically, agriculture placed a high value on human relationships. This kind of farming made sense, regardless of how it turned out.
In reality, there is less reason to believe in the future of agribusiness than to believe in the future of agriculture. Agriculture has been around for centuries, while agribusiness is less than sixty years old. It’s only in the past half century or so that we have allowed the economics of individual self interest to dominate, degrade, and ultimate destroy the ethical and social values arising from farming. Farmers have been coerced, bribed, and brainwashed into believing that the only thing that really matters, or at least the thing that matters more than anything else, is the economic bottom line. The hope for the future is that farmers will realize that their blind pursuit of profits is in fact the root cause of their financial failure -- that they will rediscover agriculture.

Farmers have been told that they are foolish to do anything more than that required by law to minimize soil erosion or protect the natural environment. Even now, some major farm and commodity organizations are working to reduce and remove environmental restrictions on industrial farming practices in the name of maintaining economic competitiveness. Under current laws, soils are eroding at rates far faster than they can ever be regenerated. We are putting agricultural chemicals into the natural environment with little more than scientific-looking “wild guesses” as to whether we are doing irreparable ecological damage. Yet, farmers are told that their troubles stem from too much environmental regulation. Only a few decades ago those who are promoting environmental degradation in their pursuit of economic gain would have been driven from the community as ethically unfit to farm. The hope for farmers of the future is in a return to the stewardship ethic of the past – that they will rediscover agriculture.

Farmers have been told that they are foolish to do anything for other people unless they expect their economic return to be greater than their individual investment. Farm programs are evaluated in terms of their economic rewards to individual farmers – not in terms of their contribution to a strong agricultural sector of society. Government programs, in
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general, are evaluated in terms of economic impacts on consumers, agribusiness, farmers, and taxpayers. Little, if any, consideration is given to the social and ethical impacts on families, communities, states, or even nations. Farmers in the past worked together because they cared about each other as people, they wanted to help each other succeed. Many farmers today seem to be more concerned about getting their neighbors’ land, after they fail, rather than in helping their neighbors succeed. The hope for the future is that farmers will return to valuing people over profits and to building relationships with other people – the hope is that they will rediscover agriculture.

The hope for the future is in people. People, in general, are beginning to question the industrial agricultural system. Consumers are becoming concerned about the quality and safety of food provided by the global, industrial food system. They trust neither industry nor government to ensure the healthfulness and safety of their food supply. People continue to question the impacts of agriculture on the natural environment. Recent rapid growth in consumer demand for organic foods gives a clear indication that the public is not buying arguments of industry advocates that high-input agriculture is both safe and necessary to ensure future food supplies. Public outcry in opposition to large-scale, corporate hog operations could signal the beginning of public concern for the social as well as ecological impacts of industrial agriculture. The “big hog” issue has been featured in every mass media outlet available. The public is becoming aware of the true nature of industrial agriculture and they don’t like what they are seeing.

Genetically modified organisms (GMO) and the World Trade Organization (WTO) may represent the strongest one-two punch yet delivered against the industrialization of agriculture. Biotechnology was seen as the ultimate weapon for bringing nature to its knees. Biotechnology would also be the means by which industry gained control of agriculture from genetics to the retail shelf. The World Trade Organization (WTO) was industry’s strategy
for removing constrains to exploitation of global natural and human resources. But, the people are rebelling to both. European and Japanese consumers have rebelled against GMOs, effectively blocking production and import of GMOs, and the rebellion is spreading around the world. People around the world have rebelled against the World Trade Organization – blocking a planned global meeting of the WTO in Seattle and continuing to harass WTO delegates as they continue their negotiations. The rebellion of ordinary people against these powerful tools of agribusiness creates hope for the future of agriculture.

However, the greatest source of hope for the future is among farmers who are seeking and finding new ways to farm\(^1\). They may claim the label of organic, low-input, alternative, biodynamic, holistic, permaculture, practical farmers, or just plain farmer. But they are all pursuing the same basic purpose by the same set of principles. They are trying to build farming systems that are ecologically sound, economically viable, and socially responsible. They are pursuing a higher self interest – to satisfy the personal, interpersonal, and ethical self. They realize that quality of life is a product of harmony among the economic, social, and spiritual dimensions of their lives. They are building systems that will meet their needs while leaving equal or better opportunities for others, both today and in the future. They refuse to exploit other people or exploit the natural environment for short run personal gain. They are building an agriculture that is sustainable over the long run, not just profitable for today. They are rediscovering agriculture.

These new farmers are the hope for the future of agriculture. Hope gives them the strength to continually try new things, even though they are working against seemingly insurmountable odds. They are the explorers, the pioneers, on the new frontier of farming in America. They suffer frustrations, hardships, and even failures – but, such is the nature of being pioneers. These people are doing something that no one really knows how to do. They get relatively little help from anyone other than each
other, yet they persevere. But increasingly, these new farmers are finding ways to succeed.

While there are no blueprints for the new American farm, some fundamental principles are emerging. These new farmers are creating new and better ways to make a living without abandoning the fundamental principles of agriculture.

The new farms tend to be more diversified than are conventional farms. These farmers are committed to caring for the land and protecting the natural environment. They work with nature rather than try to control or conquer nature, and nature is inherently diverse. They fit the farm to their land and climate rather than try to bend nature to fit the way they might prefer to farm. In most regions, this requires a variety of crop and animal enterprises. In some regions, however, diversity means crop rotations and cover crops. In other regions, diversity means managing livestock grazing to achieve diverse plant species or with multiple species of grazing animals. Through diversification, these new farmers substitute management for the off-farm inputs that squeeze farm profits and threaten the environment. Their farms are more economically viable, as well as more ecologically sound, because they farm in harmony with nature. They are rediscovering agriculture.

The new farmers tend to have more direct contact with their customers than do conventional farmers. Most either market their products direct to customers or market through agents who represent them with their customers. They realize that each of us value things differently, as consumers, because we have different needs and different tastes and preferences. They produce the things that their customers value most, rather than try to convince their customers to buy whatever they produce. They market to people who care where their food comes from and how it is produced – locally grown, organic, natural, humanely raised, hormone and antibiotic free, etc. – and, they receive premium prices by producing
what their customers value. Their farming operations are more economically viable, as well as ecologically sound and socially responsible. They are rediscovering agriculture.

To these new farmers, farming is as much a way of life as a way to make a living. They are “quality of life” farmers. To them, the farm is a good place to live, a good place to raise a family, and a good way to be a part of a caring community. Their quality of life objectives are at least as important as the economic objectives in carrying out their farming operations. Their farming operations reflect the things they like to do, the things they believe in, and the things they have a passion for, as much as the things that might make money. However, for many, their products are better and their costs are less because by following their passion they end up doing what they do best. Most new farmers are able to earn a decent income, but more important, they have a higher quality of life because they are living a life that they love. They are rediscovering agriculture.

Finally, these new farmers build relationships, among each other and with their customers, as well as with their land. They freely share information, they form partnerships and cooperatives, to buy equipment, to process and market their products, to do together the things that they can’t do as well alone. They are not trying to drive each other out of business; they are trying to help each other succeed. They are not trying to take advantage of their customers to make quick profits; they are trying to create lifelong social and economic relationships. They refuse to either exploit each other – or to exploit the land. The buy locally and market locally. They are bringing people together. They are rediscovering agriculture.

The ranks of new farmers are growing across the continent and around the world. At conferences all across North America, with titles such as sustainable agriculture, practical farming, organic farming, small farmers, beginning farmers, alternative agriculture, almost anything other than
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conventional farming, the numbers of farmers attending are growing. The people who attend these conferences are a diverse lot – young and old, female and male, families and singles, experienced farmers and new farmers. They represent wide ranges in formal education, income levels, and ethnicity. But they share a common belief in the possibility of building better lives for themselves, for their families, and for society through a new kind of farming. The people attending these meetings are not in crisis. They are hopeful, if not optimistic, about the future of their new kind of farming. These hopeful people are the hope for the future of farming. They are rediscovering agriculture.

Another hope for the future of farming is that the government of some nation, state, or province, such as Prince Edward Island, will help the rest of the world rediscover agriculture. This new kind of sustainable farming could grow stronger faster if some government could prove to the world, the wisdom of supporting true farming rather than corporate agribusiness.

The sustainability of agriculture is threatened today by globalization, primarily because the global economy is increasing controlled by multinational corporations. By their very nature, such corporations maximize profits and growth, even if their actions lead to exploitation of nature and of people. In a global economy, as in the whole of life, the strong will exploit the weak – particularly if they are encouraged to do so. Every person has the right and responsibility to protect themselves, and the things for which they are responsible, from economic exploitation by others. Likewise, every government – every nation, state, or province – should have the right, as well as the responsibility, to protect its natural resources and its people from exploitation. The hope is that local, state, and provincial governments will begin to demand such rights, even as their federal or national governments remain committed to globalization.

Some states in the US have laws prohibiting non-family corporations from owning farmland or participating in farming, with varying degrees of
effectiveness. Perhaps such laws should focus instead establishing the rights and responsibilities of state and local governments to place the well-being of their people and the integrity of their natural environment ahead of national economic interests. Such laws would allow state and local governments to establish their own standards, even if more stringent than federal standards, for environmental protection and conditions of employment. Local and state governments should have the right to restrict, if not prohibit, multinational corporations from doing business in their jurisdiction. They also should be able to demand that national and local corporations accept the ecological and social responsibilities expected of non-corporate members of their particular community. The first priority of any government should be to protect its resources and its people from exploitation.

But the hope is that the government of some state or province, such as Prince Edward Island, will succeed going beyond preventing exploitation, to encouraging and supporting sustainability – as a public policy priority. Some governments in the US have given consideration to sustainability in their public policies – through programs that deal with environmental protection, resource conservation, community development, etc, and some even address sustainability directly. But, no government in the US, at least at the state or national level, has made sustainability a top priority. I am hopeful that the sustainability initiative currently being initiated by Prince Edward Island will become a model for the rest of the world.

Prince Edward Island has unique advantage, as an island province, to establish a “provincial identity” of sustainability. Your province is small enough that you can reach a consensus among the people concerning what you must do to make PEI a place where your children and your children’s children will choose to live and grow – not because they have no other choice, but because they will choose to live here. You can establish acceptable standards for doing business in PEI that will ensure
the long run economic, ecological and social sustainability of your society. Not everyone will agree with those standards, but with a “consensus” of the people, the government will have the power to protect the “common interests” of the people against both corporate and individual economic exploitation.

There will no scarcity of markets for your sustainably produced products. The goal of any sustainable enterprise should be to produce for local markets first – to allow those who support the policies of sustainability to benefit from sustainability as consumers as well as citizens. But, there are growing world markets for sustainable, natural resource based, products – from farms, fisheries, forests, and tourism. Concerns for global sustainability are growing all around the world. Provincial standards that ensure environmental integrity and social responsibility will create unique opportunities for long run economic viability by addressing those concerns. Competition in the current global economy, which is driven by price and quantity, is a “race to the bottom,” in which the weak cannot hope to compete with the strong, and ultimately no one will win. The hope for the future of humanity is not in short-run economic competitiveness, but in long-run economic, ecological, and social sustainability.

Sometimes the situation may seem hopeless. We don’t see how we, as individuals, can possibly bring about the necessary changes in our communities, our government, and our society. We are only one person, but we are one person. So, we can start by changing ourselves. We can begin to think and live in a way that recognizes that our own quality of life is not just about making more money or having more “cheap stuff.” We can start devoting the time and energy to building relationships – within our families and communities – reflecting the value of human relationships to our own quality of life. We can refuse to exploit the land or to exploit other people for our own personal gain. We can start devoting the time and effort to stewardship – to living by principles rather than for profits – reflecting the value of ethics and morality to our own quality of life. Our
economic well-being is important, but we are not simply economic beings. We need to start pursuing a higher quality of life rather than just a higher economic standard of living.

As we change ourselves, we will begin at least to influence a small part of the world around us. Farmers will begin to make a difference in the land on their farm, their neighbors, perhaps on the people downstream or downwind, and even on the people in town. We can all have an influence on the other people in our families and others with whom we work or on those who live in our communities. As we change our own lives in positive ways, we begin to have a positive influence on those in our “little piece of the world.” One by one, as we change ourselves and then change our little pieces of the world around us, those whom we have influenced with begin to change their little piece of the world as well. Soon, we will find that little-by-little the world is beginning to change. Ultimately, this is all we can do, but all we really need to do, to help make a better world.

The noted anthropologist, Margaret Mead once said, “Never doubt that a small group of thoughtful, committed citizens can change the world. Indeed, it’s the only thing that ever has.” Never doubt that what you choose to do, here on Prince Edward Island, can change the world. Indeed, thoughtful, committed people, such as you, are “the only thing that ever has.” If you can help the world to rediscover agriculture, indeed, you will have changed the world.

1 For 50 real life examples, see “The New American Farmer – Profiles in Agricultural Innovation,” the SARE Program, USDA, Washington DC. ($10 US – call: 802-656-0484 or e-mail: sanpubs@uvm.edu, also available free on line at http://www.sare.org/newfarmer)
American agriculture is in crisis. Until recently, the crisis had been a quiet one. No one wanted to talk about it. Thousands of farm families were being forced off the land, but we were told by the agricultural establishment – the USDA, Land Grant Universities, Farm Bureau, commodity groups, etc. – that their exodus was inevitable. In fact, the failure of some was seen as a sign of progress. Those who failed were simply the victims of their own inefficiency – their inability to keep up with changing times. Once these inefficient farmers were gone, their land could be farmed by their more efficient neighbors. Why should we be any more concerned about the demise of the “family farm” than we were about the “mom and pop” grocery store or the “family restaurant?” “You can’t stand in the way of progress,” so we were told.

Few seemed to question the ability of America’s larger, commercial farmers to compete with farmers anywhere in the world. America was conceded to be the global leader in agriculture. Our commercial farmers were highly educated, well financed, and using the latest production technologies to cultivate the best agricultural land in the world. And, as our agricultural production units became more specialized, mechanized, and larger in scale, they were becoming even more efficient.

However, with farm commodity prices at near-record low levels for four years in a row, even the agriculture establishment has begun to realize that something is wrong. The U.S. Congress has passed “emergency” farm legislation each of the past four years to supplement already generous government programs – pushing U.S. farm subsidies to all-time record levels. American farmers today are among the most heavily
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subsidized in the world, and Congress shows little inclination toward risking a return to free markets in the new farm bill. Without these generous subsidies from taxpayers, American farm exports would be far less, and we would be in the midst of an American “farm financial crisis” at least as severe as that of the 1980s.

The U.S. share of global agricultural exports has plummeted, destroying farm profitability, and shaking confidence in the American farmer’s ability to compete. Abundant land and favorable climates, coupled with low-cost labor and a favorable exchange rate, have given less developed countries, such Argentina and Brazil, a clear competitive advantage in global grain production. U.S. livestock producers face strong competition from Canada and Mexico in domestic livestock and meat markets, causing some livestock producers to question the wisdom of the NAFTA, which opened our markets to competition from the North and South. Threats by agribusiness to move their large-scale confinement animal feeding operations to Mexico or elsewhere, to avoid growing environmental and animal welfare concerns, also cast a shadow on the future of U.S. meat production. South America and Australia are lower cost producers of range cattle, and countries such as Mexico and China could gain competitive advantages in restructured global pork and poultry industries.

America’s lack of competitiveness in farming is not just a short run phenomenon resulting from unfavorable exchange rates or a depressed global economy. As Steven Blank points out in his recent book, “The End of Agriculture in the American Portfolio,” rising costs of land and labor are destroying the traditional competitive advantage of American farmers in world markets. Growing demand for land in rural areas for residential purposes, as America’s affluent urbanites acquire more living space, will make even good farmland too costly to farm. Employment opportunities arising from the “new economy” will make the economic sacrifice of an occupation in farming too high. Cornfields can’t compete with condominiums for land and the Missouri Valley can’t compete with the
Silicone Valley for labor.

According to Blank, Americans will choose their best economic alternatives and will leave the farming to other countries. Americans will continue to be well fed, he says, we will simply import our food from other countries where it can be produced at a lower cost. It all makes “economic sense.” And, although Blank didn’t make an issue of it, if the multinational national corporations succeed in gaining control of global agriculture, this whole scenario is even more plausible, if not inevitable. These multinational corporations have no sentimental ties to family, community, or even to any given country, because they are not real people. They will simply move their agricultural operations, including contractual operations, to wherever on the globe they can make the most money, and increasingly, that will be somewhere other than in America.

American agriculture is in crisis. The future of farming in America is in doubt – even the agricultural establishment now grudgingly admits. The crisis in America agriculture has several root causes, but none is more fundamental or more important than is the dehumanizing and desacralizing of the American food and farming systems. As we have specialized, standardized, and centralized control of agriculture to make it more efficient, we have forced living systems – including plants, animals, and people – to behave as lifeless machines. American agriculture is dying from lack of respect for life.

When we removed the respect for life from agriculture; we also removed its soul. As we disclaimed the spiritual roots of farming, we proclaimed economics and technology as the “new theologies” of agriculture. We “believed” that free market would ensure social justice and that science could remove all any obstacle to human progress. Our “beliefs” have proven ill-founded. The economic timbers of farming are now rotting and its ecological foundation is decaying because it is dying – it has become separated from spiritual roots. We will never restore the ability of America’s agriculture to meet the needs of people, its ultimate source of
effectiveness and efficiency, until we restore its respect for life. We can never restore its respect for life until we restore its soul. Within the crisis in American agriculture, is the opportunity to reclaim its spiritual roots.

Crisis is most frequently considered something negative, something to be avoided, such as pain, distress, or disorder. However, crisis can be defined more generally to be either positive or negative. A crisis is a decisive moment, a critical time or state of affairs whose outcome will make a decisive difference for either better or worse. In fact, the Chinese have a word for crisis that is used to mean both threat and opportunity. The current crisis in agriculture most certainly is a time of pain, distress, and disorder for farmers and rural communities. However, it is also a time of opportunity – a critical time and state of affairs that will make a decisive difference, either for better or for worse. It’s up to all of us – to farmers and others – to confront the threat, to seize this opportunity, and to create the kind of agriculture and human society that we want rather than accept whatever might be imposed upon us.

The time to reclaim the spiritual roots of farming is at hand. The trends that have desacralized farming have run, and overrun, their course. There is a growing skepticism concerning the claim that more cheap “stuff” – be it larger houses, fancier cars, more clothes, or more food – will make us happier or more satisfied with life. There is growing evidence that when we replaced the sacred with science, we replaced the substance with pretense. As agriculture has been robbed of its natural productivity, our lives have been robbed of purpose and meaning. But, people now are beginning to question the wisdom of our materialistic society. We have more “stuff” than any society has ever had but our unmet wants seem as great as ever. How much is “enough?” Can anyone ever have “enough?”

The old questions of how can I make more money to buy more “stuff” are being replaced with questions concerning the purpose and meaning of work and of life. The answer to these questions can be found only
through awakening the spiritual dimension of our lives. But, how can we reconnect with our spiritual roots? And, how will doing so change our lives? How will reclaiming the sacred change our farms, our communities, and our society? These questions will be addressed later, but first we need to understand why we took spirituality out of farming in the first place and why we now need to put it back in.

Farming is fundamentally biological. All of life arises from the soil. The essence of agriculture begins with conversion of solar energy through the living process of photosynthesis carried out by plants that feed on the soil. The food that sustains our lives as people comes from other living things. If life itself is sacred, then food and farming must be sacred as well. In fact, people considered food and farming to be sacred throughout nearly all of human history. Farmers prayed for rain, for protection from pestilence, and for bountiful harvests. People gave thanks to God for their “daily bread” – as well as for harvests at annual times of Thanksgiving.

Until some four hundred years ago, people considered nearly everything in life to be spiritual or sacred. The religious scholars were the primary source of knowledge in the intellectual segments of society. The uneducated masses accepted claims that kings, chiefs, and clan leaders -- the people who other people looked to for wisdom -- had special divine or spiritual powers. Only during the seventeenth century did the spiritual nature of the world come under serious challenge. Among the most notable challengers was Decartes, a Frenchman, who proposed the spirit/matter dualism. This division allowed scientists to treat inert matter as “dead” and completely separate from themselves, and to see the material world as made up of a multitude of different objects assembled as if parts of a huge machine. Sir Isaac Newton, an Englishman, also held this mechanistic view of the universe and shaped it into the foundation for classical physics. Over time, scientists expanded the mechanical model to include the living as well as the “dead.” Scientists now treat plants, animals, and even people, as complex mechanisms with many
interrelated, yet separable functioning parts.

Scientists consider the spiritual realm, to the extent considered at all, to be in the fundamental nature of things – the unchanging relationships that they seek to discover. In science, there is no active spiritual aspect of life, only the passive possibility that the supernatural was involved somehow in the initial creation of the universe that we are now exploring. The more we understood about the working of the universe, the less we needed to understand about the nature of God. The more we “knew” the less we needed to “believe.” As we expanded the realm of the “factual” we reduced the realm of the “spiritual” until it became trivial, at least in matters of science.

Over time, the concept of science shifted from a “science of understanding” to a “science of manipulation.” Over time, the goal of science shifted from increasing “wisdom” to the goal of increasing “power.” We didn’t want just to understand why things happen; we wanted to make things happen. We didn’t want just to understand the universe; we wanted to dominate it. The purpose of science had shifted from enhancing knowledge to enhancing our ability to influence, direct, and control.

During the early part of this century, physicists developed fundamentally new theories they called quantum physics. The emergence of quantum physics challenges the old mechanistic worldview. Quantum physics views everything as interconnected – there is no separation of cause from effect. Everything is “interdependent.” Reality exists as “potentials,” which become “real” only when “observed,” within a specific context. The reality observed always depends upon the observer. The “living” and the “dead” are inseparable. However, mechanical reductionism, which attempts to explain all biological processes as purely chemical and mechanical processes, still dominates the applied biological sciences from agriculture to medicine.
Farming was one of the last strongholds for the sacred in the world of science. “Mechanical” processes – using machines to manufacture things from “dead” matter – were relatively easy to understand and manipulate. But, “biological” processes – involving living organisms, including humans – proved much more difficult to understand and to manage. Farming and food are fundamentally biological in nature. So it took far longer to learn to manipulate and control agriculture. Farmers continued to pray for rain, and people continued to give thanks for food – although scientists would have advised us that both were either unnecessary or futile.

However, science eventually succeeded in taking the sacred out of farming – at least out of commercial, industrialized farming. People tend to be difficult to understand and manipulate. But, machines took the laborers out of the fields, so farming became more manageable. Selective breeding brought genetic vagaries more or less under control. Genetically modified organisms (GMOs) are but the latest attempts by humans to manipulate and control other life forms. Commercial fertilizers gave farmers the power to cope with the uncertainties of organic-based nutrient cycling. Commercial pesticides provided simple scientific means of managing predator, parasites, and pests. Deep-well irrigation reduced the grower’s dependence on rainfall. Processing, storage, and transportation – all mechanical processes – removed many of the previous biological constraints associated with form, time, and place of production.

For many, farming and food are still sacred. But for many others, farming has become nothing more than another business enterprise and food just something else to buy. Those who still treat food and farming as something sacred, are labeled as old-fashion, strange, radical, or naïve.

Farms have become factories without roofs. Supermarkets and restaurants are but the final stages in long and complex assembly lines for food. Why pray for rain when we can drill a deep well and irrigate? Why thank God for food created by ConAgra? Who needs God when we have

modern science and industrial technology?

But now, this modern, commercial, industrial agriculture is in crisis. And the crisis brings with it opportunities for decisive, positive change. More than at any time in the past fifty years, people are questioning the wisdom of “scientific” agriculture. People are questioning the quality and safety of our industrial food system. They don’t trust the corporations to put nutrition and wholesomeness before market share and profitability. And they don’t trust government bureaucrats or their elected officials to give food safety and food quality priority over economic growth or corporate campaign contributions.

Economists have become the “high-priests” of the “new religion” of science and technology. Economists try to tell people that everything is happening just as it should. They argue the pursuit of profits, the motive for cost reducing technologies, ensures that consumers get the highest quality food at the lowest cost, even if some farmers are forced out of business in the process. Economic incentives guide scientific discoveries toward a better life for all, they say. The “invisible hand” of a competitive market economy transforms short-run, individual self-interests into long run, societal well being – so say the economists.

However, economists are defending corporate agriculture using hopelessly outdated theories developed more than 200 years ago in completely different times. And time will reveal the resulting fallacy of their prophecies. Contemporary economics is based on the observations of a British economist, Adam Smith, in his landmark book, The Wealth of Nations, published in 1776. From Smith’s observations, economists developed the fundamental assumptions, which underlie all “free market” economic thinking even today. These assumptions must hold in order for Smith’s “invisible hand” of competition to transform individual greed into the greater good for society in general.
Markets must be economically competitive – meaning numbers of buyers and sellers so large that no single buyer or seller can have any noticeable effect on the overall market. In such markets, the benefits of more efficient production are quickly passed on to consumers. It must be easy for new sellers to enter markets that are profitable and easy for sellers to get out of unprofitable markets, so that producers are able to respond to consumers’ changing wants and needs with changes in production. Consumers must have clear and accurate information concerning whether the things they buy will actually meet their wants and needs. And finally, the consumer must be sovereign – their tastes and preferences must reflect their basic values, untainted by persuasive influences.

None of these assumptions is valid in today’s society. Today agricultural markets are dominated by the large agribusiness corporations, certainly at every level other than the farm level, and increasingly even at the farm level. In addition, it is not easy to get into or out of any aspect of agriculture, and it is becoming increasingly harder even to get into or out of farming. Consumers don’t get accurate, unbiased information concerning the products they buy, but instead get disinformation by design, disguised as advertising. Finally, consumers are no longer sovereigns. The food industry spends billions of dollars on advertising specifically designed to bend and shape consumers tastes and preferences to accommodate mass production and mass distribution, which enable corporate control of agriculture. There is no logical reason to believe that the corporate agriculture of today is evolving to meet the needs or wants of consumers. Such a system may produce lots of “cheap stuff,” but there is no assurance that it is producing the “right stuff.”

There is no logical reason today to believe food costs will be less or food quality will be enhanced when even more family farmers are forced out of business. There is no reason to believe that food will be cheaper or higher in quality when free market coordination is replaced with corporate contractual coordination of the food system. On the contrary, there is every reason to believe that the corporatization of agriculture will lead to
higher costs and lower quality as they seek to maximize profits and growth. Corporate agriculture today is designed specifically to generate profits and growth for corporate investors. And, we no longer have a competitive, capitalistic agricultural economy to transform corporate greed into societal good.

As society becomes more enlightened, we are beginning to understand that the “markets don’t always work” – at least don’t work like the economists claim they do. We may not be able explain why we don’t trust “the invisible hand” to transform greed into good, but they know that we don’t. We no longer believe that society will be better off when our family farmers have been forced out of business, any more than we believe that we are better off without “mom and pop” grocery stores or without “family restaurants.”

We don’t believe that Americans would be better off importing our food from other countries, even if it were cheaper, any more than we are believe that we are better off depending on other countries for cheap, imported oil. Perhaps we could keep the food imports flowing, as we maintain the inflow of oil today. But, how large a military force would it take? What new “Organization of Food Exporting Countries” might be formed to control the market? How many “small wars” would we have to fight to keep a “renegade country” from restricting our supply of food? How many terrorist attacks will we suffer at the hands of people who feel oppressed by future corporate American food policies? Change is not synonymous with progress. Some things are worth keeping, and therefore, worth protecting, even if “free markets” indicate otherwise.

As society becomes more enlightened, we are beginning to realize that we are destroying our natural environment in the process of trying to produce cheap food. We are mining the soil through erosion and depletion of its natural productivity in the process of maximizing production and minimizing dollar and cent costs of production. We are polluting our
As society becomes more enlightened, we are beginning to realize that we are destroying the social fabric of society in the process of trying to make agriculture more efficient. We are destroying opportunities for people to lead productive, successful lives. We are turning thinking, innovative, creative farmers into tractor drivers and hog house janitors. There is dignity in all types of work, but all people should have opportunities to express their full human potential. Consolidation of decision making concentrates the opportunities among the privileged few while leaving the many without hope for a rewarding future. Industrial specialization also tends to separate people within families, within communities, and within nations. We are just beginning to realize that industrialization destroys the human relationships needed to support a civilized society.

As society becomes more enlightened, we are beginning to realize that our modern, industrial society quite simply is not sustainable. It is degrading the natural base upon which long run productivity must depend. It is destroying the social structure that it was designed to strengthen, and upon which it ultimately must depend for support. It is losing its productivity and usefulness to society, and thus, it is not economically sustainable over the long run. Our current system of development is not sustainable.

But what do these concerns for sustainability have to do with spirituality? The concerns all share a common source: the removal of spirituality from science and society. The science of manipulation, the quest for power and control, provided the conceptual foundation for the industrial revolution. The fundamental concepts of industrialization – specialization,
standardization and centralization of control – are based on a mechanistic worldview. The science of Descartes and Newton became a science that sought to separate, standardize, sequence, and control all things, including life. Growing concerns for ecological, social, and economic sustainability all are consequences of the growing industrialization of all aspects of society. And, in the mechanistic worldview supporting industrialization, there is no active role for the sacred.

The science of manipulation is a science which separates – mind from matter, people from nature, people from each other, the body from the mind, and the mind from the soul. The science of modern economics soothes our conscience by assuring us that our greed is good – while largely ignoring the economic exploitation of nature and society. The same science that made the industrial era possible is the science that removed the sacred from matters of economics and politics and removed spirituality from the day-to-day matters of both individuals and their communities. We were lead to believe that good science would bring about success and happiness without any help from “on high.”

But, biological and social phenomena never really fit the mechanistic, manipulative view of the world. Living things of nature had to be bent, twisted, bribed, and coerced to bring them under control. But, nature inevitably fights back. Questions of ecological sustainability invariably can be traced to unintended consequences of treating living things as if they were inanimate, programmable, controllable machines. Questions of social sustainability invariably can be traced to the unintended consequences of treating people as if they were inanimate, programmable, controllable machines. A science of understanding – of wisdom rather than power and control – must provide the foundation for the long run sustainability of human life on earth. Sustainability will require that we reconnect with the spiritual roots of humanity.

What is this thing called spirituality? First, spirituality is not religion, at
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least not as it is used here. Religion is simply one of many possible means of expressing one’s spirituality. Paraphrasing William James, a religious philosopher, one might define spirituality as a felt need to live in harmony with some higher order of things. This definition embraces a wide range of cultural beliefs, philosophies, and religions. A common thread of all expressions of spirituality is the existence of an unseen order or interconnected web that defines the oneness of all things within a unified whole. We as people are a part of a larger “whole” that is defined at some higher level or organization. We may attempt to understand the whole, and even influence it, but we did not create nor can we control it. Thus, we must seek peace through harmony within a higher order that is beyond our control. This harmony may be defined as “doing the right things.” And, by “doing the right things” – for ourselves, for others around us, and for those of future generations – we create harmony and find inner peace.

The current crisis in conventional, commercial agriculture arises from its lack of sustainability. It is not ecologically sound, it is not socially responsible, and thus, it is not economically viable over time. The sustainability of agriculture ultimately is rooted in the need to farm in harmony with the higher order of things – in spirituality. Finding harmony with a higher order requires an understanding of that order – wisdom not power and control. Sustainable farming means farming in harmony with nature – nurturing rather than dominating or manipulating nature. Sustainable agriculture means fitting farming to the farmer and the farm – not forcing either to fit some predefined prescription for progress. Sustainable farming means farming in harmony among people – within families, communities, and societies. Sustainable farming means farming in harmony with future generations – being good stewards of finite resources for an infinite future.

The goal of sustainability is to sustain a desirable quality of life. Quality of life is not something we can buy at Wal Mart or Disney World with the money we earn from farming for the “bottom line.” A life of quality is a
shared life. A life of quality is a spiritual life. Quality of life is determined by our ability to “do the right things,” for ourselves and for others, both now and in the future. Quality of life, inherently and inseparably, is personal, interpersonal, and spiritual in nature.

As we reconnect with the spiritual roots of food and farming, it changes the way we farm and live. We learn to pursue peace and happiness rather than success. We seek “harmony” among things economic, social, and spiritual – not maximums or minimums. If we focus on any one, we tend to deplete the others, and lose rather than gain what we seek to achieve. Farming solely for the bottom line, for example, invariably takes time and resources away from family and community, degrades the natural resource base, degrades the human spirit, and eventually destroys the ability of the farm to even generate a profit. However, ignoring farm economics for short-run family or religious reasons can be just as devastating in the long run for both family and spirituality.

Our common sense tells us that we must have balance in our lives among the personal, interpersonal, and spiritual. Yet we are bombarded from every corner with the message that having more stuff will make us happy, that success means having more money. Or we may be told that happiness is found only in love of family and friends, and that money doesn’t matter. On Sunday, the message is likely to be that happiness comes only from the love of God, that we should deny ourselves and follow Him. The thesis of sustainability is that “all these things matter, but than none alone is sufficient.” To sustain the sacred in farming, we must find harmony among things economic, social, and ecological – among the personal, interpersonal, and spiritual.

Spirituality does not mean that our rewards must be delayed until afterlife, any more than sustainability means we must sacrifice quality of life today for some future reward. We live only in the present, not the past or the future. If we are unhappy today, reaching some future tangible goal is
likely to leave us unhappy. If we are happy today, we are quite likely to be happy in the future regardless of whether we reach some goal we now have in mind. The focus of faith and hope may be on things expected or hoped for in the future, but the true benefits of both are in the here and now. “Living in faith and hope” defines a life worth living far more than does achieving whatever is expected or hoped for in the future. Faith and hope are about “now,” not “when.” Faith and hope are fruits of the spirit. We find purpose and meaning through the spiritual.

Likewise the spirituality of sustainable farming is about “here and now,” not “there and when.” The rewards come from having adequate, not maximum, income; from having positive relationships with family, friends, and others; and from being a responsible steward of resources for the future. All of those things have rewards here and now, as well as somewhere else at some time in the future. The key point is that the reward comes from knowing that we are “in harmony with some higher order of things.”

The crisis in America is not limited to agriculture, nor are the opportunities. On September 11, 2001, America was subjected to a terrorist attack of a magnitude unprecedented in its history. Since then, we have been a nation “at war,” with terrorists who committed the acts, with terrorists in general, and with the countries that support them. A national debate will undoubtedly arise, as in a democracy it should, concerning the appropriateness of our political and military response to this crisis. However, there can be no doubt that this crisis has rekindled an uncommon sense of nationalism, of community and of spirituality within Americans.

The outpouring of prayers, expressions of condolence, and financial support for the families of those who suffered directly from the attacks in New York and Washington DC have been phenomenal. While we may question the motivations of some, obviously seeking publicity for their contributions, millions of others have given anonymously and generously,
with no concern for recognition or rewards. Americans seem to have been waiting for something that would give them “permission” to care and be kind to each other. Americans were simply waiting for a chance to constrain their narrow, individualistic self-interests and to be good people.

Underneath, Americans are still a spiritual people. The constant bombardment of materialistic messages, that continue even now with admonitions to “get out and spend,” has simply made Americans reluctant to admit that they really do care about each other and that we really do believe in a “higher power.” Down deep inside, we know that there is no “invisible hand” to transform our “greed into good” – that we have to choose to be good to each other. Down deep inside, we know that our unrestrained consumption is destroying opportunities for future generations – that we have to choose to be good stewards of the earth. Down deep inside, we know there is a higher order of things with which we ultimately must find harmony in order to find peace – that human life ultimately is rooted in spirituality.

Within the current crisis in America, is the opportunity to reconnect to our spiritual roots – not only in farming, but also in all aspects of American society. The sustainable agriculture movement is giving farmers permission to be good to others and to be good to the land. The environmental and social justice movements in the broader society are giving people, in general, permission to be good to each other and to be good to the earth. The current crisis in American agriculture, and in American society, is giving Americans an opportunity to reclaim our spiritual roots and to restore our national soul. Now it the time to confront the crisis and seize the opportunity.

1Blank, Stephen C. The End of Agriculture in the American Portfolio,
There is hope for the future of farming. Having hope does not mean believing that things are going well for farmers or that they are obviously headed for quick success. But rather it means believing that farmers have the ability to continue to work for success in spite of growing difficulties. To quote Vaclav Havel, writer, reformer, and president of the Czech Republic:

"Hope is not the same as joy when things are going well, or willingness to invest in enterprises that are obviously headed for early success, but rather an ability to work for something to succeed."

Things are not going well in agriculture. In fact, farming is in crisis. People will continue to eat, and someone will continue to produce their food. But farming, as we have known it, almost certainly is coming to an end. As agricultural production becomes increasingly specialized and standardized, decision making is becoming centralized among a handful of large agribusiness corporations. As farms continue to become larger in size, fewer in number, and increasingly under the control of these large corporations, at some point farming is no longer farming, but instead becomes agribusiness.

So what’s the difference between a farm and an agribusiness, and why does it matter? First, farmers worked with nature. They attempted to tip the ecological balance to favor humans over other species, but still worked with nature. Farmers recognized that the laws of nature must prevail over the laws of "man." Farmers depended on unpredictable weather and worked with living systems that they could never expect to completely control. Farming always has been as much a way of life as a way to make a living. A farm was a good place to raise a family and farming was a good way to be a part of a community. The benefits of farming were never solely, or even predominantly, economic in nature. Farming carried with it a set of beliefs, behaviors, and customs that distinguished it from any other occupation. It was the "culture" part of agriculture that made a farm a farm and not an agribusiness.

Certainly most farmers have had times when they wished they could control the weather and longed to be more independent. If they could gain more control they could reduce risks, improve production, and make the farm more profitable. It always seemed easier to achieve the social and ethical rewards of farming than to keep pace with other occupations in terms of income and return on investment. Down deep, most probably knew that if they were to succeed in achieving independence and control, they would lose some of the things they valued most about farming. But little did they realize that they would lose the ability to continue being farmers.

As new technologies gave producers more control over production – commercial fertilizers,
pesticides, livestock confinement, and now biotechnology – they took the physical culture out of
agriculture. As new farming methods made farmers more independent – mechanization, hired
labor, and financial leverage – they took the social culture out of agriculture. As "man" gained
control over nature they took the spiritual culture out of farming. As farmers took the culture out
of farming, they transformed agriculture into agribusiness.

As new technologies and methods succeeded in freeing farming from the constraints of nature,
community, and morality; agricultural production became attractive to corporate investors.
Corporations place no value on working in harmony with nature – instead they must control
nature to reduce risks and to ensure profitability and growth. Corporations place no value on
relationship within families, communities, or nations – instead they must separate people to
ensure that each produces to their full economic potential. A corporation is not human – it has
no heart, it has no soul. When management becomes separated from ownership, the
corporation takes on a life of its own. The people who choose to work for corporations are
powerless to change their fundamental nature. The corporation has no sense of ethics or
morality. The only thing it can possibly value is profit and growth.

Crisis is chronic in agriculture. But, the current crisis is different from those of the past. This
crisis is not just a matter of farms continuing to become larger and fewer, instead it is a matter
of completing the transformation of agriculture into an industry. The agribusiness corporations
seem to be using the poultry industry as a model. The poultry industry is controlled by a hand-
full of giant corporation that control everything from the genetics for breeding stock through
feeding, processing, packaging, and delivery to retail outlets. If agribusiness has its way,
everything from "dirt to the dinner table," will be corporately controlled – either through outright
ownership or various types of alliances. A few giant multinational corporations will control each
commodity sector and production will be stabilized at levels which maximize profits for their
stockholders. Consumers will become nothing more than faceless, nameless markets, and
"farmers" will become contract laborers, at best, and in most cases, corporate hired hands.

With corporations firmly in control of the economic system, and seemingly in control of the
political system as well, where is the hope for farming in the future? How can farming families
hope to compete with the giant agribusiness firms? How can people who are committed to
stewardship compete with corporations that have no choice but to exploit nature? How can
people who are committed to being good neighbors and responsible members of society
compete with corporations that have no choice but to exploit other people? The answer is that
real farmers can’t compete with corporate agribusiness – at least they cannot compete as
bottom line, profit maximizing businesses. So where is the hope for the future of farming?

Hope is found in those farmers who continue to search for ways to succeed in spite of the odds
against them. There is little joy in traditional farming communities today. Things are not going
well. The odds of success seem to grow dimmer each day. But, hope is still alive in those who
have rejected the conventional wisdom that industrialization is inevitable, that agriculture must
be transformed into agribusiness, and that there is no future in farming. Hope is still alive in
those who have the ability to continue to work for success.

Again quoting Vaclav Havel:

"Hope is definitely not the same thing as optimism. It's not the conviction that something will turn out well, but the certainty that something makes sense, regardless of how it turns out."

Hope for the future of farming does not imply optimism concerning the future of farming. Obviously, there is no certainty that everything is going to turn out well for farmers. Hope stems from the possibility of rediscovering ways to farm that make sense, regardless of how it all turns out. Hope arises from the conviction that something is the right thing to do and from the commitment to do it.

Hope for the future is in farming, not in agribusiness. This does not mean that farmers should go back to technologies and methods of the past, although some may have merit for the future. Instead hope is in using technologies and methods that respect the fundamental nature of farming and that keep the culture in agriculture, regardless of whether they are old or new. Certainly, farming in the future must yield an acceptable economic return to the farmer’s resources – land, labor, capital, and management. But an acceptable economic return does not mean the same thing as maximum profits and growth. Farmers of the future must regain the realization that there is value in relationships among people – within families, communities, and nations. Farmers of the future must regain the realization that there is value living an ethical and moral life – in being good stewards or caretakers of nature and of human culture. These are things that make sense regardless of how they turn out – they are the right things to do. In these things there is hope.

The values that arise from relationships and stewardship cannot be purchases with dollars and cents, and thus have no economic value. The industrial corporation views society and nature as constraints that must be minimized or removed to allow maximum profit and growth. The corporation is not human, and thus, cannot possibly realize the social value of human relationships or the spiritual value of human stewardship. Economics and business deal only with the individual, personal self. A corporation is the ultimate "economic man;" it is driven only by the need to perpetuate itself.

We people, on the other hand, are real live human beings. Farmers, farm families, and consumers are people, not corporations. And, people are multidimensional. We have an individual or personal self, but we also have a social or interpersonal self, and an ethical or spiritual self. As whole people we have these three layers of self.

A part of us is embodied in our relationships with other people. This part of us does not exist separate from others, and thus is not a part of our personal self. Its value does not exist in...
individuals, its value exists only in relationships among individuals. Its value is in such things as friendship or a sense of belonging – things that yield no individual economic rewards. Humans are social animals. We simply value relationships with other living beings. Most people say that their relationship with their spouse, their children, or their friends are the most valued aspects of their lives. Yet we allow our economy to be dominated by corporations which have no such feelings. We continue to be driven by an economic system that places no value on relationships. Economics considers families, communities, and nations as nothing more than collections of individuals. Our society is driven by a system that does not make sense regardless of how it turns out. The hope is in the people, not in the system.

Beyond the interpersonal layer, is the ethical or spiritual layer of self. This dimension of us exists only within the context of some higher order of things. Life gains its purpose and meaning from this spiritual concept of self. The purpose or meaning of a life cannot be discerned by considering only the individual. Nothing exists only for itself. If it did, it would have no value to anything or anyone else, and thus, would be irrelevant to the rest of reality. Nor can purpose and meaning be derived from our relationships with other people or things. The meaning of relationships among the parts or members of anything take on meaning only when viewed from the perspective of the whole. For example, we cannot derive the purpose of the brain from its relationship with the heart or the lungs. But rather, the purpose of each organ is discernable only in terms of their function within the whole of the human body. The body, the higher order of things, is the whole within which the organs gain their purpose and meaning.

As people, the value of ethical or moral behavior arises from our acting and living in ways that we believe to be in harmony with some higher order. A belief in a higher order of things, a sense of spirituality, is a prerequisite for realizing the ethical or moral value of our actions. In this sense, it makes no difference whether our belief in some concept of "God" arises from what we see in nature, or our respect for nature arises from our belief in a higher power. Both are consistent with a belief in some higher order. The vast majority of people, in all nations and cultures around the globe, admit to a belief in such a higher power. Yet we continue to be driven by an economic system that gives no consideration to the spiritual dimension of self. Our hope is not in the current system of economics. It doesn’t make sense, regardless of how it turns out. Our hope in that people will again awaken to the spiritual dimension of self.

The hope for farmers in the future is that they will return to farming. Prior to the past half-century, farming had been about working with nature – about finding harmony with some higher, unchangeable, and uncontrollable order of things. Farming historically has had a strong spiritual dimension. Harmony was a means of ensuring productivity – of letting nature do more of the work. But, more direct rewards also arose from living and working in harmony with nature. Historically farmers valued stewardship because they felt a moral and ethical responsibility to take care of the earth for future generations. They would care for the land even if it obviously costs them more money than they could possibly ever expect to recoup in their lifetime. They practiced stewardship because it was of value to the spiritual dimension of self – not because of personal or individual motives. This kind of farming made sense, regardless of
how it turned out.

Prior to the past half-century, farming had been about working with other people – in families, communities, and nations. On a family farm, the farm and the family were inseparable parts of the same whole. The farming operations were designed to build character and self-esteem in children as they grew up. Farm work kept the family together, not just because employing the whole family improved the bottom line, but because building a strong family was a valued purpose for farming. Farm families valued the sharing of equipment and labor with neighbors beyond just getting the work done quicker and less costly. There was value in being part of a farming community. States and nations also had strong agricultural identities. People realized that changing occupations and shifting production among regions and nations does not occur without large costs in terms of social well being. Historically, agriculture placed a high value on human relationships. This kind of farming made sense, regardless of how it turned out.

In reality, there is less reason to believe in the future of agribusiness than to believe in the future of agriculture. Agriculture has been around for centuries, while agribusiness is less than sixty years old. It’s only in the past half century or so that we have allowed the economics of individual self interest to dominate, degrade, and ultimate destroy the ethical and social values arising from farming. Farmers have been coerced, bribed, and brainwashed into believing that the only thing that really matters, or at least the thing that matters more than anything else, is the economic bottom line. The hope for the future is that farmers are beginning to realize that their blind pursuit of profits is in fact the root cause of their financial failure.

Farmers have been told that they are foolish to do anything more than that required by law to minimize soil erosion or protect the natural environment. Even now, major farm and commodity organizations are working to reduce and remove environmental restrictions on industrial farming practices in the name of maintaining economic competitiveness. Under current laws, soils are eroding at rates far faster than they can ever be regenerated. We are putting agricultural chemicals into the natural environment with little more than scientific-looking "wild guesses" as to whether we are doing irreparable ecological damage. Yet, farmers are told that their troubles stem from too much environmental regulation. Only a few decades ago those who are promoting environmental degradation in their pursuit of economic gain would have been driven from the community as ethically unfit to farm. The hope for farmers of the future is in a return to the stewardship ethic of the past.

Farmers have been told that they are foolish to do anything for other people unless they expect their economic return to be greater than their individual investment. Farm programs are evaluated in terms of their economic rewards to individual farmers – not in terms of their contribution to a strong agricultural sector of society. Government programs, in general, are evaluated in terms of economic impacts on consumers, agribusiness, farmers, and tax payers. Little if any consideration is given to the social and ethical impacts on families, communities, states, or even nations. Farmers in the past worked together because they cared about each other as people, they wanted to help each other succeed. Farmers today seem to be more
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concerned about getting their neighbors’ land after they fail than in helping their neighbors succeed. The hope for the future is that farmers will return to valuing people and building relationships rather than simply valuing profits and growth.

The hope for the future is in people. People, in general, are beginning to question the industrial agricultural system. Consumers are becoming concerned about the quality and safety of food provided by the global, industrial food system. They are questioning the safety of food because they are becoming aware of the extensive use of poisonous pesticides both at home and abroad. They are questioning food nutrition, because Americans are seemingly well fed, yet so many are obese and obviously unhealthy. They don’t trust industry to be concerned about health and nutrition when they are so obviously focused on the economic bottom line. They don’t trust the government to protect the food supply, because of the obvious corporate influence on the political process. Growing concern for food safety and nutrition may be one of the best hopes for the ultimate rejection of the industrial food system.

People continue to question the impacts of agriculture on the natural environment. Agribusiness has fought back against environmentalists with claims that farmers must use commercial fertilizers and pesticides to achieve the high yields needed to feed a growing global population. They claim that low input farming is low output farming and would require farming environmentally fragile land and destroying habitat for wildlife and endangered species to feed the growing population. But, they have ignored the fact that high-yields provide no assurance that hungry people will be fed. They ignore the fact that low-input and organic farming systems can be as productive as conventional chemical-intensive systems and are obviously less threatening to wildlife and other living species. Recent rapid growth in consumer demand for organic foods has caused industrial agricultural advocates to change tactics and begin attacking the safety and wholesomeness of organic foods. This could mean that the public is not buying their environmental arguments – providing hope that the public ultimately will reject the industrial food system entirely.

Public outcry in opposition to large-scale, corporate hog operations could signal the beginning of public concern for the social impacts of industrial agriculture. Odor and water quality were the initial concerns regarding the mega hog operations, but there seems to be a growing concern regarding their impacts on family farms and rural communities. The giant hog operations clearly are putting independent hog farmers out of business. The number of hog farmers in Missouri dropped by half between 1992 and 1997 as the mega hog operations moved into the state. Hogs had a reputation as being the mainstay of diversified farming – they were the "mortgage lifters," and the loss of hogs could mean the demise of many family farms. The "big hog" issue has been featured on every TV network news show, in every major news magazine, and in every major newspaper in the country. The true nature of industrial agriculture is becoming known by the public. The hope for the future is the fact that they don’t like what they are seeing.

Genetically modified organisms (GMO) and the World Trade Organization (WTO) may
represent the strongest one-two punch yet delivered against the industrialization of agriculture. Biotechnology was seen as the ultimate weapon for bringing nature to its knees. Biotechnology would also be the means by which industry gained control of agriculture from genetics to the retail shelf. The biotech firms would develop and patent GMO crops and livestock to fit the specifications of vertically integrated agricultural alliances, which in turn would control food and fiber production and distribution. No markets would exist for independent producers who produced non-GMO crops or livestock. In this way, producers would be forced to sign comprehensive production contracts in order to have a market for their products. All significant production decisions would be made at corporate headquarters, reducing the farmer to the status of a contract laborer.

The World Trade Organization (WTO) was the means chosen by industry to remove current constrains to exploitation of global natural and human resources. The stated objective was to remove all barriers to "free trade." But free trade was defined solely in economic terms. Attempts of nations to shape and manage their own national economy, to ensure the viability of industries they considered critical to their social and economic security, would be illegal under free trade agreements. Every nation’s standards for environmental protection and every nation’s standards for treatment of workers would have to be the same, if being different would impact trade. A nation would be unable to protect its economy or its culture from foreign domination, by any means that restricted trade. A single global economy would replace the national economies. A global culture then might logically replace national cultures.

But, the people are rebelling. European consumers rebelled against GMOs. There was an outcry across the continent to keep GMOs out of the food supply – even if it meant violating the WTO. Europeans refused to allow GMOs to be produced in their countries and refused to import GMOs from the US. The biotech firms are currently scrambling to regroup and devise an alternative strategy. The rebellion against GMOs is cause for hope for the future of farming.

People around the world rebelled against the World Trade Organization. Protest blocked the planned global meeting of the WTO in Seattle and continue to harass WTO delegates as they continue their negotiations. It’s not clear at this point what shape the WTO ultimately will take and whether the multinational corporations can accomplish their goal of "free trade," regardless of the ecological, social, and cultural consequences. The rebellion against globalization of human society is cause for hope for the future of farming.

The greatest source of hope for the future is among farmers who are seeking and finding new ways to farm. They may claim the label of organic, low-input, alternative, biodynamic, holistic, permaculture, practical farmers, or just plain farmer. But they are all pursuing the same basic purpose by the same set of principles. They are trying to build farming systems that are ecologically sound, economically viable, and socially responsible. They are pursuing a higher self interest – to satisfy the personal, interpersonal, and ethical self. They realize that quality of life is a product of harmony among the economic, social, and spiritual dimensions of their lives.
They are building systems that will meet their needs while leaving equal or better opportunities for others, both today and in the future. They refuse to exploit other people or exploit the natural environment for short run personal gain. They are building an agriculture that is sustainable over the long run, not just profitable for today. These people are the hope for the future of farming.

Continuing to quote Haval;

"It is this hope, above all, that gives us strength to live and to continually try new things, even in conditions that otherwise seem hopeless."

These new American farmers are the hope for the future of agriculture. Hope gives them the strength to continually try new things, even though they are working against seemingly insurmountable odds. They are the explorers, the pioneers, on the new frontier of farming in America. They suffer frustrations, hardships, and even failures – but, such is the nature of being pioneers. These people are doing something that no one really knows how to do. They get relatively little help from anyone other than each other, yet they persevere. But increasingly, these new farmers are finding ways to succeed.

While there are no blueprints for the new American farm, some fundamental principles are emerging. The new American farmers are creating new and better ways to make a living without abandoning the fundamental principles of farming.

These new American farmers focus on working with nature rather than against it. The natural resource base that ultimately must sustain productivity is inherently diverse so their farming operations tend to be diverse as well. They utilize practices such as management intensive grazing, integrated crop and livestock farming, diverse crop rotations, cover crops, and intercropping. They manage their land and labor resources to harvest solar energy, to utilize the productivity of nature, and thus, are able to reduce their reliance on external purchases inputs. They are able to reduce costs and increase profits while protecting the natural environment and supporting their local communities.

New American farmers focus on value rather than costs. They realize that each of us values things differently, as consumers, because we have different needs and different tastes and preferences. They market in the niches, and increase value by more nearly meeting the individual needs of their customers. They market direct to customers through farmers markets, roadside stands, subscription farming or CSAs, home delivery, or by customer pick-up at the farm. They use everything from the Internet to word of mouth to advertise their services. They market to people who care where their food comes from and how it is produced – locally grown, organic, humanely raised, hormone and antibiotic free, etc. They are often able to avoid some or all of the processing, transportation, packaging and marketing costs that make up 80 percent of the total cost of mass marketed foods. They increase value, reduce costs, and increase
profits while protecting the environment and helping to build stronger local communities.

These new American farmers focus on what they can do best. They realize that we are all different as producers as well as consumers. We have widely diverse skills, abilities, and aptitudes. They may produce grass finished beef, pastured pork, free range or pastured poultry, heirloom varieties of fruits and vegetables, dairy or milk goats, edible flowers, decorative gourds, or dozens of other products that many label as agricultural "alternatives." They find markets for the things they want to grow and are able to grow well rather than produce for markets where they can’t compete. Or they may produce fairly common commodities by means that are uniquely suited to their talents. Their products are better, their costs are less, and their life is better because they are doing the things that they do best.

In general, new American farmers focus on creating value through uniqueness -- among consumers, among producers, and within nature. They link people with purpose and place. By linking their unique productive capacities with unique sets of natural resources to serve the needs and wants of unique groups of customers, they create unique systems of meeting human needs that cannot be industrialized. The more unique their combinations of person, purpose, and place, the more sustainable will be the value to customers and producers alike.

These new American farmers are the hope for the future of agriculture, and their ranks are growing. At conferences all across the country, with titles such as sustainable agriculture, practical farming, organic farming, small farmers, beginning farmers, alternative agriculture, almost anything other than conventional farming, the numbers of farmers attending are growing. The people attending these meeting are not in crisis. They are not agribusiness people, they are farmers. They are hopeful, if not optimistic, about the future of their new kind of farming. The people who attend these conferences are a diverse lot – young and old, female and male, families and singles, experienced farmers and new farmers. They represent wide ranges in formal education, income levels, and geographic origin. But they share a common belief in the possibility of building better lives for themselves, for their families, and for society through a new kind of farming. These hopeful people are the hope for the future of farming.

In closing, hope is not the same thing as joy when things are going well or the willingness to invest in something only if it seems destined for early success. Hope is the possibility that something good could happen. Hope gives us the ability to work for something to succeed, even when the odds are against us.

Hope definitely is not the same as optimism. It is not the conviction that things will turn out well. Instead, it is the certainty that something makes sense, regardless of how it turns out. Hope gives us the courage to do things simply because they are the right things to do.

It is hope that gives us the strength to live and to continually try new things, even when the odds of success seem small. It’s the possibility that something good will result that gives us the
courage to continue trying.

Finally, in the words of Vaclav Havel;

"Life is too precious to permit its devaluation by living pointlessly, emptily, without meaning, without love, and finally, without hope."

There is hope for the future of farming. Life is simply too precious to live without hope.
Farming would seem to be a dying occupation – if we look only at long run trends. Throughout much of human history, the number of farmers worldwide has been in almost continuous decline. In the beginning of agriculture, when humans first began cultivation of crops and livestock for human use rather than just hunt and gather, the number of farmers grew. But once people became capable of producing more food than they needed for their own families, the number of farmers began to decline. The ability to produce more than needed for home consumption, allowed some people to leave the land – to become neither hunters, gatherers, nor farmers – and to barter with farmers to meet their needs for food and fiber. Those who left the farms became medicine men, warriors, blacksmiths, storekeepers, dentists, schoolteachers, entertainers, etc – they did the things that farm families were least able to do for themselves. At times of famine or other crises, such as the Great Depression of the 1930s, people returned to the land to produce their own food and fiber, to increase their odds of survival. But throughout most of modern history, those leaving farms consistently have outnumbered the total of those continuing and beginning to farm.

At the turn of the twentieth century, however, America was still an agrarian nation. In the 1890 census, forty-percent of the U.S. population still listed their occupation as farming – by far the largest of any occupation. However, a hundred years later, in 1990, the percentage of farmers in the U.S. population had dropped to less than two-percent, and the Census Bureau proposed dropping farming from the census occupation categories. The number of U.S. farms had dropped from a depression-years peak of 6.6 million in 1930s to less than two million some sixty years later. In the span of a century, the nation had transformed itself from rural-farming to urban-industrial nation. The other so-called developed or industrial nations of the world followed similar patterns of transformation from rural to urban.

Against this historical backdrop of declining farming numbers and continuing urbanization, why would anyone want to consider farming as a future occupation – particularly anyone not currently vested in farming? Some argue that with the aging farm population there will not be sufficient numbers of farmers left when the current generation retires unless we find some new farmers. However, the historical decline in total numbers of farmers actually dictates that there be fewer replacements than retirees, and thus, that farmers, on average, remain old. The average age of farmers has been above 50 years for at least a couple of decades, and supplies of agricultural commodities have remained more than adequate. A young person pursuing a future in farming would certainly seem to be swimming against the historical tide of change.

In fact, if historical trends were to continue, a young person might well be ill advised to consider farming as their life’s work. Certainly, there are examples of young people who have beaten the
odds and have succeeded in becoming farmers over the past sixty years. However, the vast majority of these did not start farming from scratch – they didn’t have to pay for a farm with income earned from farming. The conventional wisdom in American agriculture has been that the best ways to get into farming are either inheriting or marrying into a farm. With the initial investment secured, and with a good bit of luck, a young couple just might be able to hold on to the farm long enough to pass it on to another generation. Of course, declining farm numbers dictated that fewer farmers succeed from each new generation of farmers. So even those young farmers who inherit or marry into a farm are betting against the odds.

However in the last decade, an increasing number of new farmers are finding ways to change the odds of success. They are a new breed of farmer with new ideas. They are changing the definition of farming and redefining the occupation of farming. They are finding ways to capitalize on the weaknesses of conventional farming -- the industrial system that has dominated agriculture for the past century. They are successfully bucking the trend toward larger farms, meaning fewer farms and farmers. They are finding ways to make a better living on smaller farms, making room for more, rather than fewer, farms and farmers. They are lowering the barriers for beginning farmers by creating an agriculture that depends more on knowledge and understanding of nature, including human nature, and less on capital and access to technology. This new breed of farmers is creating new opportunities for anyone who has a willingness to work hard, a commitment to continual learning, and a love of the land and its people. They are the new farmers for the new century.

The Old American Farm

To understand why the "new" farms work, we have to understanding why the "old" farms don’t work – at least don’t work to benefit farmers. The conventional farm of today is a product of the industrial revolution. Industrialization, with its specialization, standardization, and mechanization of production, required large numbers of people to "man" the assembly lines and offices of large manufacturing operations. People move into cities by the millions as a country goes through the industrialization process. In America, the simultaneous industrialization of agriculture – mechanization, specialization, and standardization -- made it possible for fewer farmers to feed more people better and at a lower cost. This "freed" farmers and other rural people to go to work in the cities and freed up consumers’ incomes to buy those things the industrial economy produced.

The same technologies that pulled rural people toward the cities pushed them off the farms and out of rural communities. These technologies increased production per person by substituting capital and commercial inputs for labor and hands-on management. As successful new farming technologies were developed, they invariably reduced production costs – per bushel or per unit of production – but only if each farmer operated at a larger scale and produced more output. Thus, the incentive to realize greater profits by reducing costs inherently was an incentive to buy bigger equipment and more commercial inputs in order to farm more land and produce more output. As farmers individually responded to these incentives, production in total invariably increased, market prices fell, and the earlier promise of continuing profits vanished. The new technologies
then became necessary – no longer for profits but now for survival. Those who adopted and expanded too little too late were unable to compete. This is the process by which they were "freed" from their farms to fill the manufacturing jobs in the city.

The farms that survived grew larger and fewer in number. In fact, with a limited population to feed and a limited amount of land to farm, it was possible for only fewer and fewer farmers to survive. In addition, the large specialized farms that survived often bypassed their local communities in purchasing inputs and marketing their products in order to remain competitive with other large farms, both at home and abroad. Thus, as farms grew fewer and larger, rural farming communities also withered and died.

Today, there are few people left in farming to move to town and no longer any societal justification for moving them. The old industrial manufacturing era is coming to a close in the developed countries of the world. The old industrial firms are "downsizing" and "outsourcing" -- laying off workers by the thousands. Food costs is no longer a major factor in the costs of living. As consumers, we spend on the average a little over a dime out of each dollar for food and the farmer only gets a penny of that dime. The rest goes to pay for commercial inputs and marketing services – packaging, advertising, transportation, etc. Poor people may spend as much as half of their income for food, but even then the farmer only gets a nickel. We simply can’t eliminate poverty by making farming more efficient. Society simply no longer has much of anything to gain from the further industrializing of agriculture. But yet, it continues.

As the industrialization of agriculture moves into its final phase – the centralization of control and decision making among giant agribusiness corporations – there might seem little hope for family farms. Within a decade, the independent producer of basic agricultural commodities, such as corn, hogs, soybeans, cattle, may be a rarity. Those not on the payrolls of the large agribusiness corporations quite likely will be producing under comprehensive corporate production contracts. So, the future of conventional farming most certainly is at risk; nevertheless, there are signs of hope on the horizon. The industrial era appears to be nearing an end elsewhere in the economy, even as it continues to consume agriculture. A new post-industrial, knowledge-based era of human progress is emerging – most prominently in other sectors of the economy, but also in agriculture. This new era of human development is creating opportunities for a new and better kind of farm.

The Inevitability of Change

Admittedly, if the dominant trends of today were to continue, there would be little hope for beginning farmers. But, trends never continue, at least not indefinitely. A few years back, a couple of scientists proposed a list of the top twenty "great ideas in science" in Science magazine, one of the two most respected scientific journals in the world (Pool). They invited scientists from around the world to comment on their proposed list. Among the top twenty were such ideas as the relationship between electricity and magnetism, the laws of gravity and motion, and the first and second laws of thermodynamics. The top twenty also included the proposition that "everything on
the earth operates in cycles;" everything physical, biological, social, economic – everything. Some
scientists responding to the Science survey disagreed with the proposed theory of universal cycles,
but most left it on their list of the top twenty great ideas in science (Culotta).

In essence, the theory of universal cycles implies that trends never continue forever. Trends are
nothing more than phases of longer-term cycles that eventually will turn and move in the opposite
direction. In reality, it’s just common sense – everything that goes up eventually comes down, and
everything that goes around eventually comes back around.

The theory of cycles implies that farms will neither get larger nor smaller forever, but instead will
cycle between larger and smaller over time. If we think back over past centuries and around the
globe, we can find examples where control of land became concentrated in the hands of a few, such
as in feudal times, only later to be dispersed among the many. The most significant example in the
U.S. may have been the development and later demise of plantation agriculture in the South. The
most significant such occurrence in the world at present is taking place in what once was the Soviet
Union – large communal farms are being divided into individual farmer-owned plots. Cyclical
turning points typically have been associated with major historical events. However, large-scale,
industrial agriculture is coming under increasing environmental and social challenges all around
the globe. A major historical change may well be in the offing.

The Transition to Sustainability

Many futurists, people who study trends and cycles, believe we are in a time of a great transition.

"We are at that very point in time when a 400-year-old age is dying and another is struggling to be
born – a shifting of culture, science, society, and institutions enormously greater than the world has
ever experienced. Ahead, the possibility of the regeneration of individuality, liberty, community, and
ethics such as the world has never known, and a harmony with nature, with one another, and with the
divine intelligence such as the world has never dreamed."

These are not the words of a priest or a philosopher but of Dee Hock, founder of one of the largest
financial institutions in the World, the VISA Corporation.

Hock is certainly not alone in this thinking. A whole host of futurists from the political and
business communities, including Alvin Toffler, Vaclav Havel, Tom Peters, Peter Drucker, John
Naisbitt, and Robert Reich agree that we are in a time of fundamental change. They talk and write
of a shift in worldview from the mechanistic, industrial model of the past, where people derived
power from control of capital and the technical means of production, to a new life-centered, post-
industrial era where knowledge has become the source of power, of wealth, and of future human
progress. The two world views are fundamentally different. One views the world as a complex
machine, the other views the world as a living organism. Factories are mechanistic. They are build,
they function for a while, inputs go in and outputs come out, they eventually wear out, and must be
replaced. Knowledge is biological rather than mechanical in its fundamental nature – it is discovered, it changes, it grows, and multiplies over time pretty much on its own. Living things can’t be build, and are difficult to control, instead they must be nurtured and cared for. Thus, the knowledge based era of human progress will require greater understanding of and respect for living systems, including people.

The transition to the post-industrial paradigm of sustainable agriculture is but small parts of the great transition that is taking place all across society. The questioning that is driving changes in agriculture, however, exemplifies the broader questioning of society that is fueling the great transition. The questions relate to sustainability – is society in general, or agriculture in particular, sustainable over time?

Using almost anyone’s definition, concerns for sustainability imply concerns for intergenerational equity – meeting the needs of our current generation while leaving equal or better opportunities for those of generations to follow. The three cornerstones of a sustainable agriculture – ecological soundness, economic viability, and social responsibility – rest upon a foundation of intergenerational equity. An agriculture that is not ecologically sound, economically viable, and socially responsible simply is not sustainable over time. Sustainability applies the Golden Rule across generations.

Intergenerational equity has its foundation in human spirituality. Paraphrasing William James – a well-known religious philosopher – we may define spirituality as a "felt need to live in harmony with some unseen order of things." The sustainability issue ultimately is rooted in a perceived "need to be in harmony with the order of things" -- in spirituality. Finding harmony with a higher order requires an understanding of that order – wisdom not power and control. Sustainable farming means farming in harmony with nature – nurturing nature rather than dominating or manipulating nature. Sustainable farming means farming in harmony with people – within families, communities, and societies. Sustainable farming means farming in harmony with future generations – being good stewards of finite resources.

However, sustainable agriculture also requires economic viability. A farm is not sustainable unless it makes sufficient profits to stay in business financially. Sustainable farming systems generate profits by fitting the methods of farming to the farm, the farmer, and the community – not forcing either to fit some predefined prescription for productivity. Thus, sustainable farming must be knowledge-based – knowledge of how to work with nature rather than against it. Sustainable farmers must match their unique abilities and talents with their land, their community, and their markets. This requires a higher level of understanding of consumer tastes and preferences and the uniqueness of relationship markets. Sustainable farming requires a higher level of understanding of the land and of nature’s productive processes. In general, sustainable farming requires more intensive resource management – more thinking and creativity per acre or land or dollar of investment. Sustainable agriculture if very much in harmony with a knowledge-based paradigm for future human progress – the post-industrial era of human development.
Wendell Berry, a Kentucky farmer, has clearly articulated the connections among people, the land, and sustainable agriculture.

"...if agriculture is to remain productive, it must preserve the land and the fertility and ecological health of the land; the land, that is, must be used well. A further requirement, therefore, is that if the land is to be used well, the people who use it must know it well, must be highly motivated to use it well, must know how to use it well, must have time to use it well, and must be able to afford to use it well" (p. 147).

The words of Wendell Berry, the farmer and writer, are completely consistent with Peter Drucker, the industrial business consultant and writer,

"In the knowledge society into which we are moving, individuals are central. Knowledge is not impersonal, like money. Knowledge does not reside in a book, a databank, a software program; they contain only information. Knowledge is always embodied in a person, carried by a person; created, augmented, or improved by a person; applied by a person; taught by a person, and passed on by a person. The shift to the knowledge society therefore puts the person in the center (p. 210 )."

Sustainable agriculture, the new vision for the future of agriculture, is a knowledge-based approach to meeting the food and fiber needs of society that decreases the importance on capital and technology by putting people at the center of productivity.

The New Sustainable Farm

Farming sustainably is no simple task. But, thousands of farmers are finding ways to sustain a desirable quality of life for themselves and to support their local communities while being good stewards of the land and the natural environment. They may carry the label of organic, low-input, alternative, biodynamic, holistic, permaculture, or no label at all, but they are all pursuing common economic, ecological and social goals. By their actions, these farmers are defining a new kind of farm.

These new farmers are a diverse lot, but they share a common pursuit of a higher self-interest. They are not trying to maximize profit, but instead are seeking sufficient profit for a desirable quality of life. They recognize the importance of relationships, of family and community, as well as income, in determining their overall well being. They accept the responsibilities of ethics and stewardship, not as constraints to their selfishness, but instead, as opportunities to lead successful lives.

These farmers, these common people, are the architects of the new farm. These farmers, not the experts or the scientists, are the ones on the new frontier – they are the explorers, the colonists, the revolutionaries, and the builders of a new world. Life is difficult on the frontier because no one really knows how to do what these folks are trying to do – they are creating the future. They are
getting little help from the government, their universities, or the agricultural establishment. They are doing it pretty much on their own. They will continue to confront hardships, frustrations, and there will be some failures along the road. But, more and more of these new farmers are finding ways to succeed.

There are no blue prints for the new farm. But a few fundamental principles are beginning to emerge. In general, the new farming opportunities arise directly from exploiting the weaknesses resulting from misuses of industrialization -- specialization, standardization, and centralized decision making. The new farm relies instead on the advantages of diversity, individuality, and decentralized networks of interdependent decision-makers.

New farmers focus on working with nature rather than against it. The natural resource base that ultimately must sustain productivity is inherently diverse. Industrial systems have had to bend nature -- to augment, supplement, alter, and force it -- to create an allusion of conformity out of diversity in order to meet the demands of large-scale, industrial production. The ecological problems arising from industrialization are symptoms of natural resources being used in ways that are inherently degrading to their productivity. Thus, industrialization has created tremendous opportunities for farmers who learn to utilize the inherently productive capacity of a diverse natural resource base, rather than wasting time and money trying to force nature to conform.

These new farmers utilize practices such as management intensive grazing, integrated crop and livestock farming, diverse crop rotations, cover crops, and inter-cropping. They manage their land and labor resources to harvest solar energy, to utilize the productivity of nature, and thus, are able to reduce their reliance on external purchases inputs. They are able to reduce costs and increase profits while protecting the natural environment and supporting their local communities.

New farmers focus on value rather than costs. They realize that each of us values things differently, as consumers, because we have different needs and different tastes and preferences. Industrial methods are efficient only if large numbers of us are willing to settle for the same basic goods and services – so they can be mass produced. So, industrialization has to treat us as if we’re all pretty much the same. Customers have to be persuaded, coerced, and bribed to buy the same basic things rather than the things they really want. That’s why we pay more for packaging and advertising of food than we pay to the farmers who produce the food. The industrial system creates tremendous untapped opportunities for farmers who can tailor their products to conform to unique needs and preferences of individual customers, rather than try to bend the preferences of customers to conform to their products.

New farmers market in the niches. They market direct to customers through farmers markets, roadside stands, CSAs, home delivery, or by customer pick-up at the farm. They use everything from the Internet to word of mouth to advertise their services. They market to people who care where their food comes from and how it is produced – locally grown, organic, humanely raised, hormone and antibiotic free, etc. They are often able to avoid some or all of the processing,
transportation, packaging and marketing costs that make up 80 percent of the total cost of mass marketed foods. They increase value, reduce costs, and increase profits while protecting the environment and helping to build stronger local communities.

New farmers focus on what they can do best. They realize that we are all different -- as producers as well as consumers. We have widely diverse skills, abilities, and aptitudes. Industrialization has had to "bend people" -- train, bribe, and coerce them -- to make people behave as coordinated parts of one big machine rather than as fundamentally different human beings. Many social problems of today are symptoms of people being used by industrial systems in ways that are inherently degrading to our uniquely human productive capacities. Thus, industrialization has left tremendous untapped economic opportunities for farmers and others who can use their unique capacities to be productive rather than attempt to conform to systems of production that just don’t fit.

These new farmers may produce grass finished beef, pastured pork, free range or pastured poultry, heirloom varieties of fruits and vegetables, dairy or milk goats, edible flowers, decorative gourds, or dozens of other products that many label as agricultural "alternatives." They find markets for the things they want to grow and are able to grow well rather than produce for markets where they can’t compete. Or they may produce fairly common commodities by means that are uniquely suited to their talents. Their products are better, their costs are less, and their life is better because they are doing the things that they do best. New farmers focus on creating value through uniqueness – among consumers, among producers, and within nature.

In general the new farmers link people with purpose and place. By linking their unique productive capacities with unique sets of natural resources to serve the needs and wants of unique groups of customers they create unique systems of meeting human needs that cannot be industrialized. The more unique their combinations of person, purpose, and place, the more sustainable will be the value to customers and producers alike. The sameness of industrialization creates opportunities for unique farmers who can create unique linkages with both resources and customers.

New Opportunities for Beginning Farmers

These new ways of farming represent new opportunities for beginning farmers. Lack of land and capital typically are the two greatest barriers confronting beginning farmers. However, by relying on more intensive management, sustainable farmers are able to make greater economic returns per acre of land or dollar of capital investment. They are able to sustain a more desirable quality of life on smaller farms – farms which require less land and capital. These new farmers simply reverse the process of the past, that has resulted in larger farms, by substituting hands-on management and labor for capital and labor-saving technology. Some refer to this process as increasing the "eyes per acre" ratio, or using the "managers footprints" as the primary amendment to the soil.

This does not imply that all small farms are sustainable or that intensively managed large farms
are not. It simply means that farming sustainably requires a greater reliance on management, and as a result, requires less land and capital to produce any given economic return. This means that a beginning new farmer will need less land and capital to get started than will his or her conventional farming neighbors.

The new sustainable farms tend to be more labor intensive because they rely less on costly labor-saving technologies such as pesticides, commercial fertilizers, and high-tech equipment. This does not mean that new farmers rely on drudgery work such as hoeing weeds by hand, spreading manure with pitchforks, or plowing with horses – although such practices may fit some small scale farming operations. New farmers are just more likely to rely more on tillage than on chemicals to control weeds. They take the time to get manure back on the land where the feed was grown. They may use older, smaller, or cheaper equipment that does the job just as well, but takes more time.

Sustainable farmers also are more inclined to "swap work" with other farmers when possible. However, most sustainable farmers do not consider manual labor to be degrading, nor are they reluctant to pay a decent wage for a decent day’s work when they need extra help. Cash costs of labor are likely to be far less than costs of the technologies they replace because the farm family often does most if not all of the work on their farm. However, even hired labor presents less of a financial obstacle than does expensive farm inputs and large investment in high-tech equipment. Thus, it requires less money to begin farming by more labor-intensive methods.

Substituting labor for capital and inputs has definite limits. The key to successful new farms is more intensive management. Beginning new farmers will need more knowledge and understanding of natural ecosystems – soils, crops, and livestock – than will conventional farmers. They also will need a better understanding and appreciation of people – their customers, themselves, people in general; than will their conventional neighbors. However, knowledge typically is easier to acquire and accumulate than is money – at least for those who are willing to invest the time and effort to learn. The knowledge needed to make a living by managing intensively is available to nearly anyone, by means such as independent study, apprenticeships, and ordinary work experience. For most, it’s easier and more practical to learn more than to save or borrow more money.

In addition to lower initial costs, cash operating expenses for new farms are less as well. Sustainable farmers tend to be low input farmers. They use crop rotations, cover crops, and integrated crop and livestock systems to break pest cycles, maintain soil fertility, recycle wastes, and add value to products before they leave the farm. Low-input farming requires a higher level of management. But those who succeed with low-input methods are able to reduce or eliminate cash costs of pesticides, fertilizers, feed, and other inputs that must be purchased by conventional farmers. Thus, cash operating expenses are less for the beginning farmer who farms by more sustainable methods.

New farms are inherently less risky than are conventional farms. Intensive management invariably leads to a more diverse farming operation – more different crops and livestock enterprises,
greater stability of yields and production from year to year. Industrialized systems are specialized systems. Specialization tends to maximize potential yields when adequate quantities of all inputs, including water, are provided at the right time, but, consequently, tend to have greater yield variability over time because deficiencies of one or more inputs often limit yields. Systems that rely less on external inputs, and instead rely more on natural production processes, may have limited maximum yield potential, but tend to have more stable yields over time. A greater diversity of enterprises also reduced whole-farm production and market risks. When yields of some enterprises are down, others are likely to be up. When prices for some commodities are low, other are likely to be high. Profits tend to offset losses, limiting the potential for big profits but also limiting the risks of big losses.

Sustainable farmers build strong relationships with their customers, with other farmers, and with people in the local community. Relationships are important in sharing information, sharing labor, and in maintaining profitable direct markets. Relationships can translate into economic as well as social and ethical rewards – although relationships based solely on economics seldom last. Most important, a person’s capacity for caring, sharing, and ethical behavior is not limited by a lack of land or capital. Thus, the beginning farmer who succeeds in cultivating positive relationships can live better with less land and money. Farming sustainably isn’t just about making more money – it’s about having a better quality of life, economically, socially, and ethically.

New farmers may have more difficulty borrowing money to begin farming because agriculture lenders don’t understand what "new farming" is all about. Some new farmers may succeed in educating their lenders – particularly if they can point to some successful new farmers as proof that new farming makes economic sense. They can point that new farms require less land and initial capital, have lower operating expenses, are more diverse, and thus, are less risky for lenders than are conventional farms. The new farmer is the one who takes the most risk, by making the initial investment in learning to manage intensively. New farmers can improve their odds for both getting and paying back a loan by outlining a carefully developed business plan – which includes not only the farm production plan but the plan for marketing and cash flow. New farmers often will have to research and supply information concerning markets and prices for crops, livestock, and value-added products that are not common to farms in the area.

In spite of their best efforts to educate lenders, many new farmers probably will have to put up more equity, more of their own money, than will conventional farmers. They may have to work longer, individually or as a family, and save more money before they can begin farming. One member of the family may have to continue working off the farm, at least for a period of time, and commit one salary to repaying a loan or paying for production expenses. While this may seem an unfair imposition, it may actually turn out for the best in the long run. More farmers have gone broke by borrowing too much money than by being able to borrow too little. More beginning farmers have gone broke by trying to begin farming on their own before they really knew enough to farm successfully than by having to wait too long after they actually knew enough to farm on their own. The security of an off-farm income can be very comforting, even if it is not actually needed, when a family is beginning something new on their own. Thus, difficulty in borrowing too
much money too soon may actually be a positive rather than a negative for new farmers.

In general the new sustainable farmers must put more of themselves into their farms – as managers, workers, neighbors, friends, family – as people. But farming in harmony; economically, socially, and ethically, allows the farm, the farmer, and the family to become part of the same whole. So, there is no conflict between the personal, interpersonal, and spiritual because they work in harmony for a common purpose – to achieve a higher self-interest. A measure of economic success is necessary for harmony and balance, but getting wealthy is not a priority. A smaller farm may be better than a big farm – not only does it require less money up front, but it leaves more time for family and for caring for the land. So by putting more of themselves into a farm, sustainable farmers are better able to get started with less land and less money, and thus, are more likely to succeed.

New farms for the new century will center around people. New farmers will rely far more on knowledge than on capital or technical inputs. Knowledge is not impersonal, like money or technology. Knowledge does not reside in a book, a databank, or a software program – these things contain only information. Knowledge is always discovered by a person, enhanced by a person; taught by a person, and put to use by a person. The transition to the knowledge-based society will bring people back to the center of society and will bring people -- farmers, customers, citizens, -- back to the center of farming. New farms for the new century will create new opportunities for people.

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"A quiet revolution is sweeping across American agriculture." This was the theme of a videotape about sustainable agriculture in the early 1990s. That revolution still continues today, but the time for quietness has passed. We are in the midst of crisis in American agriculture. The crisis, like the revolution, has been a quiet one. Thousands of farm families are being forced off the land, and we are being told that it is an inevitable consequence of technological progress. The only alternatives farmers are being offered is to get bigger, give in to corporate control, or get out. But, there are better alternatives for farmers and for society. The time for quietness has passed.

Crisis in agriculture is a chronic symptom of the type of agriculture we have been promoting in this country for the past fifty years. But, the current crisis is the result of a brazen attempt by the giant corporations to take control of agriculture away from family farms -- to complete the industrialization of agriculture. But, industrialization is not inevitable, nor is it progress. The people of America must be told the truth before it’s too late. The time for quietness has passed.

There’s a better way to farm, a better way to produce food and fiber, and a better way to live. We are here to celebrate the birth and nurture the growth of that new kind of farming. We are here to proclaim a new era in American agriculture -- an era in which we learn to support people through agriculture rather than sacrifice the well being of people to support the industry of agriculture. We need to tell our story to the American people. It’s time to proclaim a new agricultural revolution. The time for quietness has passed.

Sustainable agriculture and industrial agriculture are two fundamentally different philosophies -- diametrically and irreconcilably opposed. There is no common ground on which to compromise. They reflect fundamentally different perceptions of how the "world works" and how we should live as a part of that world.

As one who pursues sustainability, your task in made more difficult by institutions that see industrialization as the only viable option for the future. If the government subsidizes your industrial competitors with everything from tax concessions to direct farm program payments, your task is made more difficult. If you are denied access to traditional markets and prevented from marketing direct to customers by a maze of complex government regulations, your task is made more difficult. If you are denied equal access to the research and educational resources of your public institutions, your task is made more difficult. Those who believe agriculture is mostly about products and profits – not people, have made your task more difficult. To them, if food is made cheaper or more convenient, it doesn’t really matter who produces it or how it is produced – just as long as it meets minimum government standards. But, people do matter. It’s time for something more than a "quiet" revolution.
A year ago, at this time of year, I was recovering from unanticipated open-heart surgery. I was fortunate enough to have previously checked out a book, "The life and major works of Thomas Paine." Thomas Paine, as you will recall from your history lessons, was a writer during the American Revolution. He was credited with articulating the ideas of the revolution in terms that could be understood by the "common man." In fact, he signed his early writings with the pen name "Common Sense." Paine’s pamphlets were distributed widely throughout the colonies, and invariably regenerated public support for the cause of democracy – saving the revolution from failure on more than one occasion. The writings of Thomas Payne provide some valuable insights into how to keep a revolution from failing – at least when the cause makes common sense. Sustainable agriculture, like freedom and democracy, is a cause that makes common sense.

First, Paine gave no quarter to the enemy of freedom and democracy – the British monarchy. Nothing in Paine’s writings could be mistaken for impartial objectivity when he was critiquing the sins of the monarchy. He stuck with facts and stated the truth, but he bothered with only one set of facts and one side of the truth. He left some of the facts, the other side of the truth, and the lies to be told by his opponents – the Loyalists who opposed the revolution.

Second, Paine’s papers always went beyond criticism. He always went on to extol the great benefits that would be realized by the colonies once they had shed the yolk of Great Britain. He painted a vision for the future of a free and democratic America. He countered each British claim of what the colonies would lose with a counter-claim of what the colonies would gain once they had won the revolution.

Finally, Paine’s writings never gave so much as a hint of doubt that the American colonists eventually would win their war for independence. When the British army occupied Philadelphia, for example, Paine called it clear and convincing evidence that the British could never win the war. If half of their army was required to hold just one town, how could they possibly control all of the vast regions of the American colonies? It was just plain "common sense" -- the cause of the revolution could not be denied.

We need a Thomas Paine approach to our movement to revolutionize American agriculture. We are not talking about gradual, incremental change in farming practices and methods; we are talking about a fundamentally different philosophy of farming. The differences between industrial agriculture and sustainable agriculture are as great as the differences between monarchy and democracy.

I am not talking about a revolution that must be fought on the battlefield, in the streets, or even necessarily in the halls of Congress. I am talking about a battle for the hearts and minds of the American people. We need to tell them the truth about what is happening to American agriculture and why. We need to tell them the truth about our new kind of agriculture – an agriculture that will sustain people, not just the industry of agriculture. And we need to give
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them common sense reasons why the old system cannot be sustained, and why a new sustainable agriculture is not a luxury but an absolute necessity.

The actual enemy of sustainability is your current economic system – a system that rewards the exploitation of natural resources and people, as did the British monarchy. But, the most visible, tangible epitome of that system is the large, publicly owned corporation. The corporation is the ultimate "economic man" – it is motivated always and only by its own short-run, self-interest. The corporation has no heart, it has no soul -- it is driven only by an insatiable need for profit and growth. The managers and workers in corporations may be good people, but they have no choice but to serve the corporation. They will be cast aside if they fail to satisfy the corporation’s need for continuing profit and growth. The enemy is not the people but the industrial corporation. This enemy should be given no quarter in the battle for the hearts and minds of the American people.

An industrial agriculture may be able to meet our food and fiber needs of today and maybe for another fifty years, but it is degrading and destroying the very resources – soil, water, energy, -- upon which its future productivity depends. An industrial agriculture is said to be efficient, but the enormous costs it imposes on the environment and on people in rural communities are not counted. An industrial agriculture promises profits for a few, but it is degrading both the resources and the people that it needs to sustain itself.

A sustainable agriculture, on the other hand, promises a desirable quality of life for many. A sustainable agriculture will enhance the natural environment and will strengthen relationships among people in rural communities and between rural and urban communities. A sustainable agriculture will be a profitable agriculture. Many environmentally sound and socially responsible farming operations already exist -- and many of those are as economically efficient as their industrial counterparts. We need to tell the general public that sustainability is not only possible, but is quite logical. We can have a sustainable agriculture – and we are already in the process of building one.

Ultimately we must have a sustainable agriculture. The question is not if, but when. The industrial agricultural system seemed quite logical at some time in the past, but it simply no longer makes sense. America’s version of industrial agriculture is very similar to the agriculture that failed miserably in the old Soviet Union – bringing down the country in the process. Some claim that our system is different – that we have free markets. But, we are turning agriculture over to multi-national corporations, and they are integrating and manipulating everything from genetic seed stock to the supermarket. They are eliminating all the free markets in between. They are replacing free market coordination with something similar to central planning. Our industrial agriculture is little different in principle from the old Soviet industrial agriculture, and the outcome will be the same – failure. The industrial system is destined to fail. We will have to replace it with something. Why not replace with something that’s sustainable?
You -- the farmers who are searching for ways to sustain people through agriculture -- are the architects of the new agriculture of tomorrow. You are on the new frontier -- the explorers, the colonists, the revolutionaries, and the builders of a "New World." Life is difficult on the frontier because no one really knows how to do what you are trying to do -- like the revolutionaries who were trying to create a democracy. You will continue to confront hardships, frustrations, and some failures along the road. But, that's the nature of being a revolutionary. Ultimately, you will succeed.

Never doubt that your cause is just. An industrial, corporate agriculture quite simply is not good for people, and thus, is not sustainable. It's just common sense. Never doubt that the goal is worth your efforts. Agriculture ultimately must sustain a desirable quality of life for people -- on farms, in rural communities, and in the cities -- not the corporate bottom line. It's just common sense. Never doubt your ultimate success. Human civilization cannot be sustained without a sustainable agriculture. It's all just common sense. It's time for a new revolution in American agriculture. It's just plain common sense.
The architecture of organic production has no single definition or description. Today, two groups of architects are competing to design the organic food system of the future. While the stated challenge of this conference is to seek “unity through diversity,” the most critical challenge confronting humanity today is to find “sustainability.” How can we meet the needs of the present while leaving equal or better opportunities for the future? Thus, “unity and diversity” must be viewed as means of achieving “sustainability” and not an end in itself. We cannot afford to sacrifice the principles of sustainability in our quest for unity.

The principles that support organic production today are being challenged by those who view the current biological and cultural architecture of organics as unnecessary constraints to future profits and growth of the organic industry. A sustainable architecture for organic production, however, demands that future profits and growth of organics be achieved by means that are in harmony with the biological and cultural principles that ensure ecological integrity and social responsibility. A system that is lacking in economic-, ecological-, or social-integrity is not sustainable. Unity achieved through compromise rather than complementarity, quite simply, is not sustainable.

Current organic farming and marketing systems were designed to support a philosophy of life – rather than provide a means of achieving prosperity. Organic farming methods are based on nature’s principles of production – on farming in harmony with nature rather than trying to conquer nature. Diverse organic farming systems, most of which integrate crops and livestock enterprises, are designed to capture solar energy, to recycle waste, and to regenerate the health and fertility of the soil. Organic farmers see themselves as stewards of nature. Organic
farmers also believe in living in harmony with other people – in cooperating with other farmers rather than competing. They view their customers as *people*, with whom they can maintain positive personal relationships, not as *markets* to be exploited for profits. They view “quality of life” as more than “standard of living.” Healthy food, a healthy environment, caring communities, and a strong society are seen as the natural products of pursuing an organic philosophy.

During the early 1900s, essentially all food was produced without commercial fertilizers and pesticides, simply because they weren’t available. During this time, use of organic methods wasn’t a matter of philosophy; it was a matter of necessity. However, some farmers continued to produce by organic means throughout the 20th century. They resisted, even defied, the dominant trend toward reliance on inorganic fertilizers and pesticides, which emerged from World War II chemical technologies. Those who farmed organically by choice, rather than necessity, became the leaders of the modern organic farming movement.

The modern organic movement developed outside of the agricultural mainstream and maintained an essentially separate food system until the late 1980s. Organic was of little interest or concern to the large, corporate food organizations until the rapid expansion in organic markets during the 1990s, when 20-25 percent annual growth rates were typical for the organic market. At these rates, the organic market more than doubles in size every three years.

Corporations in the food industry are under pressure to keep pace with non-food sectors in returns on investment and growth. For example, they must compete with pharmaceuticals, computer technology, Internet, and other high-tech firms for stock market investors. Since overall food consumption has been growing at rates far slower than growth rates in the non-food economy, food firms have been desperate to find alternative engines for economic growth. Their primary strategy has been to grow
through mergers and acquisition of other firms, but they also have been quick to seize upon opportunities presented by any fast growing food market segment – such as organics. They realize also that continued expansion of organic markets eventually will cut into profits from non-organic food markets. So the economic stakes for corporate control of organic food production and marketing are large.

Prior to 1990 most organic sales in the U.S. were direct transactions between farmers and consumers -- through local farmers’ markets, community supported agriculture (CSA), pick-your-own operations, or farmers’ roadside stands. Few organic retail food stores were in existence at that time and they generally were small consumer cooperatives that purchased directly from local farmers or marketed local produce on consignment. The organic food system, from producers to consumers, was essentially separate from the conventional system of mass production, mass marketing of food.

Over the past decade, however, the organic food system has changed dramatically. By 1997, more than 60 percent of total organic food sales in the US were accounted for by specialty retailers such as Whole Foods and Wild Oats (Gilmore, 1998). Organic sales through conventional US supermarkets grew by more than 40 percent per year during the 1993-1997 period – doubling their share of the overall organic food and beverage market in the process. These same basic trends have continued into the new century, and there is little doubt that specialty retailers and supermarkets now dominate total organic food sales in the U.S.

As food corporations joined the organic movement, they brought their own vision for the future architecture of organic production with them. Many of these new entrants, and would-be entrants, are “powerful players” in agriculture and food production, both locally and globally. They include such firms as Kroger, Albertson, and Wal-Mart of the food-retailing world. They include ADM, Cargill, and Con-Agra from food processing and
manufacturing. And, they include Monsanto, Norvatis, and Du Pont, as would-be providers of modified-genetics for future organic products. These firms threaten, perhaps purposefully or perhaps unknowingly, to transform the organic food sector into just another industrialized food system.

Many sincerely believe that the only route to future profits and growth through organics is to reduce cost and increase market access. To achieve these goals, they are using the same business strategies that they have used to transform food production in general from a family farm, local processor, mom-and-pop grocery store system to an industrial farming, mass distribution, supermarket system. They are moving toward greater specialization, standardization, and centralization of control of organic food production and distribution. This corporate philosophy of food production is putting even the most ardent philosophical organic farmers under increasing pressures to conform to an industrial organic architecture.

Pressures to make organics conform to a system of mass-distribution are pressuring organic producers to industrialize. Demands for large quantities of specific products to supply large numbers of retail outlets are forcing farmers to specialize. Demands for consistency and uniformity of product quality are forcing producers to standardize. And demands for dependability and timeliness of delivery are forcing producers to centralize control of production and distribution processes. Such operations can reduce costs – but only if they are operated at a large scale. So large-scale, specialized organic production systems are emerging in the U.S. to conform to the architecture of large-scale, industrial systems for foods in general.

However, most organic farms remain relatively small-scale and diversified, even though larger retailers deal primarily with the larger producers who can ensure quality produce, of consistent grade, uniformly packaged, delivered on a timely basis, at a competitive price. Few of the smaller
organic farmers have been willing or able to meet the large retailers’ standards. Thus, the bulk of mass retailers’ purchases are made from a handful of large-scale commercial organic operations. Anecdotal information indicates that U.S. organic retailers only buy sufficient quantities from local farmers to lend an element of credibility to their claims of selling locally grown foods.

The oft-stated motives for industrializing organics is to make organic foods more accessible and acceptable to more consumers, to enhance the healthfulness, safety, and quality of food supplies, to expand markets for farmers, and to protect the environment from commercial fertilizers and pesticides. While these motives may seem logical, the consequences may be far different than initial expectations -- for consumers, for farmers, and for the environment.

The fundamental principles of the industrial architecture are specialization, standardization, and centralization of control. Adam Smith, the father of contemporary economics, expounded on the potential gains in productivity through specialization – as he called it, division of labor. Division of labor, put simply, means that each laborer specializes in performing a single task, or a limited number of tasks, in the production process rather than attempting to perform the entire process. By performing fewer tasks, each laborer could perform their specific tasks much more efficiently. Thus, several specialized workers, by coordinating their work, could produce far more than could an equal number of workers working independently.

Specialization alone is not adequate to capture the full benefits of industrialization. Industrial systems also require standardization, so that each function in the production process can be specified for the purpose of dividing responsibilities -- the output of each stage of production must fit the input requirements of the next. Also, when different organizations perform different functions, standardization is required so a given producer can obtain and utilize the same input materials from a number of different
suppliers.

Industrialization also requires centralization of command and control. Specialization results in increased efficiency only if each stage in the standardized production process is coordinated with the others. Coordination is achieved through centralization – fewer people telling more people what to do and when, where, and how to do it. If each specialized worker performs his or her specific task, but does so independently, the process is not likely to be efficient.

Centralized command and control allows each decision-maker to control more resources – to achieve economies of scale. Thus, industrialization is characterized by large-scale operations. Large organizations require large amounts of capital, thus, and large “publicly owned” corporations have evolved to meet the capital requirements of industrial organizations. The separation of the management and financing functions, characterized by corporate ownership, is but another means of specializing within an industrial organization.

In spite of pressures to specialize, standardize, and consolidate into larger operations, most organic farms remain diverse, individualistic, and decentralized. At present, most organic farms are still small and diverse. Organic farmers are as varied in as the natural ecosystems and communities that support them. Most sell their products direct to their customers, relying on their personal reputation rather than organic standards to ensure product integrity. They are still making their living through decentralized local niche markets rather than industrial mass markets.

A 1998 survey conducted by the Organic Farming Research Foundation indicated that nearly 90 percent of U.S. organic farms are single-family operations or family partnerships. More than 60 percent are full-time farming operations, but the average size of an organic farm is only about
140 acres – just over one-third as large as the “average” US farm. Only one-out-of-seven farmers responding to the survey reported annual total sales of more than US $100,000. Thus, organic farming in the U.S., at least in terms of farm numbers, is still dominated by small, family farms. In terms of annual sales, organic farms are not greatly different from the average of all U.S. farms – which includes a large proportion of small farms. However, the proportion of full-time organic farmers is far larger than the proportion of full-time conventional farmers.

In the future, however, small, diversified family farms will not be able compete economically in a fully industrialized agriculture – neither in organic nor conventional production. The number of farms in the U.S. has dropped dramatically over the past several decades and it’s generally conceded that there will be few independent producers left producing basic agricultural commodities in the US in another ten to twenty years. Corporate control of input and marketing sectors will force farmers to become contract growers within vertically integrated systems that control all aspects of the system from genetics to retailing. Until recently, organics had seemed to be among farmers’ best alternatives to avoid either giving in to corporate control or getting out of farming. Now it appears that organic production may become industrialized almost as quickly as conventional farming.

But, organic farmers do not have to become a part of the industrialized food system. Organic farmers can join with other small farmers in developing an alternative food system that can coexist with, and someday displace, the global-industrial, corporately-controlled food system. Independent organic farmers may well lose the battle to keep industrial agribusiness from dominating the mass production and mass distribution of organic foods. But, smaller, organic farmers can still compete effectively for the fast-growing and profitable organic niche markets – both locally and internationally. And more important, small-scale organic farming can be carried out by means that are ecologically and socially sustainable over the long run, whereas, industrial organic production
The Architecture of Organic Production
cannot.

The sustainable agriculture movement offers the best hope for the future success of small-scale, independent organic producers. The sustainable agriculture movement reflects a philosophy of life that is quite compatible with the current organic philosophy. In fact, one might logically argue that all sustainable systems of agriculture production ultimately must be organic systems — although all “organic” systems most certainly are not sustainable. However, the industrial philosophy is fundamentally incompatible with the concept of agricultural sustainability.

The architecture of sustainability is currently competing with the architecture of industrialization for the future of organic agriculture, as well as for the future of agriculture in general. In essence, a sustainable agriculture is one capable of meeting the needs of the present while leaving equal or better opportunities for the future. Consequently, all sustainable systems must be ecologically sound, economically viable, and socially responsible. These principles define the architecture of sustainability.

A system lacking in any one of the three simply is not sustainable. It isn’t necessary to prove this proposition; it’s just plain common sense. Any system that uses up, or degrades, the productivity of its natural resource base cannot sustain production, and thus, is not sustainable. Any system that fails to provide an adequate economic return to producers eventually will become financially insolvent, and thus, is not sustainable. And, any system that fails to meet the needs of society, either as consumers or as producers, will not be sustained by society, and thus, is not sustainable. The economic, ecological, and social dimensions of sustainability are like the length, width, and depth dimensions of a box. An agricultural system lacking in any one of its three dimensions is not sustainable, just like a “box” lacking in any one of its three dimensions is “not a box.”
Organic production methods address most directly the ecological dimension of sustainability. True organic systems are inherently ecologically sound systems of production – they rely on the regenerative capacity of nature. The primary challenge of organics is economic viability. The economic challenge must be met through efficient management of natural resources so as to minimize costs, and through effectively marketing to customers who are concerned about food safety and nutrition and who most value ecologically and socially responsible production. Such consumers realize that, over the long run, humanity must pay the full ecological and social costs of food, and not just the short-run economic costs.

The final dimension of sustainability, social responsibility, includes social justice and social equity. This is the dimension of greatest advantage for philosophically organic producers. Small-scale organic farms are management intensive – they require more thinking, caring people per acre and per dollar invested. They require people who understand how to work in the dynamic, living systems rather than simply follow someone else’s “recipe” for farming. Thus, they provide opportunities for more people to make a better living farming, while providing consumers with an adequate supply of safer and more healthful food. Consequently, they provide the foundation for reconnecting farmers and consumers in a society made up of healthy, viable rural communities.

The architecture of sustainability is defined in terms of economic, ecological, and social principles rather than in specific farming methods or practices. Sustainable production methods are individualistic, site specific and dynamic. Sustainability for a given farmer, on a given farm, and at a given time may be different from those of another farmer, on another farm, or at a different point in time. Thus, sustainability cannot be standardized. Sustainable farming systems are inherently diverse because nature is diverse and sustainable farming must be carried out in harmony with nature. Thus, sustainable production cannot be specialized. Finally, since sustainability cannot be standardized or specialized, it cannot be centrally
controlled or consolidated. Thus, a sustainable agriculture cannot be industrialized.

It follows directly, that an industrial agriculture quite simply is not sustainable, regardless of whether it might be defined as “organic.” The growing ecological problems associated with conventional agriculture are a direct reflection of conflict between the diversity of nature and the specialization of industrial farming. The chronic economic problems of conventional farmers is a direct reflection of the specialization and standardization of farming methods, which demand that farms become larger and fewer by forcing other farmers out of business. The demise of family farms, the decay of rural communities, and much of the social decay within the larger society are directly related to separation of people and the destruction of relationships that accompany industrialization. An industrial agriculture, quite simply, is not sustainable.

Sustainable organic farmers must reject the industrial architecture. They must develop instead a food system that is compatible with the principles of sustainability. This alternative system may continue to rely on direct marketing through niche marketing methods, or may evolve into a flexible, decentralized, producer-agent-customer network. Regardless of how it evolves, it will not be an industrial system.

Sustainable organics may require government protection, at least to allow truthful labeling of products with respect to diverse production methods. Sustainable farmers may also require protection from predatory pricing tactics of industrial food producers. At the very least, sustainable organic producers should demand elimination of current government subsidies for industrialization of agriculture – conventional or organic.

However, small-scale sustainable producers can survive, with or without government help, and eventually can displace industrial agriculture – in fact, must displace industrial agriculture, if civilized human society is to
survive on earth. But, sustainable producers must put more of themselves into their operation if they expect to survive, prosper, and ultimately succeed in replacing an industrialized agricultural economy. Sustainable agriculture may require more labor, but there is a limit to how hard anyone can work – at least, while maintaining a desirable quality of life. Thus, the key to sustainable organic production will be to manage more “intensively” – to apply more imagination, innovation, creativity, and thinking per acre farmed or dollar of investment.

Sustainable farmers must match their unique abilities and talents with their land, their community, and their markets. This requires a higher level of understanding of themselves, their capabilities, their values, and their purpose in life. This requires a higher level of understanding of consumer tastes and preferences and of the uniqueness of relationship markets. This requires a higher level of understanding of the land and of nature’s productive capacities. Sustainable farming is thinking farming. It requires an ability to translate observation into information, information into knowledge, knowledge into understanding, and understanding into wisdom. Sustainable farming is not easy, but the reward is a broader and higher quality of life.

Today’s organic farmers must choose between the two alternative architectures now competing for the future of organics. To choose wisely, they must realize that industrial organic production is no more sustainable than is the chemically dependent conventional production they seek to displace. Perhaps unity can be found among the diverse opinions competing for the future of organics. Perhaps a system may be devised by which industrial organics initially displace conventional food in the industrial food system, while allowing sustainable organics to continue to evolve to serve the growing local niche segment of food markets. But eventually, niche marketing must become the dominant form of marketing, if agriculture is to be sustainable globally. We must create an agriculture that conforms to the diversity of nature and of humanity, rather than bend and twist nature and humanity to fit an industrial architecture. But first, we
must move beyond thinking of organic as a means of food production, to seeing organic as a philosophy for sustaining human life on earth and a philosophy for quality living.

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2 John Ikerd is Professor Emeritus, University of Missouri, Columbia, MO – USA. E-mail: JEIkerd@AOL.COM web site: http://www.ssu.missouri.edu/faculty/jikerd
Who Owns America

Land Use Planning for Sustainability

John Ikerd

University of Missouri

Presented at the Western North Carolina Land Use Forum, Asheville, NC

Who owns America? We generally presume that America is owned by the people of America. But, which people of America – all of the people, or just those people who own personal property? Who owns the space that constitutes the geography of America – all of the people or just those people who “own” land? Those who own something get to decide how it is used. So the answer to the question, “Who decides how land is used?” also answers the rhetorical question of “Who owns America?”

Land use decisions in the United States have their foundation in the economic concept of private property. In America, those who own private property may do with it pretty much as they see fit, including exchanging ownership with others, as long as it does not interfere with the private property rights of others. Restrictions on use of privately owned land, therefore, are limited to restricting actions that might affect use rights to other property held by other individuals.

With relatively minor exceptions, land use decisions are determined by the economics of the market place. Provisions are made through laws of eminent domain to acquire private property for public use, without the consent of owners, but not without just economic compensation to current landowners. Only land uses of a criminal nature, deemed to be of clear public harm, may be restricted without compensation.
Land use may be restricted by various types of zoning as well. But in reality, economic considerations commonly dominate planning and zoning decisions. The question invariably becomes how to maximize economic development with the minimum negative impact on community residents. Requests for changes in zoning are typically motivated by a desire to put land to a higher economic use. Opposition to changes typically is motivated by the desire to protect private property rights. Communities rarely use the tools of planning and zoning to ensure the long run ecological and social well being of the community as a whole.

So, with minor exceptions, private property may be put to its highest economic use. The concept of highest economic use gives legitimacy to competing private property rights, but commonly ignores, or even denies, any right of the community, the public as a whole, to participate in all land use decisions. Economic theory treats a community as a collection of individuals, not as an entity with rights separate from, or in addition to, those of individuals of which the community is composed. In addition, conventional economics does not even consider potential ownership rights of future generations. Rights of intergenerational transfer of ownership are based on the premise that to prohibit or limit such transfers would unjustly restrict current private-property rights. Free market economics makes no provision for future generations, other than those reflected in the self-interests of current decision-makers. Thus, economics drives land use decisions in the US.

The question of long-run sustainability presents a serious challenge to conventional economic thought as the foundation for land use decisions. Over the past decade, many different people have used a variety of definitions of sustainable development. However, the underlying theme of nearly all such definitions is one of intergenerational equity – a responsibility to meet the needs of the current generation while leaving equal or better opportunities to those of all generations to follow. In common language, sustainable development applies the Golden Rule across generations – doing for those of future generations, as we would
have them do for us if we were of their generation and they were of ours.

The three cornerstones of sustainability are ecological soundness, economic viability, and social justice. Any system of development that is not ecologically sound eventually will diminish or destroy the foundation for its productivity, and thus, is not sustainable. Any system that is not economically viable will not be able to maintain control over use of its resources, and thus, is not sustainable. And any system of development that doesn’t meet the needs and expectations of society will not be supported by society, and thus, is not sustainable. The three are not separate goals or objectives, but instead are three separate dimensions of the same whole -- as with the three dimensions of a box; height, length, and width. Any object lacking any one of those three dimensions quite simply is not a box. Any system of development that is not ecologically sound and economically viable and socially responsible just quite simply is not sustainable over time. All are necessary and none alone or any pair is sufficient to ensure sustainability.

Thus, sustainability requires that we look beyond the economics of short-run, self-interest to the broader set of issues affecting quality of life or human well being over time. Sustainability requires that we raise our economic thinking above short-run, self-interest to consider the long run health and productivity of the natural ecosystem, not just the optimum means by which it may be exploited for our short-run gratification. Sustainability requires that we broaden our economic thinking beyond self-interest to consider the well being of the community, or society, as a whole, not just the sum of the welfare of individuals who make up a community or society. The economics of self-interest is an important dimension of sustainability, but it is but one among three. Things ecological, social, and economic must be considered as complementing dimensions of the same whole, not as competing objectives that can be pursued separately.
The inadequacies of short-run economics in guiding long run decisions can be made clear through an illustration using fairly basic economics. The economic theory involved in this illustration may seem unduly burdensome to those not familiar with economics. But it’s important to understand that an appropriate interpretation of economic theory supports a sustainable use policy that is very different from the land use policies of the US today.

The illustration is based in production economics. Production economists relate production, or output, to the use of various production inputs through something they call a production function. Output is assumed to be “a function of” – a consequence of – the use of inputs. Inputs can be either classified as variable inputs or fixed inputs. Fixed inputs are those things that contribute to production, but are assumed to be fixed in quantity during a given time period. The amount of output within a given time period then will be determined by the amount of variable inputs applied. For example, in the case of crop production, for any given year, land is generally assumed a fixed input and fertilizer would be a typical variable input. The production or yield of the crop then is said to be a function of the amount of fertilizer applied.

All economically relevant production functions are characterized by three stages of production, although the first and third stages are rarely observed in actual practice. During both the first and second stages of production, as more variable inputs are applied production increases – more input results in more output. However, during the first stage of production, each additional unit of input results in more output than did the previous unit of input – output is increasing at an increasing rate.

If it is profitable to produce at all, it will be profitable to increase input use until the end of the first stage – to increase inputs as long as each added input results in more output than did the previous unit. In some cases, money to purchase variable inputs may be limited. In such cases, it would be better to let some of the fixed input go unused than to limit the use of
inputs to some point in the first stage of production. For example, it would be more profitable to let some of the land remain idle than to limit the amount of fertilizer per acre to some point in stage one of production. As long as production is in stage one, increased yields from applying more fertilizer to fewer acres would more than offset reduced yields from farming fewer acres.

At the beginning of stage two, each additional unit of inputs still adds to total output, but begins increasing output by a smaller increment than did the previous unit of input. Output is still increasing, but at a decreasing rate. It may be profitable to continue increasing input use during stage two, but only so long as the value of each incremental increase in output exceeds the cost of an additional unit of input needed to produce it. So the optimum amount of inputs used will depend on the added amount of output per additional input, price received for the output, and cost for inputs. Higher prices received for the output and lower costs of inputs increase the optimum level of input use and consequently the optimum level of output. For example, if corn prices are high and fertilizer costs are low, it will be profitable to apply more fertilizer and produce more corn per acre than if corn prices are low and fertilizer costs are high.

The third stage of production begins at the point where additional quantities of variable input result in decreases, rather than increases, in output or production. This stage of production may not seem too logical when applying fertilizer to a crop in a field, but it would be obvious if you were trying to raise a corn crop in a flower pot. At some point, the added fertilizer will begin to inhibit growth and may actually kill the plants rather than nourish them. At any point in stage three, it would be more profitable to use less, rather than more, variable inputs per unit of fixed input – as less input would result in more output. In other words, beyond this point, production can be increased only by using more of the “fixed” input. In case of crops, beyond stage two, production can be increased only by cultivating more land.
The rational range of production is defined by stage two. At any point in stage one, greater production could be obtained by using less of the fixed input and at any point in stage three more output could be obtained by using less of the variable input. It simply doesn’t make sense to use more of either fixed or variable inputs to get less output, even if all inputs were free. This leaves stage two as the only economically rational range of production. During stage two, total production is increasing, but at a decreasing rate. As indicated previously, it is not possible to determine the economic optimum level of production without knowing prices of production and inputs. But, if there is a profit to be made, it will be made somewhere within stage two, the range of rational economic production.

The separation of stages of production also provides some other useful information about efficient use of fixed and variable inputs. The end of stage two is the point of maximum total output from a given amount of fixed input – for example, the maximum yield of corn from an acre of land. Consequently, at the end of stage two, the cost of “fixed input” per unit of output is at its minimum – e.g. the cost of land per bushel of corn is at its minimum.

Conversely, at the point marking the beginning of stage two, total output per unit of variable input is at its maximum. Beyond that point, each increase of input results in smaller increments of output, thus reducing total output per unit of variable inputs. Thus, at the beginning of stage two, the cost of “variable input” per unit of output is at its minimum – e.g. the cost of fertilizer per bushel of corn is at its minimum.

Although we cannot determine optimum levels of input use without knowing prices of output and inputs, we can draw some important conclusions regarding optimum land use under some fairly general conditions. For example, we know that if variable inputs were free, it would always be profitable to increase their use to the point of maximum total production per unit of fixed input, the end of stage two. Increases in value
of production that would be feasible prior to that point could be achieved without any added cost. We also know that if land were free, it would never be profitable to use inputs beyond the point of maximum production per unit of variable input, the beginning of stage two. Any increase in production beyond that point could be achieved at a lower cost by using more land rather than by applying more variable input to a lesser amount of land.

Even an intuitive grasp for the meaning of the three stages of production is sufficient to understand some fairly critical conclusions regarding the economics of land use. From a short-run economic perspective, production should be increased beyond the point of minimum cost of inputs, the beginning of stage two, to a point where value of additional production no longer exceeds added cost of inputs. If inputs become cheaper or new technology allows more production per unit of input, the optimum level of input use will move nearer the end of stage two, to higher levels of production in pursuit of more profits. As a consequence less land would be required than before to produce any given level of optimum total production.

This is the economic rationale for the politically motivated “high-yield” farming movement. The basic argument is that if we use more commercial inputs and new production technologies to increase production per acre of land, more land can be set aside for wildlife and other non-agricultural uses. Alternatively, if we rely on less input-intensive farming methods, total production will fall, making it necessary to farm more land to meet the food and fiber needs of people. This would require the use of more environmentally fragile lands, some of which is currently set aside for wildlife. It is not likely a simple coincidence that high-yield farming maximizes input use and is supported by those who sell or promote inputs – thus, the political motivation for its promotion. However, the economic argument is valid only from the perspective of short-run, self-interest economics.
The conclusions are totally different if we instead take a long run, sustainable economic perspective of the land use question. Nearly all the agricultural inputs that are variable in the short run are fixed over the long run. For example, fossil fuels, commercial fertilizers, pesticides, and machinery are all derived from finite, non-renewable stocks of natural resources. Thus, the long-run supplies of such inputs are finite or fixed, not variable, although their use in the short run may be variable.

In the long run, our only variable resource is solar energy. Living organisms, including people, represent renewable resources, but living organisms are dependent on finite natural resources as well as solar energy. Every productive resource on earth quite realistically can be depleted, even used up, over some finite period of time. But, the continuing supply of energy from the sun is expected to continue for billions of years into the future. Solar energy is as close to being an infinitely renewable variable resource as anything that humans can conceive.

Geographic space is required to capture solar energy. Land occupies geographic space. Thus, land – as space – serves as a proxy for the only long run, variable resource. Of course, land has characteristics other than space -- such as topography, organic matter, texture, and water holding capacity – which influences its productivity and potential market value. But, the non-spatial aspects of land are finite, and thus, may be depleted over time. Land as space, while fixed in total at any point in time, represents a virtually infinite supply of solar energy that may be utilized in varying quantities over time, and thus, represents a variable long run resource.

Ironically, those things that are variable in the short run are fixed over the long run, and the one thing most fixed in the short run. As we should expect, that which appears to be optimum from a short run perspective appears to be far from optimum when one takes a long run perspective.
Returning to stages of production, since solar energy is the only variable resource and since it is free, the economic optimum input use and output will be at the beginning of stage two. In the long-run sustainable context, this is the point where production per unit of long run fixed resources (short run variable) is maximum. This also is the point where we get the maximum possible total production from the only long run variable resource, and the only unlimited and free resource, which is solar energy.

Conventional economic theory claims that maximum production from use of short-run variable (long run fixed) inputs will be ensured by competition. However, conventional economic assumptions have several critical flaws. The most obvious is a lack of competition, at least competition in an economic sense. The persistence of ten to twenty percent annual returns of investment in the food industry, for example, is clear evidence that profits are not competed away, as would be necessary to maximize the efficiency of input use. However, even in competitive economic sectors such as farming, competition does not ensure minimum costs of production, and thus, maximum efficiency in use of resources. Successive innovations force farmers to continually move from adoption of one new technology after another, limiting the competition among farmers using the same technologies and preventing markets from reaching their theoretical competitive equilibrium.

Even more critical flaws of conventional economics relate to assumptions concerning the nature of fixed and variable resources. In the short run economic situation, fixed resources, such as land, are assumed to have no cost. By assumption, they have no alternative use within the short-run timeframe, and thus, no opportunity cost. However, land is not assumed to be free in the sense that additional land could be obtained without cost. If fact, the opposite is true. Economists assume that in the short run no additional land is available at any cost. If land costs were included in short run economic analysis optimum use of variable inputs would always exceed the point of maximum efficient use.
When considering the long run, all inputs are variable, and land will never be a free economic resource. In a market economy, land will always have a positive price. There will always be more people who want to control and use land than there will be land available. In a market economy, the control and use of land is rationed by price, and the greater the demand for a given supply, the higher will be the price. As a result, a conventional long run competitive equilibrium would always result in over-utilization of non-renewable inputs and under-utilization of land. So, even economic competitive markets would not ensure efficient land use in short run and virtually ensures the misuse of land over the long run.

Where does this leave the argument for high-input, high-yield agriculture? The only logical conclusion is that high input use, while resulting in high yields in the short run, simultaneously depletes finite stocks of inputs at higher than optimal long run rates. The result is lower than optimum total production over the long run, and ultimately, greater than optimal reliance on solar energy and land use, over the long run, as input stocks are depleted. In the long run, more land will be required for agriculture, leaving less land for wildlife and other uses, because productive inputs will have been prematurely exhausted. Thus, high-yield agriculture makes economic sense if one is pursuing short-run self-interest, but makes economic nonsense if the goal instead is long run sustainability.

So what does all this mean for land use planning? It means that markets cannot be allowed to allocate the use of land as space. This is the most important conclusion of the foregoing illustration of short run versus long run economics. The same reasoning holds for any type of land use where non-renewable materials are placed upon the land to create something of economic value. Markets place positive prices on economic inputs, resources, and products. Those things that are most scarce – that are less available relative to the aggregate desire and ability to posses them – will command the highest market prices. Higher prices both ration the scarce supplies among those who are willing and able to pay and provide an
incentive for increased production to reduce the scarcity. Higher prices limit the use of resources and inputs in scarce supply and simultaneously encourage increased production to reduce the scarcity. But land, as space, cannot be allowed to have a positive price without misallocating its use, and higher land prices quite simply cannot create more space.

Land prices guide the use of land toward its highest valued short-run economic alternative – whether for residential development, factories, farms, or wilderness. Those using outdated economic theory have falsely assured us that we will realize the highest total value from a given stock of land by allowing free markets to allocate land use. Some portion of the total value of land will reflect its inherent productive capacity, whether in agriculture, recreation, or other land-based production processes. That portion of land value can be allocated by market prices. However, much of the value of land represents its value as space – a geographic place to carry out some activity, or simply as space to be held or controlled. The value of land as space must be allowed as a public good.

More specifically, land as space, as a collector of solar energy, must be treated as a free resource if we are to achieve its long run, optimum use. Any market value placed on land as space will cause it to be used too intensively, using too many finite or non-renewable inputs on too little land, and will deplete resources at a faster than optimum rate. Thus, long run sustainability will require a rethinking of fundamental concepts of private property, specifically of what it means to own land.

The concept of private property has never meant the right to do whatever one chooses with the property they own.” Conditional” ownership was always implied, if not always stated. A new condition on land use is needed to ensure sustainability. Land “ownership” cannot convey any right to degrade the productivity of land, if land is to be used sustainably. Thus, the “owner” of land cannot be allowed to possess, and thus cannot convey to another, the right to use land in ways that are inconsistent with long run...
societal well being. If society, rather than the individual, makes the ultimate decisions regarding how land is used, land as space will have no market value because there will be no right of alternative use for its owner to convey. Its price will reflect only that portion of its value that is associated with its potential productivity in its current use.

Traditional remedies to unsustainable land use, such as lawsuits and environmental regulations, will not provide lasting solutions. Traditional remedies are based on the principle of conflicting self-interest, rather than the collective interest of the community as a whole. Lawsuits, at best, only compensate individuals who are damaged by the actions of another – even in the case of class actions. Environmental regulations invariably reflect some compromise among conflicting individual interests, which settles to some minimum common denominator in a society driven by short-run, self-interest. Communities must find the courage and the means to act as a whole, for the long run well being of the community as a whole, considering both current and future generations. Sustainable land use is not a matter of compromise among conflicts; it is a matter of finding harmony within.

Communities may use zoning laws to pursue their objectives where they are allowed to do so under current state law. In cases where state or national laws prevent a community from protecting its resources from economic exploitation, the laws must be changed. But zoning, as currently practiced, is only a “band aid” treatment for a potentially fatal disease. Those with the greatest economic interests ultimately prevail. New means must be found for allocating land use that will remove any economic incentive for rezoning land to allow more intensive uses. Land must be treated as a commonly managed natural resource, rather than an economic commodity that can be bought and sold to the highest bidder.

Civil laws are clearly designed to protect property rather than people – to bring a civil case, one must have suffered some loss that has private, economic value. In civil court, those without property, and no potential to
acquire it, can have no claim because they have nothing to lose. Cases brought to protect the “rights of future generations” make no sense to those who view protection of private property as the only legitimate role of the courts.

The inherent common property nature of land as space certainly is not a new concept. In 1796 revolutionary writer Thomas Paine, in his paper, Agrarian Justice, pointed out that all land was initially held in common. Thus, the previous removal of land from the commons deprived those of later generations of their common birthright – the right of access to land. Initially, land could only be removed from the commons if there was as much and as good land left for any others who chose to claim it. Consequently, land taken from the commons had no market value – by definition, it could not be scarce. A similar argument can be made to support the rights of future generations to as much land as good land as we have today. And to protect this right, land, as space cannot be allowed to have a market value.

Economist, Henry George in his 1879 book, “Progress and Poverty[1]” proposed that all use value of land be taxed away to prevent the pricing of land as a market commodity. A more logical approach today might be to devise a policy for capturing any increases in land values attributable to rezoning for higher market valued uses in order to compensate those whose land is rezoned to lower-valued uses. This would remove any economic incentive for current or future owners to rezone land to either higher or lower valued uses, and would make it much easier for the community as a whole to make logical long run land use decisions. A similar capturing of capital gains in land values attributable to growing population demands would remove speculative incentives for land ownership and would generate public funds to sustain and enhance the productivity capacity of land.

Sustainable development ultimately will require that land use decisions be
made by means that find harmony among long-run economic, social, and ethical or moral concerns. It makes no more sense to buy and sell the right to *misuse* land than to buy and sell the right to misuse another person. Land, particularly land as space, is a fundamental resource upon which all life depends. It cannot be allowed to belong to anyone individually or to us in total as a collection of individuals -- just as people cannot belong to other people. Land belongs to the earth just as people belong to the earth, to the collective *us* as a whole -- inseparable, indivisible, across all generations.

We may logically buy and sell those things that enhance the productivity of land -- for those uses with impacts that fall within the realm of legitimate self-interest. But we cannot allow markets to allocate the use of land as space. We may logically decide some land use issues by a vote of the people -- for those uses with impacts that fall within the realm of community interests. But, many uses of land as space have impacts on future generations, and future generations cannot vote. Such land use decisions must reflect our fundamental values concerning the responsibilities of being human. Such issues cannot be resolved by economics or politics; they rest on a fundamental code of ethics or morality. They arise out of a consensus of what is fundamentally right and wrong.

Many issues concerning the natural environment are fundamentally moral or ethical issues. We should not be buying and selling pollution rights, because no individual has the moral right to pollute in the first place, and thus, has no right to sell it. Businesses may argue that society has given them that right, through the political process. But, no society has the right to pollute, so it cannot convey that right to a business or anyone else. Pollution of the environment is fundamentally, morally wrong, the same as it is morally wrong to kill, to steal, or enslave. The environment can assimilate some level of waste, as society can tolerate certain amounts or kinds of killing, stealing, or enslaving. But, those things are still morally and ethically wrong, regardless of the ability of society to survive them.
We don’t condone or encourage them by allowing people to openly buy or sell the right to enslave another person, nor vote on whether one person should be allowed to kill another for personal reasons. We cannot prevent pollution, but it is always morally wrong to degrade the natural environment.

No one has the wisdom to plot a true course toward a sustainable human society. At this point in time, we simply don’t know how we can meet the needs of the current generation while leaving equal or better opportunities for those of future generations. But, we are beginning to learn some things that we cannot do. We cannot allow the economics of short-run, self-interest to determine the use of our land. We know that the relentless pursuit of profits and growth will degrade and eventually destroy the resources upon which the future of human life on earth depends.

The people who “own” the land do not “own” America – they only own a right to use the land. No one really “owns” the land, but we people do have a responsibility to see that the land is used wisely. We all share this responsibility – all of us equally. Thus, we must be given an equal voice in deciding how the land of America is to be used. Ultimately, we must reach a consensus to use the land sustainably, if there is to be a future for America and Americans. Ultimately we must discard the outdated paradigm of short-run, economic self-interests for a new paradigm of sustainable economic, ecological, and social development. We may not own America, but it is still our responsibility to ensure that the land of America in used sustainably.

Environmental Risks Facing Farmers

John E. Ikerd

University of Missouri


Farming is a risky business. Farmers always have had to cope with a wide variety of risks. But, environmental risk – at least the awareness of environmental risk -- is relatively new to most farmers. In fact, few people had even heard the word "environment" before Rachel Carson’s book, "Silent Spring," hit the best seller lists in the early 1960s. Farming -- specifically, use of agricultural pesticides -- was the primary focus of Carson’s warning of a coming spring when no birds would sing.

The first national Earth Day was celebrated in 1970, marking the formal beginning of the environmental movement in the United States. The Environmental Protection Agency (EPA) was formed in the early 1970s, at the insistence of a growing coalition of environmental activist organizations. National environmental policy was sidetracked in the 1980s, during the Reagan era, when almost anything that interfered with industry profits and growth was deemed unnecessary and inappropriate. However, the environment was not something newly created by activists. The environment has always been there, and it will never go away. The environment returned to the political agenda during the 1990s. Environmental issues – soil conservation and water quality -- became important dimensions of agricultural policy beginning with the 1990 farm bill. The environmental impacts of confinement animal feeding operations remains a volatile political issue in many parts of the country. The tide of environmental concerns may continue to ebb and flow, but environmentalism is here to stay.

Prior to the mid-20th century, we weren’t concerned about the environment because we were incapable of doing it any real harm. We were sufficiently few in numbers and our technologies were sufficiently benign that the environment could withstand or absorb just about anything we could do to it. We could destroy the productivity of natural resources, such as farmland and forests, and we could pollute the streams with minerals and chemicals, but then, we could always move on to some new environment and start over again. We didn’t have to stay and live in our "fouled nests". Left alone, the environment eventually would heal and restore itself.

But our numbers have grown and so have our appetites for things that are either pulled from or are dumped into the natural environment. Our extractive technologies have become more effective, and thus more destructive, and we have seemingly lost any will to refrain from doing
whatever we are capable of doing to satisfy our greed. Yet, common sense tells us that we are degrading and destroying our natural environment – the ecosystem of which we ourselves are a part. Environmental risks are real – both to individuals, farmers and others, and to the whole of human society. Our collective awareness of environmental risks, like the environment itself, is not going to go away.

Farmers interact more closely with their natural environment than almost any occupational group. They are among the primary reapers of the ecological bounty of the land – of nature’s yielding human needs and wants. But, they are also among the first to feel the impacts of their environmental mistakes – of nature’s fighting back to protect itself from harm. With every attempt to coax more from nature, there is an environmental risk to the one doing the coaxing – to the farmer.

Today, health risks -- from applying pesticides to crops or livestock, from drinking contaminated water, from breathing polluted air, and from association with animal hormones and genetically manipulated organisms – are ever-present factors in the day-to-day life of farm families and farm workers. Risks resulting from damage done first to the ecosystem – such as pollution of water and air with chemicals, sediment, and noxious odors – also affect farmers, but mostly affect those living downstream or downwind from the farm. They represent risks, none-the-less, to the farmer’s ability to farm – at least to farm using methods of their choosing. Environmental risks affecting the productivity of the land are more long-term and less direct – but are none the less real risks to the survival of farms and of farming.

**Risk versus Uncertainty**

Most environmental "risks" actually should be called "uncertainties" rather than risks. The word "risk" generally is reserved – at least in professional circles – for those things that have a quantifiable chance or probability of happening. The term risk also refers to something bad or unfavorable. For example, there is a definite risk of losing at the game of poker while holding a specific "hand" of cards -- losing is a bad outcome that has a specific probability or chance of happening. First, we know how many cards of what kind are in a deck, so we can determine the numbers of different "poker hands" – straights, flushes, full-houses, pairs, etc. – possible when a deck is dealt. With that information, we can determine the probability or odds of us getting the particular hand of cards we are now holding. And if we were smart enough, we could calculate the chance that anyone else at the table had been dealt a hand that would beat ours. The risk of our losing with a particular poker hand may not be easy to calculate but it has a definite probability of happening.

We often estimate risks for situations where the range of possibilities is not actually known, but where we believe we have reasonable estimates of what the probabilities may be. The risk of rain is one such estimate. The weatherman doesn’t actually know the probability of rain for any given day in the future, because a day in the future is not dealt from some known deck of all
possible days. Each day is brand new. But, forecasters may have observed a sufficient number of similar patterns in the past, and be sufficiently confident in the repeatability of those patterns, that they feel they can make quantitative predictions about weather in the future. The forecast of a sixty-percent chance of rain is such a prediction. Under similar conditions in the past, they estimate that in sixty-percent of those cases, it has rained the following day. So they say the chance, or risk, of rain is sixty percent.

Many risks in farming are of the same nature as the risk of rain. A farmer remembers, or collects information concerning, conditions under which bad things – crop failures, animal health problems, low prices, inability to get credit, accidents, etc. – have happened in the past. The future is never like the past, but past patterns may have an observable tendency to be repeated in the future. So farmers can calculate risk of a crop failure, for example, at the beginning of the season, based on past history of yields with similar soil moisture, weather patterns, etc. Risk estimates may change during the season as more information about this particular crop, such as planting date, germination, early weed pressures, etc., become known. The actual yield is never known with certainty until the crop is in the bin, but the risk or chance of a poor yield can be calculated at any point along the way.

Professional economic forecasters, market analysts, use this same basic approach. They use whatever information is currently available to identify past trends and current conditions that may affect production and prices in the future. They then estimate what they think is the most likely or most probable future price or production level – or range of prices and production levels. Some even estimate the chances that prices or production will fall below some specific levels, and thus, provide estimates of price or production risks. But, their estimates of risks are based on estimates of possibilities – they have no means of knowing what is actually "possible," let alone what is actually going to happen.

The premiums or costs for all types of insurance – including health insurance, crop-insurance, hedging and options – are based on similar calculations of risks. Whether the specific hazard covered by insurance will or will not happen is not known with certainty, otherwise there would be either no need or no ability to insure against it. In addition, the actual range or distribution of future possibilities cannot be known with certainty, because the future has never happened before. But, there is sufficient history of what has happened under similar conditions in the past – ill health, crop failure, and low prices – to allow the insurer to estimate the probability or chances of being required to pay claims of varying amounts. The insurance company’s risks of having to pay claims are actually risks that policyholders have shifted to the insurance company in return for the payment of premiums. Of course, insurance premiums include costs of operation and profits for the insurance company in addition to their expected claim payments.

Uncertainty is fundamentally different from risk. Uncertainty means that not only are future outcomes unknown, but even the distributions of possible future outcomes are unknown. Not only do we not know for sure whether our poker hand is good enough to win, we can’t even calculate the odds or chances of losing. Not only do we not know whether we are going to have
a crop failure, we can’t even calculate the probability of having a crop failure. We simply cannot forecast an uncertain future outcome with "any" degree of confidence. We cannot calculate a logical insurance premium, because we can’t calculate the probability or size of possible claims.

When an outcome is uncertain, the risks are unknown. We may have to make decisions under conditions of uncertainty, but we cannot logically calculate the risks of a wrong decision. Such decisions may be based on past experiences in similar situations, or on hunches or intuition, but they cannot be based on either known distributions of possibilities or empirical estimates of risks. Most decisions concerning the environment are of this basic nature.

Environmental Health Uncertainties

So called environmental risks are almost always environmental uncertainties. We simply do not know, nor can we know, the risks of future adverse consequences of our current encounters with nature. Not only do we not know the specific outcomes; we don’t even know the distribution or range of possibilities. There is no way that we can accurately assess the risk that something we do to the environment today will create, or not create, future harm. Thus, there is no way that we can obtain objective, unbiased estimates of whether current benefits obtained from our tinkering with the environment outweigh the risks of future negative consequences. Supposed objective cost/benefit estimates are mostly just guesses disguised by complex models and methodologies. Demands that we make decisions based only on such estimates – decisions based on "good science" – are demands that we accept the biased guesses of one particular group of scientists and not those of others.

Environmental uncertainties in farming include exposure of farmers and farm workers to commercial chemicals during application and exposure of others to air and water polluted by agricultural chemicals. Each of these cases embody significant possibilities that the actions of farmers today may do significant future harm to themselves, their families, their neighbors, society in general -- even to the future of humanity. Thus, decisions affecting the natural environment are critically important, in spite of the fact that neither farmers nor policymakers have unbiased, objective information upon which to base their decisions. There simply is no "good science" to guide them.

Pesticides are poisons designed to kill living things – bacteria, weeds, insects and fungus. Humans share a great deal of genetic material in common with other living things – including plants and insects as well as animals. So it should be no surprise that pesticides can have adverse impacts on human health, including death. Potential adverse health effects on farmers, farm workers and others living close to farms include cancer, respiratory disease, birth defects, and damage to the immune and endocrine systems of the body.

The active ingredients in many agricultural pesticides have been linked with cancer in humans
Environmental Risks Facing Farmers and other animals. However proof of direct causality needed to accurately quantify human health risk simply does not exist. It took more than thirty years to link tobacco smoking to lung cancer – one use of one product linked to one type of cancer. Environmental risks were hardly on the human health "radar screen" thirty years ago. Decades more of scientific inquiry may be required to disentangle linkages of the thousands of different combinations of agricultural pesticides to their consequences. Each chemical combination may be, or may not be, linked to one or more of a whole host of different types of cancer and other diseases. The whole linking process for agricultural chemicals is complicated even further by chemicals in the environment from a host of non-agricultural sources.

Disruption of immunity and endocrine systems can take so many forms and be characterized by so many different symptoms that it is mind-boggling to even think about how linkages of disruptions with multiple possible causes might be disentangled. Potential problems with human reproduction may take several generations to even become apparent. Health problems linked to odors may be linked to any combination of dozens of different chemical elements in a single "smell." The problem of analysis seems so complex as to have no solution in the foreseeable future. However, there is a growing body of empirical evidence suggesting that farmers are less healthy than are otherwise similar members of the general population, regardless of the source of their maladies.

Health threats to the non-farm population are similar to threats to farmers and farm workers – the linkages are just less direct. When agricultural chemicals get into the ground water or streams they may well show up in drinking water for someone at some point in time. But, it is difficult to predict precisely where and when. The chemical concentration may be less in a city's water supply than in a farmer's own well, or on a farmer's hands, but the health of far more people may be affected. And, it may be far more difficult to link cause and effect.

The EPA has established health advisory levels for concentration of chemicals in drinking water supplies. The goal is to err on the side of human health and safety in establishing these levels. But the fact of the matter is that advisory levels are little more than educated guesses. No one can say with any degree of certainty what levels of risks are associated with various levels of concentration of chemicals in drinking water – i.e. what probability of illness is associated with ingesting various amounts of water containing various concentrations of chemicals. They just "think," and hope, that the advisory levels are low enough to keep anyone from getting sick from drinking the water – or at least low enough so that drinking the water cannot be "linked to" any resulting illness.

Agricultural chemicals that escape into streams and rivers may travel for hundreds of miles before they enter the drinking water supply of some town or city. Long stretches of the Missouri River in the Midwest, for example, carry high concentrations of agricultural chemicals for several weeks following each spring planting season. Nearly every city along the Missouri either draws drinking water from the river or from relatively shallow aquifers in the river bottoms. No farmer individually may apply sufficient chemicals to cause harm. However,
Midwest farms collectively use enough chemicals to wreak illness on a whole city of people -- if they were to drink improperly treated water taken from the river at the wrong time of year. But if such a catastrophe happened, no one would be able to say for sure just who was to blame.

It is even more difficult to link specific illnesses to groundwater pollution and air pollution. Chemicals may migrate for miles through underground streams before they even surface in a stream or drinking water well. This process can take months if not years or decades. Particles of pesticides and other chemicals that dissipate into the air during application may attach to dust particles and be carried for miles before settling to the ground or falling as contaminated rain. In the process of migration, agricultural chemicals may become mixed with pollution from a host of other potential sources. It is virtually impossible to link any resulting human illness with a specific cause and its source.

Other Environmental Uncertainties

Agriculture presents additional risks, or rather uncertainties, to the environment beyond those reflected in health risks. The natural environment is a productive system. Agriculture utilizes natural systems to convert solar energy to human useful forms -- the fundamental purpose of agriculture. A healthy, functioning agroecosystem is an efficient, productive ecosystem. If the ecosystem is damaged -- its mineral resources degraded or depleted, its biological systems impaired -- the efficiency of the system is diminished and its productivity declines.

Agroecosystems rely on interactions among soil, water, and biological organisms -- including plants and animals -- to convert solar energy into food and fiber. Anything that threatens the integrity of this agroecosystem threatens the productivity of the farm. Examples of such threats include soil erosion, loss of soil fertility, and loss of biological diversity -- loss of diversity among organisms in soils, in the surface environment, or among plants and animals on the farm. The natural productivity of soils can be degraded through inappropriate use of agricultural chemicals as well as through use of inappropriate tillage and cropping practices. Either of these activities can cause loss of biological diversity of microorganisms in the soils, may change soil structure, reduce its inherent fertility, and impair its overall ability to function as a growing medium for plants.

Loss of biological diversity in insect and weed populations, brought about through continual reliance on commercial pesticides, may lead to continual increases in quantities and variety of pesticides needed to keep pest populations under control. Beneficial insects, insects that feed on pest insects, may be destroyed along with pest insects leaving commercial pesticides as the only defense against crop loss. Weeds that compete effectively with other weeds, but not with the crop, may be destroyed, leaving weeds that compete very effectively with the crop, but not with other weeds, to be controlled by commercial herbicides. If pests then become resistant to commercial pesticides, the natural controls of a biologically diverse ecosystem will no longer be in place to keep pests in check. The natural productivity of the system will have been degraded...
Crop rotations utilizing fundamentally different types of crops – grasses, legumes, cool season, warm season, etc. – help maintain soil quality and biological diversity both within and above the soil. Effective integration of crop and livestock systems may also enhance the natural productivity of farming systems. For example, most of the plant nutrients removed from the soil may be returned to the soil, in the form of animal manure, when animals, feed grains, and forage crops are all grown on the same farms. Planned rotation grazing of grasses may be used to manage pests and maintain biological diversity among plant species in pastures. In short, diversified farms are more "naturally" productive systems – requiring fewer commercial, off-farm inputs to maintain production levels.

Anything that diminishes the productivity of soils or reduces biological diversity represents a threat to the long run productivity of the farming operation. The actual consequences of such threats may take years, decades, or centuries to become readily apparent. Resistance to pesticides, particular insecticides, may take only a few growing seasons to develop. Loss of soil health and fertility may take longer, but is none the less a readily apparent consequence of past farming practices in all agricultural regions of the world. The negative impacts of specialized crop and livestock systems are even more indirect or subtle and more long term in nature. However, there is little doubt that specialized systems degrade the agricultural natural resource base – only the nature and magnitude of the degradation remains to be documented.

Modern industrial farming systems, characterized by specialization, standardization, and mechanization, are inherently reliant upon commercial inputs – pesticides and fertilizers – and upon cultural practices that threaten the natural environment. However, the multitude of complex linkages between industrial farming methods and environmental degradation make them very difficult to identify and quantify. In addition, those with strong vested interests in maintaining the industrial approach to farming discourage efforts to document and validate negative linkages between industrial agriculture and the natural environment. Thus, for the foreseeable future, the ecological threats to agricultural productivity will remain largely undocumented, unmeasured, unverified and thus uncertain.

Perhaps the most uncertain of all farm related environmental risks today are the risks associated with biotechnology. Quoting from an address by Peter R. Wills, Professor of Physics, University of Auckland in New Zealand, "Everything that happens in biology is based on endless orderly change, especially the flow of matter. The natural patterns and regularities of what we observe in biology depend on the maintenance or processes of change. This applies from the microscopic level of the cell... all the way to the biosphere."

"How this works cannot be understood solely in terms of material structure, whether we are talking about the proteins and DNA molecules in a cell, or the individual organisms existing in an ecosystem. The effects of a gene cannot be assessed by looking at the static relationship
between its sequences, the letters of the DNA message it represents, and, the characteristics of the organism to which it is related. The meaning of a gene is determined by the context in which it is expressed. It also contributes to that context. So, when we swap a gene from one organism to another, we cannot know in advance what all the effects will be. We cannot know even in principle."

"The type, speed and scale of genetic change now being undertaken will affect the dynamics of biological systems, ecology and evolution, at their very basis. Changes that cannot be assessed in advance will progressively propagate through the biosphere. The pattern of those changes cannot be expected to fit in with what we already know. The only thing we can know with certainty is that we do not know, and cannot in principle know, what the character of the ultimate outcome will be, except that it will be different from anything that we are familiar with." In biological engineering, we don’t know, and can’t know, not even in principle, what we are doing to the natural environment and what the environment will do in response – yet we seem committed to doing it. What better example of environmental uncertainty could one possibly devise?

A while back, the head of Monsanto’s biotech division gave a seminar on the University of Missouri campus. Their biotech division recently had been split off from their old chemical division -- which was a major player in creating our current chemically dependent agriculture. According to the speaker, the "new" Monsanto is developing new biotech systems of production that will allow agriculture to quit using the chemicals that are currently threatening the natural environment. The new Monsanto is trying to develop a "sustainable" food system, because the old chemically based agriculture isn’t environmentally sustainable. In other words, the new Monsanto expects to make billions of dollars in profit solving the problems that the old Monsanto made billions of dollars in profits helping to create.

The old Monsanto didn’t know, and couldn’t have known, what problems it would create through its development and promotion of agricultural chemicals. The ecological system is simply too complex to have allowed them to anticipate, with any degree of accuracy, the environmental impacts of using agricultural chemicals over a 50-year span of time. Monsanto and the biotech enterprises know far less today about the future impacts of biotechnology than they knew about agricultural chemicals fifty years ago. The only thing we can know for certain is that we don’t know, and can’t know, the nature or magnitude of environmental risks associated with biotechnology. Common sense tells us that these threats are potentially monumental, but are uncertain.

The bottom line is that most, if not all, environmental "risks" are actually not risks, but uncertainties. They cannot be quantified with any degree of accuracy, cannot be ensured against with any degree of confidence, and cannot be programmed into any risk-based process of decision making. Environmental uncertainties require a fundamentally different approach to decision-making.
The Precautionary Principle

So how should farmers, and others, make decisions in the face of growing ecological uncertainties? They should make decisions using the "Precautionary Principle" for guidance. "When an activity raises threats of harm to the environment or human health, precautionary measures should be taken even if some cause and effect relationships are not fully established scientifically (ToxicAlert)." In common sense terms, "it’s better to be safe than to be sorry."

The Precautionary Principle, as stated by a group of scientists and scholars, is as follows:

"The release and use of toxic substances, the exploitation of resources, and physical alterations of the environment have had substantial unintended consequences affecting human health and the environment. Some of these concerns are high rates of learning deficiency, asthma, cancer, birth defects, and species extinction; along with global climate change, stratospheric ozone depletion and worldwide contamination with toxic substances and nuclear materials.

We believe existing environmental regulations and other decisions, particularly those based on risk assessment, have failed to protect adequately human health and the environment – the larger system of which humans are but a part.

We believe there is compelling evidence that damage to humans and the worldwide environment is of such magnitude and seriousness that new principles for conducting human activities are necessary.

We realize that human activities may involve hazards, but people must proceed more carefully than has been the case in recent history. Corporations, government entities, organizations, communities, scientists, and other individuals must adopt a precautionary approach to all human endeavors.

Therefore, it is necessary to implement the Precautionary Principle: When an activity raises threats of harm to human health or the environment, precautionary measures should be taken even if some cause and effect relationships are not fully established scientifically.

In this contest the proponent of an activity, rather than the public, should bear the burden of proof.

The process of applying the Precautionary Principle must be open, informed, and democratic and must include potentially affected parties. It must also involve an examination of the full range of alternatives, including no action."

Farmers using the Precautionary Principle would select livestock and cropping systems giving
Environmental Risks Facing Farmers

as much or more consideration to their potential impacts on the environment as their impacts on production and profits. Certainly a farming operation must be profitable or the farmer will lose the ability to continue farming, and thus, lose the authority to make resource management decisions. But, for the farm to remain profitable in the long run it must also be ecologically sound and socially responsible. A farm that degrades or destroys the productivity of its resource base or pollutes its natural environment is not sustainable. Since threats to the environment are uncertain, the farmer should take great precautions to protect the environment and natural resources, as long as there is a reasonable chance to do so while maintaining profitability.

In cases where farmers feel compelled to put the environment at risk to maintain economic competitiveness, they should resort to the public policy process – at the local, state, or federal levels. The environment has public as well as private value dimensions. Thus, public policies should be devised to make it economically feasible for farmers to be precautionary in protecting the environment. Such policies may take the form of incentives for farmers to follow production practices that minimize environmental threats and uncertainties. In many cases, however, the environment will have to be protected by outright prohibitions on practices that threaten the natural environment. If all farmers face the same environmental regulations, no one is necessarily put at a competitive disadvantage to the others, and prospects for profits are not necessarily diminished. In these cases, society pays for environmental protection through higher market prices.

Voluntary restraints are the product of cultural or community norms and values. Decent people just don’t do some things, and decent farmers don’t willfully and deliberately destroy the natural environment. In most cases, however, there is no clear consensus concerning whether particular farming practices do or do not threaten the environment – their impact on the environment is uncertain. In these cases, farmers and policy makers alike should purposely err in favor of protecting the environment. Neither farmers nor policy makers can rely on risk/benefit assessments to make such decisions. Risks cannot be accurately assessed because the outcomes are uncertain. The potential threats to human health and the natural environment are potentially large, often irreversible, and inherently uncertain. Under conditions of environmental uncertainty, it makes common sense to proceed only after taking appropriate precautions.

References


Wingspread Participants (listed by name in reference), "New Principles to Protect
Environmental Risks Facing Farmers

A foundation is "the basis upon which something stands or is supported" (Webster). The basic premises of this discourse on "foundational principles" is that soil is the foundation for all of life, including humanity, that stewardship of soil is the foundation for agricultural sustainability, and that sustainability is the conceptual foundation for wise soil management.

All living things require food of one kind or another to keep them alive. Life also requires air and water, but nothing lives from air and water alone. Things that are not directly rooted in the soil -- that live in the sea, on rocks, or on trees, for example -- still require minerals that come from the earth. They must have soil from somewhere. Living things other than plants get their food from plants, or from other living things that feed on plants, and plants feed on the soil. All life may not seem to have roots in the soil, but soil is still at the root of all life.

The Making of Soil

First, I am not a soil scientist. I took a class in soils as an undergraduate and have learned a good bit about soils from reading and listening to other people over the years. But, I make no claim to being an expert. So I will try to stick to the things that almost anyone might know or at least understand about soil.

As I was doing some reading on the subject, I ran across a delightful little book called, "The Great World’s Farm," written by an English author, Selina Gaye, somewhere around the turn of the century. The copyrights apparently had run out, since the book didn’t have a copyright date. Back then people didn’t know so much about everything, so they could get more of what they knew about a lot more things in a little book. The book starts off explaining how soil is formed from rock, proceeds through growth and reproduction of plants and animals, and concludes with cycles of life and the balance of nature. But, it stresses that all life is rooted in the soil.

Initially molten lava covered all of the earth’s crust. So, all soil started out as rock. Most plants have to wait until rock is pulverized into small particles before they can feed on the minerals contained in the rock. Chemical reaction with oxygen and carbon dioxide, wearing away by wind and water, expansion and contraction from heating and cooling, and rock slides and glaciers have all played important roles in transforming the earth’s crust from rock into soil. However, living things also help create soil for other living things.

Lichens are a unique sort of plant that can grow directly on rock. Their spores settle on rock and begin to grow. They extract their food by secreting acids, which dissolve the minerals contained in the rock. As lichens grow and die, minerals are left in their remains to provide food for other types of plants. Some plants which feed on dead lichens put down roots, which penetrate crevices in rocks previously caused by mechanical weathering. Growth or roots can split and crumble rock further, exposing more surfaces to weathering and accelerating the process of soil making.
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Specific types of rock contain limited varieties of minerals and will feed limited varieties of plants – even when pulverized into dust. Many plants require more complex combinations of minerals than are available from any single type of rock. So the soils made from various types of rocks had to be mixed with other types before they would support the variety and complexity of plant life that we have come to associate with nature. Sand and dust can be carried from one place to another by wind and water, mixing with sand and dust from other rocks along the way. Glaciers have also been important actors in mixing soil. Some of the richest soils in the world are fertile bottomlands along flooding streams and rivers, loess hills that were blown and dropped by the wind, and soil deposits left behind by retreating glaciers.

Quoting from the "Great World’s Farm," "No soil is really fertile, whatever the mineral matter composing it, unless it also contains some amount of organic matter – matter derived from organized, living things, whether animal or vegetable. Organic matter alone is not enough to make a fertile soil; but with less than one-half percent of organic matter, no soil can be cultivated to much purpose." After the mixed soil minerals are bound in place by plants, and successions of plants and animals added organic matter and tilth, the mixtures became what we generally refer to as soils.

The first stages of soil formation are distinguished from the latter stages by at least one important characteristic. The dissolving, grinding, and mixing required millions of years, whereas, soil binding and adding organic matter can be accomplished in a matter of decades. Thus, the mineral fraction of soil is a "non-renewable" resource – it cannot be recreated or renewed within any realistic future timeframe. Whereas, the organic fraction is a renewable or regenerative resource that can be recreated or renewed over decades, or at least over a few generations. Misuse can displace, degrade, or destroyed the productivity of both fractions of soils within a matter of years. And, once the mineral fraction of soil is lost, its productivity is lost forever.

If there are to be productive soils in the future, we must conserve and make wise use of the soils we have today. The soil that washes down our rivers to the sea is no more renewable than are the fossil fuels that we are mining from ancient deposit within the earth. In spite of our best efforts, some quantity of soil will be lost – at least lost to our use. Thus, our only hope for sustaining soil productivity is to conserve as much soil as we can and to build up soil organic matter and enhance the productivity of the soil that remains.

Humanity is Still Rooted in Soil

In times not too long past, the connection between soil and human life was clear and ever present. Little more than a century ago, most people were farmers and those who were not lived close enough to a farm to know that the food that gave them life came from the soil. They knew that when the soil was rich, the rains came, and the temperature was hospitable to plants and animals, food was bountiful and there was plenty to eat. They knew that when droughts came, plants dried out and died, and the soil was bare, there was little to eat. They knew when the floods came, plants were covered with water and died, and the soil was bare; there was little to eat. They knew very well that their physical well being, if not their lives, depended on the things that lived from the soil.

William Albrecht, a well known soil scientist at the University of Missouri during the middle of this century, hypothesized that people from different parts of the country had distinctive physical characteristics linked to the soils of the area where they grew up. He attributed those physical distinctions to differences in nutrient values of the foods they eat, which in turn depended on the make-up of the soils on which their foodstuffs were grown. Albrecht’s hypothesis was never fully tested. As people began to move from one place to another throughout their lives, and as more and more foodstuffs were shipped from one region of production to another for...
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consumption, people no longer ate food from any one region or soil type. But it’s quite possible that when people lived most of their lives in one place, and ate mostly food produced locally, their physical makeup was significantly linked to the make up of local soils. Today, we eat from many soils, from all around the world. Even today there is a common saying that "we are what we eat." If so, "we actually are the soil from which we eat."

The connection between soil and life is no longer so direct or so clear, but it is still there. Most urban dwellers also have lost all sense of personal connection to the farm or the soil. During most of this century many people living in cities either had lived on a farm at one time or knew someone, usually a close relative, who still lived on a farm -- which gave them some tangible connection with the soil. At least they knew that "land" meant something more than just a place to play or space to be filled with some form of "development." But these personal connections have been lost with the aging of urbanization. One of the most common laments among farmers today is that "people no longer know where their food comes from." For most, any real understanding of the direct connection between soil and life has been lost. It 's sad but true.

What's even sadder is that many farmers don't realize the dependence of their own farming operation on the health and natural productivity of their soil. They have been told by the experts that soil is little more than a medium for propping up the plants so they can be fed with commercial fertilizers and protected by commercial pesticides until they produce a bountiful harvest. In the short run, this illusion of production without natural soil fertility appears real. As long as the soil has a residue of minerals and organic matter from times past, annual amendments of a few basic nutrients – nitrogen, phosphorus, and potash, being the most common – crop yields can be maintained. Over time, however, as organic matter becomes depleted, production problems appear and it becomes increasingly expensive to maintain productivity. As additional "trace elements" are depleted, soil management problems become more complex. Eventually, it will become apparent that it would have been far easier and less costly in the long run to have maintained the natural fertility of the soil. But, by then much of the natural productivity will be gone -- forever. In the meantime, many farmers will have little sense of their ultimate dependence on the soil.

Still, all of life depends upon soil. All life requires food and there is simply no other source of food except living things that depend directly or indirectly on the soil. This is a foundational principle of natural science, of human health, and of social studies that should be taught at every level in every school in the world -- beginning in kindergarten and continuing through college. That we must have soil to live is as fundamental as the fact that we must have air to breath, water to drink, and food to eat. It’s just less obvious.

Soil, Technology, and Beliefs

Soil is being eroded at rates far in excess of the rate of soil regeneration – in the U.S. and around the world. Experts may debate whether or not society can maintain agricultural productivity while losing soil, but there is no argument that humanity is losing use of soil at rates far in excess of soil formation.

For example, U.S. government farm payments in recent years have been conditioned on "conservation compliance." An early proposal for conservation compliance was that soil loss must be limited to a rate of "T," the soil loss "tolerance" rate. T was defined as the estimated number of tons of soil that could be lost each year without reducing long run productivity. Estimates of T included liberal assumptions about improvements in production technology based on increases in yields in the past – which have resulted primarily from increased use of commercial fertilizers. T for most soil types, at least in the Midwest, was estimated at around five tons per acre per year.
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I have heard estimates that soil can be regenerated at rates ranging from something less than one ton per year down to a fraction of a percent of a ton per year -- depending on whether regeneration referred to renewing topsoil, the organic fraction, or to the total soil profile. Regardless, soil losses even at the rate of T would mean losses far in excess of regeneration. The ultimate farm bill definition of "conservation compliance" allows erosion rates well in excess of T. Soils not covered by the government program and land in many other countries of the world are eroding at still far higher rates – sometimes essentially unchecked by any form of soil conservation.

Since soil is essential to all life, and since we are losing soil at rates far in excess of rate of soil regeneration, how are we going to sustain life on earth? The current answer seems to be that we are going to rely on future advances in production technology. In other words, we apparently have faith that future technological advances will stay ahead of net soil loss so that we can feed more people better, or at least as many people as well, with less soil. But even under this assumption, eventually we would run completely out of soil. We would be back to bare rock. Can we reasonably rely on future technology to feed the world from bare rock?

In the early days of the Sustainable Agriculture Program I was at a meeting in Washington, DC. I made a statement that it should be obvious to anyone that soil conservation was an essential part of a sustainable agriculture because we simply could not sustain agricultural production without soil. After the meeting, a fellow came up and challenged my statement. He pointed out that production had continued to increase over the past hundred years or so, even though soil losses obviously had exceeded regeneration during this period of time, and there was no reason that this could not continue indefinitely. So I asked, what’s going to happen when there is no more soil to which to apply those technologies? His answer, "by then, we will be able to grow our food in the sea." My reply, "OK, let's say you are right, but what makes you think if humanity uses up all the soil it won’t also use up all of the productivity of the sea – what will they do then?" His answer, "By then they will be able to grow food on other planets."

The point of this discussion is that if people have a blind faith in human technology -- in the ability of people to conquer and remove all constraints of nature -- then they are not concerned about soil conservation or soil regeneration. In fact they are not concerned about the sustainability of agriculture, reliance on non-renewable energy, pollution of the environment, social or economic inequities, or anything else that has to do with the long run well being of humanity. They have a blind faith that any problem created by humans can be solved by humans. We are having to solve problems today that were caused by past generations so future generations will just have to solve any problems that we cause today. In their mind, those of us who don’t share this faith in the future are just a bunch of "Chicken Littles."

If lack of concern for long run sustainability were limited to the few who openly express it, there would be no problem. But, a passive belief of supremacy of "man over nature" seems to permeate much of society. It’s reflected in the way most people work, play, and live -- regardless of whether they have actually thought much about the future. They just assume that someone will always make more to replace whatever we use up, or if not, that we won’t actually need it. Maybe they are right, but what if they are wrong? What are the odds that people of the future won’t really need soil to live?

We need to understand that when we challenge people to stop and think about the long run, we are challenging their basic beliefs. Beliefs cannot be challenged with facts or logic. Beliefs arise from fundamental values, from mental models or world views. Facts have different meanings to different people depending on their specific mental models or the logic of their particular ways of thinking. Those mental models or ways of thinking are determined by beliefs concerning how the world works and where they think they fit within it. Beliefs cannot be proven, because all proofs depend on a specific set of beliefs. Thus, the only way to change the behavior of
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those who have a blind faith in technology is by challenging their world views, their beliefs – by asking them to rethink their assumptions about how the world works and their role within it.

**Spirituality -- the Foundation of Stewardship**

Soils of the earth will be saved only through a growing sense of stewardship -- among farmers, within communities, and around the globe. Conservation initiatives, including conservation compliance and public research and education, are all destined to fail in the absence of a strong sense of stewardship. We simply won’t have the necessary government programs, or we won’t enforce them, without a commitment to stewardship. Even the best of conservation practices will not be widely used, unless or until there is a consensus in support of human stewardship of the earth’s resources.

Stewardship, in general, can be defined as "the individual’s responsibility to manage his life and property with proper regard to the rights of others" (Webster). Using this general definition, those with blind faith in technology might argue that "no regard" for the rights of those of future generations is necessary, and thus, "no regard" is "proper regard." So stewardship of soil, in the sense of conservation and regeneration, must be based on something deeper and more fundamental.

Most references to stewardship, at least in the U.S., seem to be linked to the Christian faith. In Genesis 1:26 God said, "let man… have dominion over the fish of the sea, and over the birds of the air, and over the cattle, and over the earth, and over every creeping thing that creeps upon the earth." Genesis 9, begins with, "and God blessed Noah and his sons, and said to them, 'be fruitful and multiple, and fill the earth" (Holy Bible, Revised Standard Edition). Unfortunately, some have used these scriptures to justify their right to exploit the earth and everything upon it.

But, Jesus said in reference to stewardship, "Every one to whom much is given, of him much will be required" (Luke 12:48). "As each has received a gift, employ it for one another, as good stewards of God's varied grace" (1 Peter 4:10). And, "It is required of stewards that they be found trustworthy" (1 Corinthians 4:2). It would seem clear that whatever form of dominion we humans have been given over the earth, and over other living things, carries with it a responsibility to use those things for the long run benefit of humanity – not just for ourselves and not just for the current generation.

Benefits of true stewardship do not accrue to the steward, either in total or in part (Beverley and Ott). They accrue to someone else -- possibly some unknown entity(s) in some future generation in which the steward may not even have a direct descendant. Investments in stewardship are not made unless one feels some "spiritual" responsibility for the future of humanity. Spirituality may be associated with one’s religion, but it need not be. Religious practice is simply a means of fulfilling the responsibilities that one "believes" are inherent aspects of being a worthy human being. Those without spirituality will see no logic in taking care of the soil for the benefit of future generations.

Paraphrasing William James, a noted religious philosopher, "spirituality is a felt need to be in harmony with an unseen order of things." First, for a person to be spiritual, they must believe that some higher, unseen order of things actually exists. Next, they must feel some responsibility or need to conform to that order and to allow it to influence and shape their actions. A person who is spiritual feels a need to live in harmony with fundamental laws of nature, including human nature, which define a higher order.

Spirituality is embraced through a wide range of cultural beliefs, philosophies, and religions. A Native American,
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Chief Sealth, or Seattle, said: "Whatever befalls the earth befalls the sons and daughters of the earth. We did not weave the web of life; we are merely a strand in it. Whatever we do to the web, we do to ourselves." (Roberts and Amidon, p.10).

From another culture, "the most important characteristic of the Eastern world view – one could almost say the essence of it – is the awareness of unity and mutual interrelation of all things and events, the experience of all phenomena in the world as manifestations of a basic oneness" (Capra, p. 131).

An example of a Polynesian worldview: "The Kahuna told me, if you are looking for God, look out at the sea. Look to the horizon. Get in your canoe and go to the horizon. When you get there, you will meet God. God is nature. God is everything" (Pearsall, p. 121).

And, from a Jewish Prayer: "And God saw everything he had made and found it very good. And he said: This is a beautiful world I have given you. Take good care of it; do not ruin it...I place it in your hands: hold it in trust" (Roberts and Amidon, p. 62)

Aldo Leopold, the noted conservationist, expresses his spirituality quite simply in "A Sand County Almanac," "Examine each question in terms of what is ethically and esthetically right, as well as what is economically expedient. A thing is right when it tends to preserve the integrity, stability, and beauty of the biotic community. It is wrong when it tends otherwise" (Leopold, p. 262).

A common thread of all these expressions of spirituality is the existence of an unseen order that defines the oneness of all things. Rightness is defined as harmony with this oneness. It is wrong to create disunity or disharmony. We as people are a part of this higher order – of the whole. We may attempt to understand it and to have an influence within it, but we did not create nor can we change it. Thus, we must seek peace through harmony -- not dominance. In finding harmony with others around us, and for those of future generations, we find peace within ourselves.

Soil is formed and destroyed according to fundamental laws of nature that we have no power to change. When we conserve it, protect it, and maintain its natural fertility, we are working in harmony with nature – in harmony with the higher order of things. When we erode or degrade it, we are creating disharmony with nature – disharmony with the higher order of things. If we feel no spiritual sense of responsibility to take care of the soil, neither for future generations nor for any purpose other than our own narrow self interests, we have no true sense of stewardship for the soil. A true sense of soil stewardship arises only from a sense of responsibility for others, to be trustworthy caretakers of the web of life, to live in harmony with a higher order of things.

We humans have been given dominion over the soil of the earth. We can flush it down the rivers, poison it with salt and other chemicals, cover it with concrete, or farm it until it is "worn out." Or we can conserve and protect it from erosion, build up its organic matter, treat its deficiencies, preserve it as farmland, and farm it in ways that will sustain its productivity indefinitely. Dominion empowers us with choices, but stewardship enriches us with responsibility. We can be good stewards of the earth only if we choose wisely – to make investments for the benefit of humanity. The reward of true stewardship comes from knowing that we have done "the right thing," that we are acting in harmony with some higher order. The reward of true stewardship is harmony and peace within ourselves.

Stewardship and Sustainability
Soil stewardship is the foundation for a sustainable agriculture. A sustainable agriculture must be able to meet the needs of those the present while leaving equal or better opportunities for those of the future. Responsibility for sustainability applies the Golden Rule across generations – to do for those of the future as we would have them do for us.

An agriculture that meets the needs of both the present and future must be ecologically sound, economically viable, and socially responsible. All three are necessary, none alone nor any pair of two is sufficient. The three are inseparable, three dimensions of the same whole -- as the height, width, and length are three dimensions of a box. A box without all three is not a box, and an agriculture that is lacking in any one of the three quite simply is not sustainable.

Stewardship relates most directly to the ecological dimension of sustainability. We may attempt to be ecologically responsible for our own benefit – to protect ourselves from harm. Farmers presumably would not use chemicals in ways that destroy their health, poison their own food, or pollute their water supply. But, the ecological dimension of sustainability relates even more directly to making ecological investments for the benefit of others. Sustainability requires that we consider the health and well-being of those down wind and down stream. Sustainability requires that we conserve non-renewable resources -- soil, energy, clean air, and clean water -- for future generations. Thus, ecological sustainability is deeply rooted in a strong sense of stewardship – our responsibility to take care of things for the benefit of others.

The social dimension of sustainability relates to shared-interests – meeting the needs of us, today. In making social investments – giving some of what we have to benefit others -- we may expect rewards, but the rewards must be shared with others. We may make social investments for purely selfish reasons – we expect our share of the benefits to be greater than our share of the costs. But, we may also make social investments for purely altruistic reasons – we expect no direct benefit for ourselves, but benefit only from fulfilling our responsibilities for others. Stewardship, in the sense of "to whom much is given, much will be required" and "as each has received a gift, employ it for one another," can be a powerful motivation for fulfilling our social responsibilities.

The economic dimension of sustainability relates to short run self-interests – meeting the needs of ourselves, today. Economics does not deal with stewardship. Economic investments are made only when the investor expects a positive return for themselves. An investment for the benefit of others, stewardship, is economically irrational. Others may benefit from our economic investments, but benefiting others is not an economically rational motive. Stewardship is not the motive for economic viability.

The economic dimension is no less important than are the social and ecological dimensions in ensuring sustainability. A sustainable agriculture requires all three – an agriculture that is ecologically sound, socially responsible, and economically viable. Leopold said to consider the ethics and aesthetics as well as economics. One cannot be expected to take care of others unless they are able to take care of themselves. Treating others as we would like to be treated doesn’t mean much unless we expect to be treated well ourselves. Economic viability is necessary if a farmer is to maintain dominion over the resources for which they are to be good stewards. Or to put it bluntly, if a farmer goes broke, there is no way they can take good care of the soil.

Conflicts arise between economics and sustainability only because too often economics is allowed to dominate everything else. Economic viability is not the same thing as profit maximization. Sustainability requires a measure of profitability, but short run profit maximization invariable leads to ecological degradation and social exploitation. Sustainability requires balance and harmony among all three.
A sustainable agriculture requires that we be good stewards of the soil. We must manage and care for it in ways that are socially responsible and ecologically sound – through stewardship for the benefit of others both now and in the future. But, farmers can be a good stewards of the soil only if they can care for it in ways that are also economically viable. Quoting Wendell Berry, "if the land is to be used well, the people who use it must know it well, must be highly motivated to use it well, must know how to use it well, must have time to use it well, and must be able to afford to use it well" (p. 147). Stewardship is necessary, but stewardship alone is not sustainable.

**Sustainable Soil Management**

Soil conservation quite likely is the most widely embraced of all sustainable soil management practices and has been a major public policy issue for most of this century – at least since "dust bowl" days of the 1930s. If the soil is washed or blown away – to somewhere where it can’t be farmed – it is no longer useful to agriculture. Since it takes hundreds of millions of years to replace the mineral fraction of soils, erosion obviously degrades the long run sustainability of agriculture. However, interest in soil conservation obviously is not limited to those who identify with sustainable agriculture.

Conservation tillage, contour farming, strip cropping, terracing, and cover crops are all examples of farming practices designed to reduce erosion. All of these practices address the ecological integrity of agriculture – they keep the soil, the ecological foundation for farming, in place so it can be farmed. The social impacts of soil conservation are different for different practices. Conservation tillage that relies on bigger more costly equipment, for example, continues the push toward fewer, larger farms. Practices such as cover crops and strip cropping may favor smaller, more management intensive farms. Soil conservation practices also have economic benefits -- particularly over the long run. But, a lot of farmers apparently feel that the economic payoff is either too small or too long in coming – since it seems they must be bribed or coerced through government programs to protect their land from erosion.

The North Central Sustainable Agriculture Research and Education (SARE) program lists four different categories of research and education related to soil management; nutrient mineralization, soil microbiology, soil organic matter and soil quality. The SARE program lists soil conservation as a natural resource issue.

Nutrient mineralization includes a whole range of issues related to the processes by which the mineral fraction of the soil is made available to plants. Interest in nutrient mineralization is not unique to sustainable agriculture. However, sustainable agriculture research and education tends to focus on mineralization as the primary process by which nutrients are supplied to crops, rather than rely on routine replacement of nutrients through use of commercial fertilizers. Conventional, industrial agricultural production systems may be viewed as linear, input/output processes in which fertilizers, pesticides, etc. are inputs and crops are outputs. Sustainable agriculture is oriented toward a cyclical process focusing on interrelated nutrient, water, plant, and energy cycles. Commercial fertilizers are viewed as amendments or supplements that can supplement or strengthen natural mineralization processes. Crops can collect and make nutrients available to companion and succeeding crops, sometimes through animal intermediaries, in addition to producing marketable commodities. Sustainable systems keep reliance on external inputs to a minimum.

Soil organic matter is a popular management topic among sustainable agriculture advocates – particular those who prefer organic farming methods. Organic matter is in the fraction of the soil profile typically referred to as "top soil." Although plants can grow without a whole lot of it, no soil is really fertile unless it contains some amount of it. And, with few exceptions, soils with higher levels of organic matter are healthier, more productive
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Organic matter contains nitrogen, carbon, and other minerals, with proportions depending upon the source. Nitrogen, a critical nutrient for plant growth, appears to be the most important nutrient in organic matter that is not available to plants from the mineral fraction of soil. Nitrogen is abundant in the atmosphere but most plants cannot take it directly from the air – legumes being the notable exception. Nitrogen can be added from commercial sources, but nature’s way of supplying nitrogen is through soil organic matter.

Organic matter can be maintained by returning as much of the bio-mass as possible, from plant and animal sources, to the land on which it was derived. Organic matter can be enhanced in one place by adding bio-mass that was derived from crops grown elsewhere or by growing crops that add more to the soil than they remove. Crop residues, compost, livestock manure, and green manure crops are all sources of organic matter that can be managed to enhance the natural productivity of soil.

Organic matter, while a popular topic in sustainable agriculture circles, seems to receive far less attention in the conventional agriculture community – among both farmers and scientists. Perhaps it’s because commercial fertilizers are simpler and easier to use or because they are more profitable, at least in the short run. But, there is little doubt that organic matter, accumulated over decades of organic farming, is being mined from many soils across the U.S. and around the globe. Organic matter is taken seriously among farmers associated with the organic and sustainable agriculture movements. Some likely farm organically only because they are able to get an organic market price premium that makes organic methods more profitable. But, those who farm organically for philosophical reasons, and those who manage organic matter for sustainability, tend to balance stewardship with economics.

Soil microbiology relates to the living fraction of soil organic matter. The living fraction of soil contains a whole host of organisms ranging in size from bacteria to earth worms. Many of these organisms are involved in the process of turning crop residue and animal manure into soil humus – the non-living fraction of soil organic matter. One of the most visible indicators of a healthy, high organic matter soil, other than color, is an abundance of earth worms. However, soil microbiology deals with the smallest of soil organisms, including those that contribute to healthy, productive soils as well as those typically identified as diseases or pests. The purpose of soil microbiology is to understand the role of these organisms, individually and collectively, in affecting the health and fertility of soil. The focus of soil microbiology in conventional circles seems to be on controlling specific diseases and pests, while the sustainability folks tend to focus more on maintaining healthy, productive soils.

Soil quality relates to the whole range of attributes that determine the inherent productivity of a soil. Managing for soil quality is the essence of managing soils for sustainability. Soils that are richer in minerals and higher in organic matter, with a healthier community of living organisms, tend to be more naturally productive than are soils lacking in these characteristics. Not only do such soils provide more nutrients, they also hold more water and air, and provide an environment in which roots can more easily reach out for nutrients and down for water. As a consequence, plants that grow on high quality, organic soils tend to be less subject to stress, and thus, tend to have fewer insect and disease problems. A common recommendation in sustainable agriculture circles is to "manage the soil instead of the crop."

Threats to Long Run Sustainability

Threats to the long sustainability of the soil resource almost invariably arise from short-run, economic
Foundational Principles:

considerations. Nutrient management with commercial fertilizers and soil amendments is simpler, easier to standardize, and typically less costly in the short run. So it’s easier for a farmer to farm more land more profitably, in the short run, by using commercial fertilizers rather than maintain natural fertility through organic or sustainable approaches to soil management. As more farmers have adopted the input/output, industrial approach to soil nutrient management, total agricultural output has expanded, prices have dropped, and profit margins have been squeezed. Those who still manage for soil quality find themselves under increasing economic pressure to mine their soils for short run profits rather than maintain soil quality for long run economic viability. They have to survive the short run in order to be sustainable in the long run.

Additional problems arise from the separation of land ownership from actual farming. Restoration and maintenance of soil quality requires continuing investments in future productivity – and these investments may be substantial. If farmers don’t own the land they farm, how can they be sure their economic return on their investments in soil quality will not accrue to someone else – to the landlord? If instead the landlord is the one who would like to invest in soil quality, how can they be sure that their renter, the farmer, will not mine the soil for maximum year-to-year profit rather than help build the soil for long run sustainable yields?

The aging farm population presents still another challenge to sustainable soil management. Farmers who own land when they are young might reasonable expect to reap the economic rewards from investing in soil quality over much of their tenure of the farm. But as they grow older, they have fewer years over which to recoup the returns from their earlier investments. As the average age of farmers, already well over 50, moves higher, it becomes increasingly more difficult economically to justify investments in soil quality.

The industrialization of agriculture represents a threat to the soil greater than any we have yet seen. A publicly held corporation can allow no motive to take precedent over profit and growth. It has no heart, it has no soul, its only function is to maximize profit and growth for its shareholders. Agriculture of the future quite likely will be dominated by such corporations. For them, the long run is two to four years, and the only thing that really matters much is their quarterly dividends and week-to-week price of their stocks. Farmers who become corporate contract producers will be forced to conform to corporate standards of soil "stewardship." And, farmers who are convinced that they will be forced out of business by the corporations will have an economic incentive to mine their soil before they leave.

So where is the hope for humanity? All of life ultimately is rooted in the soil. If we destroy the productivity of our soils, we destroy the foundation for life, and ultimately we destroy ourselves. The hope for humanity ultimately resides in each of us. We are a part of the web of life that includes all things on earth. Whatever we do, or don’t do, affects the web of life – affects everything else on earth.

Hope for the future of humanity is in each of us. To realize this hope we must proclaim to all who will listen, by all means at our disposal, that all of life depends upon the soil. We must proclaim openly and without hesitance that we quite simply will not allow short run economic considerations to take precedent over soil stewardship. The economy is a creation of humanity for the good of humanity, we cannot allow it instead to destroy humanity by destroying the soil. The market is not God. The economy is our creation. We can, and we must, bend it and shape it to serve our needs -- not be enslaved by it. The long run sustainability of human life on earth depends on a balance between economic, ecological, and social concerns – not maximizing any one to the neglect of the others. It is our responsibility to restore this balance.

We must be willing to defend the principle of stewardship as a fundamental human responsibility, not a simply religious freedom that one may or may not chose to claim. Sustainability ultimately depends on a national and
global consensus that stewardship of the soil must take precedent over short run human greed. Given such a consensus, all would be compelled to practice stewardship, and none would suffer socially or economically as a consequence.

Research and education concerning sustainable soil management are necessary for those willing and able to practice soil stewardship without a consensus concerning its rightness. The sustainability of our soils, and thus the sustainability of life on earth, will not be assured until we reach a global consensus in support of soil stewardship. But, we can contribute foremost toward this consensus by doing all we can individually to practice our stewardship beliefs. This is a foundational principle upon which wise management of soil must be based.

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Much of human history has been written in terms of an ongoing struggle of "man against nature." The forces of nature – wild beasts, floods, pestilence, and disease -- have been cast in the role of the enemy of humankind. To survive and prosper, we must conquer nature – kill the wild beasts, build dams to stop flooding, find medicines to fight disease, and use chemicals to control the pests. Humans have been locked in a life and death struggle against "Mother Nature." We've been winning battle after battle. But, we've been losing the war.

We humans have killed so many "wild beasts" that non-human species are becoming extinct at an unprecedented rate – except in prehistoric times now labeled as global catastrophes. It’s clear that humans cannot survive – nor might we want to survive – as the only living species on earth. How many more species can we destroy before we lose more than we can afford to do without? How many more battles with Mother Nature can we afford to win?

We have dammed so many streams the sediment that once replenished the topsoil of fertile farmland through periodic flooding now fills the reservoirs of lakes instead. Populations of fish and wildlife that once filled and surrounded free flowing streams, and fed the people of the land, have dwindled and disappeared. Floods may come less often now, but when nature really flexes its muscles, as in 1993 and 1996, nothing on earth can control the floods. How many more streams can we afford to dam? How many more battles with Mother Nature can we afford to win?

We have wiped out plague after plague that has threatened humankind, and we now lead longer, presumably healthier, lives than ever before. But new, more sophisticated diseases always seem to come on the scene as soon as the old ones are brought under control. We may live longer, but that doesn’t necessarily mean we are healthier. Much of the medicine we take today is to treat the symptoms caused by the medicines we take. On average, we Americans spend more money for health care than we spend for food. How long can our new cures keep ahead of new diseases? How many more medical miracles can we afford? How many more battles with Mother Nature can we afford to win?

We can quite easily kill most insects, diseases, weeds, and parasites using modern chemical pesticides. This has allowed us to realize the lower food prices brought about by a specialized, mechanized, standardized, industrialized agriculture. But we still loose about the same percentage of our crops to pests as we did in earlier times. In addition, health concerns about pesticide residues in our food supplies and in our drinking water are on the rise. In addition, rural communities have withered and died and industrial agriculture has replaced the family
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farm. Good paying jobs in the city are no longer there for people forced off the land. How many more pests can we afford to kill before we kill ourselves? How many more workers can we displace before we displace ourselves? How many more battles with Mother Nature can we afford to win?

Every time we think we have won a battle, nature fights back. Nature always seems ready for the counterattack. And, people are beginning to lose faith in "man’s" ability to ever conquer nature. They are concerned about whether we can win the battle with the next flood, the next disease, or the next pest that we create with our efforts to control the last one. They are concerned with their own safety, health, and well being. But, they are concerned also about the sustainability of a human civilization that continues to live in conflict with nature. They fear we cannot win our war against nature, because we are a part of nature – the very thing we are trying to destroy. They are searching for ways to find harmony with nature – to sustain the nature of which we are a part.

A new paradigm or model for working and living in harmony with nature is arising under the conceptual umbrella of sustainability. Sustainable systems must be capable of meeting the needs of those of us of the present generation without compromising the ability of future generations to meet their needs as well. In simple terms, sustainability means applying the Golden Rule across generations. It’s about short run, self-interest – meeting our present needs; but it’s also about long run, shared-interest – leaving equal or better opportunities for others both now and in the future. Sustainability requires that we find harmony between others and ourselves as well as between those of us of the present and those of the future. Sustainability requires that we find harmony.

The sustainable agriculture movement is but one small part of a far larger movement that is transforming the whole of human society. But a society that cannot feed itself quite simply is not sustainable. Human civilization is moving through a great transformation from the technology-based, industrial era of the past to a knowledge-based, "sustainable" era of the future. Agriculture is moving through a similar transition.

The industrial model of the past, and present, was based on the assumption that the welfare of people was in conflict with the welfare of nature. People had to harvest, mine, and otherwise exploit nature, including other people, to create more goods and services for consumption. Human productivity is defined in terms of one’s ability to produce goods and services that will be bought and consumed by others. Quality of life is viewed a consequence of consumption – something we can buy at Walmart or Disney World. The more we produce, the more we earn, the more we can consume, and the higher our quality of life. The more we can take from nature, and each other, the higher our quality of life.

The sustainable model is based on the assumption that people are multidimensional – that we are physical, mental, and spiritual beings. We have a mind and soul as well as a body. All three
determine the quality of our life -- what we think and what we feel as well as what we consume. And, the three are as inseparable as the height, width, and length dimensions of a box. A life that lacks the physical, mental, or spiritual is not a life of quality, as an object that lacks a height, width, or length dimension is not a box. The industrial model has focused on the physical body, the self -- getting more and more to consume. The sustainable model focuses on finding harmony among all three -- the physical, mental, and spiritual -- on leading a life of balance.

Spirituality is not synonymous with religion. Spirituality refers to a felt need to be in harmony with some higher unseen order of things -- paraphrasing William James, a well-known religious philosopher. Religion, at its best, is simply one means of expressing one's spirituality. Spirituality assumes a higher order to which humans must conform -- if we are to find peace. Harmony cannot be achieved by changing the "order of things" to suit our preferences. Harmony comes only from changing our actions to conform to the "higher order." A life lived in harmony is its own reward.

A sustainable agriculture must be economically viable, socially responsible, and ecologically sound. The economic, social, and ecological are interrelated, and all are essential to sustainability. An agriculture that uses up or degrades its natural resource base, or pollutes the natural environment, eventually will lost its ability to produce. It's not sustainable. An agriculture that isn't profitable, at least over time, will not allow its farmers to stay in business. It's not sustainable. An agriculture that fails to meet the needs of society, as producers and citizens as well as consumers, will not be sustained by society. It's not sustainable. A sustainable agriculture must be all three -- ecologically sound, economically viable, and socially responsible. And the three must be in harmony.

Some see sustainability as an environmental issue. They are wrong. It is an environmental issue, but it is much more. Any system of production that attempts to conquer nature will create conflicts with nature, degrade its environment, and risk its long run sustainability. Industrial agriculture epitomizes a system of farming in conflict with nature. Sustainable farming systems must function in harmony with nature.

The fundamental purpose of agriculture is to convert solar energy into products for human food and fiber. Nature provides biological means of converting solar energy into living plants and animals. Nature provides means by which things come to life, protect themselves, grow to maturity, reproduce, and die to be recycled to support a future generation of life. Agriculture attempts to tip the ecological balance in favor of humans relative to other species. But, if we attempt to tip the balance too far, too fast, we destroy the integrity of the natural system of which we are a part. A sustainable agriculture must be in harmony with nature.

But, a sustainable agriculture also must be in harmony with people. Since people are a part of nature, with a basic nature of our own, a sustainable agriculture must also be in harmony with
human nature. A socially sustainable agriculture must provide an adequate supply of food and fiber at a reasonable cost. Any system of agriculture that fails this test is not sustainable, no matter how ecologically sound it may be. But "man does not live by bread alone," and a socially responsible agriculture must contribute to a positive quality of life in other respects as well.

The industrial system of farming has destroyed the family farm as a social institution, has caused rural communities to wither and die, and has changed the social impact of agriculture on society in general from positive to negative. A sustainable agriculture must meet the food and fiber needs of people, but it cannot degrade or destroy opportunities for people to lead successful, productive lives in the process. A sustainable agriculture must be in harmony with our nature of being human.

Finally, a sustainable agriculture must be in harmony with the human economy. The greatest challenge to farming in ways that are ecologically sound and socially responsible is in finding ways to make such systems economically viable as well. Our current economy seems to favor systems that exploit their natural and human environment for short run gains. Those who choose to protect the natural environment must sacrifice any economic opportunity that might result from exploiting it. Those who show concern for the well being of other people – workers, customers, or neighbors – must sacrifice any economic opportunity that might result from exploiting them. So it might seem that sustainability requires that one sacrifice some economic well being to achieve ecological and social sustainability.

Conventional thinking assumes the relationship among the environment, social, and economic wellbeing is a trade-off relationship – that one can have more of one only by sacrificing some of the others. However, this represents a highly materialistic worldview. If anyone gets more of something, then someone else must have less of it. There is only some fixed quantity that must be allocated among competing ends. This materialistic worldview ignores the fact that we can gain satisfaction, for ourselves, right now, by doing things for others and by saving things for future generations – just because we know these are the right things to do. Our satisfaction is not dependent on realizing the expectations of some future personal rewards – the reward is embodied in the current action rather than the future outcome. There is inherent value in living and working in harmony. Getting more of one thing without having more of the others only creates imbalance and disharmony – making us worse off rather than better off.

However, the necessity for economic viability is a very real concern – even for those who pursue harmony rather than material wealth. If our endeavors are not economically viable, we lose the right to pursue those endeavors. But, how can a person make a living farming without degrading either the natural environment or the surrounding community? Industrial farming sets the standard for dollar and cent costs of production – and industrial farming exploits its natural and human resource base to keep those costs to a minimum. How can a sustainable farmer compete? The answer is not to compete with industrial farming but to do something fundamentally different.
This something different includes letting nature do more of the work of production – working with nature rather than against it. Production costs may be competitive with, if not lower than, industrial systems if you let nature do enough of the work. Organic production methods, management intensive grazing, pastured pork and poultry, low-input farming -- these are all systems that rely less on off-farm commercial inputs and more on one’s ability to understand and work with nature. Industrial systems require uniformity and consistency, but nature is inherently diverse and dynamic. Harmony comes from matching what you produce and how you produce it to the unique ecological niche in which you produce. The greater the harmony the more of the work nature will be willing to do.

Finding harmony means reconnecting with the land. Wendell Berry puts it most succinctly in his book, What are People For, "...if agriculture is to remain productive, it must preserve the land and the fertility and ecological health of the land; the land, that is, must be used well. A further requirement, therefore, is that if the land is to be used well, the people who use it must know it well, must be highly motivated to use it well, must know how to use it well, must have time to use it well, and must be able to afford to use it well (p. 147)." Sustainable production is possible only if farmers have a harmonious relationship with the land – if they know it, care about it, know how to care for it, take time to care for it, and can afford to care for it – only if they love it.

Something different also means marketing in the niches – giving people what they really want rather than coercing or bribing them to take what you have for sale. The conventional wisdom is that niche markets are limited because individually they are small. The conventional wisdom is wrong. All consumer markets are niche markets, because they are made up of individuals, and we all want and need something a bit different. Industrial systems of mass production and mass distribution treat things as if they were pretty much the same. The cost saving in industrial systems come from doing the same basic thing over and over again – producing uniform commodities in large volume. Niche marketing means giving people what they actually need and want – producing in harmony with the market.

Finding harmony means reconnecting with people – as fellow human beings rather than as consumers, producers, or some other generic economic entity. Joel Salatin, a Virginia farmer and agripreneur, refers to this as "relationship marketing." When you have a relationship with your customers, they do not simply represent a market to be exploited to make a few more dollars. They are friends and neighbors that you care about and don’t want to lose. When your customers have a relationship with you, you are not just another supplier to be haggled down to the lowest possible price to save a few dollars. You are someone they care about and don’t want to lose. When you know, care about, and have affection for each other, you have a relationship that creates value above and beyond market value. You are contributing directly to each other’s quality of life. You are creating a harmony that arises only among people who love one another.
Neither land nor people can be sustained unless they are given the attention, care, and affection – the love -- they need to survive, thrive, and prosper. The necessary attention, care, affection, and love come only from lives lived in harmony -- among people and between people and nature.

Finally, as more farmers and customers, sharing common concerns for ecological and social sustainability, develop relationships through the marketplace, their economic communities of interest will expand as well. Customers will be willing to pay more and farmers will be willing to provide more because they are both getting more from the relationship than just money. Those who might attempt to exploit these new economic communities for short run gains – those motivated by economic value rather than ethical or moral values – are destined to find disappointment. Those who join in seeking balance among the economic, ecological, and social dimensions of their lives – among the physical, mental, and spiritual – will be rewarded. They are helping to create a new world in which people may learn to live in harmony with each other as well as in harmony with nature.
Agroecosystems are managed ecosystems. Agriculture inherently involves self-conscious attempt of humans to change or manage natural ecosystems. The fundamental purpose of agriculture is to shift the ecological balance so as to favor humans relative to other species in production of food and physical protection. Humans are unique among species in that we make purposeful, deliberate decisions that can enhance or degrade the health of the ecosystems of which we are a part. Thus, any assessment of the health of agroecosystem must take into consideration the purposeful, self-conscious nature of individual and collective human actions.

Socioeconomic Dimensions of Agroecosystems

The evolving discipline of agroecology provides the scientific underpinning for evaluation of agroecosystems. Agroecology represents an integration or fusion of ecology and agricultural sciences. However, disagreements continue regarding whether agroecology should include the social as well as the natural sciences. For example, in a recent book review, Anderson chides the authors of two new books on agroecology for their "confusion" in including social sciences in agroecological analysis. Gleissman is quoted as promoting a vision of agroecology that is "more than just ecology applied to agriculture (in that) it takes on a cultural perspective as it expands to include humans and their impacts on agriculture environments" (page 369). Anderson points out that "Human culture requires very different methods of analysis than ecological phenomena. Ecology's methods were designed to study organic processes and the behavior of organisms that lack most forms of intentionality. Human capacity for intentional action -- our abilities to use indirect strategies, to learn from mistakes, to delay gratification, to persuade others to work collectively -- imposes a layer of complexity that is qualitatively different from that of the naturally occurring 'societies' that ecological methods can study" (page 41). She concludes that we should "prune back the aims of agroecology to understanding what makes the tangible aspects of agricultural systems work, rather than trying to tackle cultural systems as well." (page 42).

On the other hand, Allen contends that "Agriculture does not exist and cannot function except at the intersection of society and nature" (page 2). She states that "In our Western conception of nature, the
environment is usually considered to be a physical space and set of laws that exist and operate external to and independent of us (humans). While there is a 'nature' that preexisted human beings, and we are subject to natural laws such as gravity, nature (as related to) agriculture is a humanly reconstructed nature" (page 3). Allen points out also that "problems do not arise from only the interface between society and external nature but also from contradictions within society itself." "Natural" disasters, such as flood and drought, may actually result from, or at least be "disastrous" because of, past collective actions of humans. She concludes, that "it is important to understand that we are working in a situation in which both nature and society have been developed, produced, and reproduced by the ideas and activities of human beings" (page 3).

The debate will continue as to whether social sciences and physical sciences should be integrated under the disciplinary umbrella of agroecology. However, if agroecology is to provide an intellectual foundation for study of the health and sustainability of agroecosystems, it must include the socioeconomic as well as the biophysical.

**Agroecosystem Health and Agricultural Sustainability.** Much of the current interest in agroecosystem health arises from the issue of agricultural sustainability. A universally accepted definition of sustainable agriculture is yet to be found. Allen, et al. suggest that the efforts to forge such a definition should continue, in spite of feelings on the part of many that we should spend less time talking about sustainable agriculture and more time implementing it. Not only is there no single definition, "there is no generally accepted set of goals for sustainable agriculture and little agreement even on what and who it is we intend to sustain" (Allen, et al., page 34). Lacking explicit goals and objectives it is difficult, if not impossible, to assess sustainability. Sustainability is an important facet of ecosystem health. Any assessment of agroecosystem health must be prefaced with an explicit definition of agricultural sustainability, while recognizing that a different definition might well lead to different conclusions.

Allen, et al. offer the following definition: "A sustainable agriculture is one that equitably balances concerns of environmental soundness, economic viability, and social justice among all sectors of society." While this definition provides an appropriate set of objectives, it does not define the overall goal of sustainability. It does not answer the question; what is to be sustained and for whom? An appropriate preamble may be added, however, resulting in the following definition: A sustainable agriculture is one that is capable of providing everlasting value to society. A sustainable agriculture, so defined, must be ecological sound, economic viable, and social just. This definition makes clear the anthropocentric nature of agricultural sustainability. We are concerned about sustaining agriculture for the benefit of humans, both now and into the indefinite future. However, the definition is also ecocentric in that it explicitly recognizes the critical interconnectedness of humans with the other biophysical elements of the natural environment and with each other. Ecologic, economic, and social sustainability are all recognized as necessary conditions for agricultural sustainability. This definition makes clear the necessity of including economic and social indicators in any assessment of agricultural sustainability, and thus, in any assessment of health of agroecosystems.

**The Human Factor in Sustainability.** The logic of necessary and sufficient conditions provides insights into the nature of agroecosystems. However, attempts to distinguish necessary and sufficient conditions
are perhaps the source of some differences of opinion regarding the importance of the sociocultural or human dimension of sustainability. Haskett states that "the foundation of sustainability in agriculture is a set of biologically/physically possible processes involved in the production of food." He also states: "Sustainability is further bounded by a subset of the biologically/physically possible, which might be referred to as the socially/culturally possible." However, "it is important to recognize that these two components, the physical/biological and the social/cultural are not equal in terms of determining sustainability." "Biological possibility is necessary for social possibility but not the other way around." "Not everything that is biologically/physically possible is socially/culturally possible."

One might logically extend this line of reasoning in that economic possibilities are a subset of social/cultural possibilities. Environmental soundness might be considered a necessary condition for economic viability, and economic viability a necessary condition for social justice. Using the same logic as Haskett, one might contend that economic viability and social justice are not equal in terms of determining sustainability. Economic viability is necessary for social justice but not the other way around. Not everything that is economically viable is socially just.

However, the logic necessity and sufficiency fails to explicitly recognize the unique dynamics of managed ecosystems. Haskett states that we must be able to distinguish between "causality and mere correlation" in study of interactions between biophysical and socioeconomic possibilities. However, in dynamic systems the concept of causality becomes tenuous. Do natural ecosystem constrain or restrict human actions or do humans actions constrain or restrict natural ecosystems? Of course, both are true. Humans respond to their environment in ways that change their environment. Thus, causality becomes a circular process from environment, to action, to environment, to action, to environment..... The question of whether environmental degradation is a consequence of social injustice or social injustice a consequence of environmental degradation becomes moot in a dynamic model of agroecosystems. The feedback loops between biophysical and socioeconomic elements of agroecosystems go in both directions.

In the study of dynamic systems, defining trends and patterns is more important than determining causation. For example, systems can become entrenched in self-perpetuating trends toward growth or degradation, or cyclically reoccurring decline and regeneration (Senge). The fundamental nature of the action elements in systems may not be subject to change, as in the case of laws and principles of ecology and human behavior. Such patterns can be broken or changed only by intervening in the action-reaction "process." For example, if a society becomes locked in a action-reaction cycle of environmental degradation, the action-reaction "process" must be broken. It is no more useful to say than an unjust society is the cause of environmental degradation than to say that past environmental degradation is the cause of social injustice. The fundamental question is: how can the continuing action-reaction cycle of environmental degradation and social injustice be broken?

From a systems perspective, humans are the only actors in agroecosystems capable of self-conscious, intentional actions. Thus, the key to reversing environmental degradation is to change the action-reaction or stimulus-response patterns of humans. The fundamental nature of the human species is not more changeable than are the fundamental laws of nature. However, the ability to learn, to discover new
options, and to choose new responses are fundamental aspects of human nature. If the ultimate objective is intervention, the study of ecosystem health and sustainability must include the study of intentional human actions.

Knowledge related to the biophysical dimensions of ecosystems is useful only if people "choose" to use this knowledge to guide their actions. Biophysical constraints cannot "force" humans to the take actions necessary to sustain the natural environment. On the contrary, the humans species appears to be capable of continuing acts of environmental degradation to the point where ecosystems lose their ability to support human life. Past societies have demonstrated this destructive capacity at local, regional, and national levels. Current human society appears to be capable of such destructive behavior on a global scale. Thus, voluntary, self-conscious intervention is necessary to ameliorate destructive patterns of human behavior and to sustain the health of agroecosystems.

Economic Viability and Social Justice

In many situations the natural inclination of the individual may be toward actions that contribute also to the collective good of society. The "invisible hand" of classical economic theory is a prime example. Individuals, by pursuing their own self interest in a competitive open-market economy, unwittingly allocate economic resource among competing uses so as maximize economic efficiency for society as a whole.

In many cases, however, inherent conflicts exist between individual and collective or social benefits and costs. In such cases societies purposefully devise social and economic incentives, both positive and negative, for individuals to act in ways that benefit the larger society. Norms, values, and rules are social forces which help shape human behavior and are primary products of any human society. Social incentives for conformity range from moral suasion to criminal law enforcement. Public policy also is a means of providing non-market economic incentives, where necessary, for individual actions to conform to the desires of society. Public policies rely on a variety of subsidies, penalties, rules, and regulations which reward those whose actions contribute to the societal good and penalize those who cause societal harm.

Economic Viability. Economic viability is an objective that may be pursued by a variety of means, including but not limited to open markets and public policies. Economic viability is a characteristic of production systems that persistently create output of greater economic value than the economic value placed on inputs or resources devoted to the process. Human societies, by various means, place economic values on both the outputs produced and inputs used in production. Systems that use inputs and resources that humans value less to produce goods and services that humans value more are economically viable. Systems that use inputs and resources of greater human value to produce goods and services of lesser human value will not be economically viable.

Long run economic viability is not synonymous with short run profitability. Short run profits may be generated by exploiting natural or human resources that are undervalued, or not valued at all, by market
economies. However, such systems eventually will degrade or destroy their resource base and lose their ability to produce. Such systems are neither economic viable nor sustainable over time.

In the absence of violence, force, or the threat of force; economically viability ensures resource uses consistent with the economic values of society. Systems that produce greater economic value from any given set of resources, will be able to control resource use by competing use rights away from less productive alternative systems. However, in situations where resources are controlled by force, or the threat of force, the concept of economic viability is distorted. In such cases, resources may be used to benefit those in positions of power rather than to benefit the larger society.

Social Justice. Even in societies ruled by the will of the people, some systems that are otherwise economically viable may not be socially just. Economic power may be less concentrated than physical power but still is not equally distributed among all people. Economic power arises from an ability to produce something of economic value to society, something that others are willing and able to pay for or otherwise reward through exchange. In an ideal world, each person's ability to contribute to society would match their needs to receive from society. Patterns of resource use would accurately reflect both human needs and human abilities. In reality, however, great inequities may exist among people with respect to their ability to create economic value. Thus, inequities will exist among people in their economic power to control or influence resource use. Consequently, there are great disparities between the needs of individuals and their abilities to contribute economically. Such disparities exist both within and among families, communities, states, and nations. The resolution disparities between abilities and needs is an enigma which no human society has yet been able to resolve.

How should we balance the rights of those with "surplus" abilities against those with "unmet" needs so as to achieve greater social equity? One's concept of social justice inevitably reflects one's values regarding a just resolution of disparate abilities and needs. The issue of sustainability raises yet another issue of social equity. Sustainability implies equity in rights to resources among people over time and among generations. Sustainability requires that we use resources in such a way as to meet the needs of the current generation without impairing the ability of future generations to do the same.

Socioeconomic Necessities for Sustainability

It in understandable that physical scientists might question the wisdom of including social justice as a prerequisite for sustainability. Human capacity for intentional actions, individually and collectively, impose layers of complexity that are qualitatively different from those of naturally occurring "societies" that ecological methods can study. However, the self-conscious, intentional acts of "humans" and the differences in detail and dynamic complexities of "managed" ecosystems simply cannot be ignored in dealing with the issues of agroecosystem health or agricultural sustainability.

Crews, et al, contend that ecological soundness is both necessary and sufficient to ensure agricultural sustainability. They argue against giving equal weight to ecological, sociological, and economic dimension of sustainable agriculture. They state: "that the profitability of sustainable agricultural systems
is constrained by the social structure of agriculture but that sustainability itself is constrained solely by
the ecological conditions of agriculture" (page 146). They contend that if one accepts their ecological
guidelines of sustainable agriculture, the resulting ecological constraints ultimately will interact with the
social structure to determine what is profitable. They argue that "Profitability, on the other hand, will
never determine what is ecological sustainable" (page 147).

However, one cannot derive an ecologically based set of sustainable alternatives and expect social and
economic systems to adjust automatically to make them economically viable and socially just. Any
definition of sustainability based on ecology alone begs the question of sustainability for whom, or at
least how many? More directly, how many people are to be sustained at what level? For example,
agricultural systems that were sustainable, when land currently in the United States was populated by a
million or so Native Americans, clearly are not capable of sustaining today's population of some 260-
plus million people.

Barring some dramatic occurrence in global society, agriculture worldwide will need to sustain about
twice as many people fifty years from now as are sustained today. No set of ecologic possibilities will
sustain the maximum population that humankind might choose to procreate. The history of human
civilization provides little evidence to support an hypothesis that global population will automatically
adjust to some optimally sustainable level. To the contrary, overpopulation seems more likely to result in
the destruction and degradation of natural resources to a point only a fraction of the population can be
sustained that might have been sustained if overpopulation had been avoided. No set of ecological
constraints will prevent starving people from consuming the seeds that might have produced a bountiful
harvest, if the harvest comes only after the people are dead.

Even when physical survival is ensured, people still tend to act in their own economic self interest. In
fact, they cannot persist in actions inconsistent with economic survival, regardless of any personal desire
to do so. Enterprises which lack economic viability will lose control of resource use to their
economically viable competitors. However, there appears to be no natural limit to human greed or desire
for control. Historically, individuals and nations with abundant resources or other economic means of
production have amassed great fortunes while individuals and nations lacking the ability to compete
economically hovered on the brink of starvation. This disparity in economic power is reflected in a
disparity of control over total resource use and consumption of non-renewable resources.

Human societies that lack economic equity and social justice are inherently unstable, and thus, are not
sustainable over time. Such systems will be characterized by reoccurring social conflicts which may do
irreparable damage to both economic and ecologic systems. Deserts, drought, floods, and famine are
more frequently the result of failed social and economic systems than of naturally occurring ecosystem
phenomena. Today's "nature" is a human reconstructed nature, and tomorrow's nature will be
reconstructed again by individual and collective human actions of today. A society that will not ensure
social equity among those of the current generation cannot be expected to ensure equity between the
current generation and those of generations of the future.
Even thoughtful observers may become pessimistic about the possibility of global sustainability when they ponder the challenges to humanity in meeting the demands of an exploding global human population while utilizing a finite natural resource base of rapidly declining proven productivity. There would appear to be just cause for concern. But, many fail to explicitly consider the potentially positive aspects of humankind as an integral element of the global ecosystem.

Human population is not external to the global ecosystem and human need is not an exogenous demand that the system must meet. Human needs arise from and are interconnected within the same systems that must meet human needs. Human populations have expanded in response to the expanded capable of systems to support larger populations. Population expansion seems to be a biological instinct that humans share with many other species. However, the human species is capable, at least conceptually, of intentionally limiting its numbers, needs, and demands to match a sustainable level of global production. Unlike other species, humans are capable of the voluntary, intentional intervention required to reverse the conflicting trends of population explosion and resource degradation.

In general, the sustainability of managed ecosystems depends on self-conscious, purposeful human actions which reflect our abilities to learn from our mistakes, to delay gratification, and to persuade each other to work collectively for the common good. But, all these actions are consistent with the nature of our being human. Social and economic systems will not naturally evolve toward sustainability. But, knowledge-based, purposeful human actions may well be capable of ensuring sustainability. Such actions must reflect an equitable balance among environmental soundness, economic viability, and social justice. All are necessary and no one is sufficient to ensure the health of agroecosystems.

Socioeconomic Indicators of Ecosystem Health

Both socioeconomic and biophysical indicators are required to monitor health of agroecosystems. The emphasis on socioeconomic indicators here is not intended to diminish the importance of biophysical indicators which are equally important in sustaining the health of agroecosystems.

The socioeconomic indicators proposed below are based on the following set of postulates regarding the health of managed ecosystems.

- Inherent conflicts exist between maximum short run economic rewards of individuals and the long run ecologic well-being of society as a whole. Preservation, conservation, and protection of the natural, ecological resources needed to support future generations require that the current generation make collective economic sacrifices. Investments needed to support future productivity must be made at the expense of current consumption.
- Collective human actions can ensure the long run sustainability of managed ecosystems whereas individual actions cannot. The actions of each person, individually, has too little impact on regional, national, and global ecosystems to ensure overall ecosystem health or sustainability. Thus, individuals must persuade others to work collectively to sustain or enhance the health of agroecosystems.
Sustainable collective actions must be based on voluntary decisions rather than decree, force, or coercion. Social systems that rely on physical threats or coercion to enforce dictatorial rules are socially unjust, inherently unstable, and thus, are not sustainable over time. Social stability and sustainability require that individuals possess an ability to significantly influence, if not control, their own destinies.

Voluntary, collective actions taken to ensure ecosystem health and sustainability will require human understanding of critical linkages within and among managed ecosystems, including the "detail complexities" arising from complex interrelationships among many different ecosystem elements and "dynamic complexities" arising from the temporal separation and circular nature of complex causes and effects.

A set of basic human rights eventually must be developed and guaranteed for all to ensure that people will have the ability to take the necessary voluntary, collective actions needed to ensure global sustainability. Among those basic human rights are individual rights to life, thought, speech, and action, and collective rights to interact socially and to act collectively. Without such rights, humans will not be able to take the actions necessary for long run sustainability.

A set of basic human responsibilities eventually must be developed to ensure that collective human actions are consistent the long run survival and health of the global ecosystem. Human responsibilities necessary for long run sustainability include ensuring economic opportunity and social equity among people who differ with respect to gender, ethnicity, economic class, social status, nationality, geography, and ensuring equity in balancing the needs of those in the current generation with needs of those of generations to come. If human society fails to accept these responsibilities, we will not be willing to take the collective actions necessary for long run sustainability.

On the basis of these postulates, a basic set of generic socioeconomic indicators of ecosystem health may be developed for managed ecosystems. Starting with the individual and moving to the global, socioeconomic indicators of ecosystem health might include the following:

- **Individual Freedoms** -- Including rights to life, thought, speech, and action.
- **Human Health** -- Including adequacy, availability, and safety of food and water, clothing and shelter, and remedial health care.
- **Personal Security** -- Including incidence of physical abuse, criminal activity, and violent crimes such as assault and murder.
- **Self-Esteem** -- Including whether individuals are valued, nurtured, and encouraged of achieve their full potential.
- **Social Acceptance** -- Characterized by the absence of discrimination, affirmative actions to correct inequities, and valuing of diversity.
- **Economic Opportunity** -- Characterized by universal education, freedom of entry into occupations, ease of entry into economic enterprises.
- **Social Equity** -- Characterize by effective families, strong communities, political freedom, valuing of diversity, and nurturing institutions.
- **Resource Stewardship** -- Supported by societal ethics, essential public policies, and effective public and private institutions.
- Environmental Protection -- Supported by societal ethics, essential public policies, and effective public and private institutions.

In many cases the generic criteria for managed ecosystems are sufficient to address concerns related specifically to the health of agroecosystems. However, some cases more specific criteria may prove useful. Some socioeconomic indicators of agroecosystem health derived from the generic list above include:

- Quantity, quality, and cost of food or fiber produced
- Risks of degrading water quality
- Risks to human health and worker safety
- Number of people productively employed
- Utilization of human abilities
- Rewards for human productivity
- Social dignity of the work
- Equity of opportunities with respect to gender, ethnicity, social status, etc.
- Opportunities for individual ownership -- scale negative or neutral
- Potential for strengthening families
- Potential for strengthening local communities
- Support of resource stewardship ethics or actions
- Support of environment stewardship ethics or actions

The above lists of criteria have not been validated by research nor are they intended to be inclusive. The lists simply illustrate that socioeconomic indicators are associated with farming methods, farming systems, rural communities, and higher levels of systems aggregation, and can be linked directly with the basic concepts of ecosystem health and sustainability.

Some may question the wisdom of assessing agricultural sustainability for an individual field, farm, community, or nation when sustainability ultimately must be achieved for the total of society at the global level. One might logically conclude that production from a particular field is sustainable if the field is part of a sustainable whole-farm system, a farm is sustainable if it is part of a sustainable farming community, and a community is sustainable if it is part of a sustainable global society. If risks to sustainability arising at one level of aggregation can be countered at some higher level, the larger system will be sustainable. But, the parts of natural ecosystems are not separable. Thus, complete nullification of ecosystems system risks may not be possible.

The human body is a system. The basic function of some body organs, such as the liver and kidneys, is to handle wastes generated by other body functions. Other parts of the body, such as the heart and lungs, may adjust their activity to accommodate stresses placed on other parts of the body. Generation of waste is a normal function of living, and some level of stress is necessary for a healthy body. However, the body as a whole has definite limits to its ability to assimilate wastes and absorb stress. When its critical limits are exceeded an organ or subsystem of the body begins to die. When a critical organ or part of the
body dies, the whole body dies. The system ceases to function.

When agricultural production on a particular field is not autonomously sustainable, it places stress on the farming system as a whole. When a farm is not sustainable, it places stress on the community of which it is a part. A nation that is not sustainable places stress on global society. Some lack of autonomous sustainable should be considered necessary and normal in a healthy, interdependent society. However, the stresses the one element of society imposes on society as a whole should be monitored and measured in the same sense that stresses on the body need to be monitored and measured. In addition, it is no less important to measure the social and economic stresses an agriculture system places on society than to measure the physical and biological stresses that agriculture places on the natural ecosystem. Excessive social or economic stress are no less a threat than excessive biological or physical stress to the long run sustainability of an agroecosystem.

In summary, measures of ecosystem health developed for natural, unmanaged ecosystems are necessary but not sufficient for measuring the health of managed agroecosystems. Elements of agroecosystems of obvious human value will be protected and nurtured while elements considered detrimental, or of no value, to humans may be systematically destroyed. Ecosystem elements with both positive and negative human attributes will be managed so as to achieve the greatest social and economic good at the least social and economic cost. Such is the nature of being human. Sustainable agroecosystems must meet the current human needs of the current generation without degrading the ability of future generations to provide for their human needs as well. Thus, the ability to meet current social and economic needs is critical to the ecological health of managed ecosystems.

Voluntary, intentional human interventions will be required to ensure the ecologic sustainability of managed ecosystems. The human actions necessary to ensure agroecosystem health and sustainability will not be taken unless our managed ecosystems are socially just and economically viable, as well ecologically sound. Thus social, economic, and ecologic indicators, all three, are required to monitor the health of agroecosystems.

REFERENCES


The roots of most American rural communities are in agriculture. When the Europeans first arrived in North America, they found a land of great natural wealth. Some of that wealth was in minerals and timber, but most of it lay in vast plains and winding valleys of fertile farmland. However, it took people to transform this potential wealth into economic wellbeing. People had to clear the land and till the soil to bring forth the bounty of food and fiber from the fertile fields. It took people to care for the cattle and sheep that grazed the vast plains. And as these people – these farmers and ranchers – achieved surpluses beyond their own needs, they began to need other people in towns and rural communities with whom they could trade their surpluses for the things they couldn’t produce. They needed blacksmiths, dry goods stores, livery stables, banks, and salons. But they also needed schools, churches, and medical care if they were to move beyond economic survival to achieve a desirable quality of life.

Rural communities – Places without a purpose
Some of the early American communities were built around timber and mining towns, but most were farming and ranching towns. And in places where more farmers or ranchers were needed to care for the land, more people were needed in town to support those farms and ranches. It’s probably true that distances between many towns were determined by a day’s round trip by horse and wagon. But, the number of people in those towns was determined in large part by the nature of agriculture in the surrounding area. For example, lands well suited for vegetables and row crops could be farmed more intensively – supporting more families per acre or section. Lands suited only for small grains or pasture were farmed
less intensively – supporting fewer families per section or township. Of course, town folks also had mouths to feed with locally grown foods – greens, milk, eggs, and bacon. But, the density of population in most rural places reflected the nature of their agriculture.

At the turn of the 20th century, America still was an agrarian country – about 40 percent of its people were farmers and well over half lived in very rural areas. But, then came the second phase of the industrial revolution and the need to collect large numbers of people into cities to “man” the large factories and offices of a growing manufacturing economy. The simultaneous industrialization of agriculture – mechanization, specialization, routinization, standardization – made it possible for fewer farmers to feed more people better – “freeing” farmers and other rural people to work in the new factories springing up in the cities.

The same technologies that “pulled” rural people toward the cities “pushed” them off the farms and out of rural communities. These technologies increased production per person by substituting capital and generic technology for labor and individual management skills. As successful new farming technologies were developed, they invariably reduced production costs – per bushel or per pound of production – but only if each farmer produced more. Thus, the incentive to realize greater profits by reducing costs was inherently an incentive to buy bigger equipment and more commercial inputs in order to farm more land and produce more output. As farmers individually responded to these incentives, production in total invariably expanded, market prices fell, and the promise of continuing profits vanished. The new technologies now were necessary – no longer for profits but now for survival. Those who adopted and expanded too little too late were unable to compete. They were “freed” from their farms to find a job in the city.

Farms were forced to get larger and larger just to survive. In fact, with a
limited population to feed and a limited amount of land to farm, some farmers had to fail so others could survive. In addition, large specialized farms often had to bypass the local community in purchasing inputs and marketing their products in order to remain competitive with other large farms. Their competitors were not down the road or across the country, but might be half way around the world.

Fewer farmers buying less locally meant less need for farm related businesses in small towns. Fewer farmers also meant fewer farm families to buy groceries, clothes, and haircuts in small towns. Fewer families also meant fewer people to fill the desks in rural schools, pews in rural churches, and the waiting rooms of rural doctors. Fewer people with a purpose for being in rural areas meant that many rural communities too were losing their purpose for being. As farms have grown larger and fewer, many rural communities have been left in decline and decay.

Today, America is no longer an agrarian nation. Less that 2 percent of Americans call themselves farmers and even those earn about 90 percent of their household incomes off the farm. Somewhere around 25 percent of the people live in non-metropolitan areas – but many, if not most, commute to a city to work. There are few people left in farming communities to move to town and no longer any social benefit in moving them. The old industries are “downsizing” and “outsourcing” -- laying off workers by the thousands. As consumers we spend on the average a little over a dime out of each dollar for food and the farmer only gets a penny of that dime. The rest goes to pay for commercial inputs and marketing services – packaging, advertising, transportation, etc. Society no longer has anything to gain from further industrialization of agriculture, but yet it continues. And rural communities in farming areas continue to wither and die. They have become places without a purpose.

Sustainable Community Self-Development – an Experiment
The conventional wisdom in economic and community development
circles is that rural communities must look to something other than agriculture for survival and future prosperity. Feeling the stress of an industrializing society, many small towns have turned to industrial recruitment – trying to become a city rather than a town – as a means of survival. But the only industrial development strategies that many rural communities are offered are prisons, landfills, toxic waste dumps, or factory livestock operations. Once prosperous agricultural communities have become the dumping grounds for the rest of society. Those that succeed in luring “clean” industries, typically end up with companies who are only looking for cheap labor. Such companies invariably move on when they find some place else, either in the US or abroad, where people are even more desperate for work and will work harder for even less money.

Others communities have tried to capture natural advantages in climate or landscapes to become destinations for tourists from the cities. Those near the growing industrial centers have “rented out their communities” as bedrooms for those who are willing to commute to the city. But, most rural communities in agricultural areas have not been successful in their efforts to regain prosperity – or even to survive. Most rural communities remain places in search of a purpose.

In August of 1995, the Missouri, Michigan State, and Nebraska Universities began a five-year collaboration on a project funded by the W. K. Kellogg Foundation. Our objective was to “challenge the conventional wisdom concerning the future of rural communities… to demonstrate the proposition that a fundamental shift in the foundation of economic development from land and capital to knowledge and information, and increased public concern for the natural environment, provides new opportunities for a sustainable agriculture,” which in turn provides new opportunities for sustaining rural community development through agriculture.
We recruited communities in each of the three states who were willing to make a commitment to work with us for the duration of the project. Our commitment was to help them find and develop a foundation for their future through sustainable development of their “geographically fixed” resources -- including landscapes, climate, clean air, clean water, and forests, but with an emphasis on agricultural land. The basic premise was that for development to be sustained in a particular community, there must be reason for the activity to be carried out in that particular location. There must be purpose for development in that particular place. In addition, since people must carry out the process of development, and since the purpose of development is to enhance the lives of people, there must also be a purpose for people to be in a particular place. Thus, the first principle of our Sustainable Communities project was: “A linking of people, purpose, and place.”

The project was to be carried out by a process of “community self-development.” Our role was to be that of facilitators – not leaders. We would provide information concerning opportunities and alternatives. We would help the people get organized, help them develop a shared vision, and facilitate their collaborative efforts. But it would be up to the people of the communities to decide what they wanted to do and how they wanted to do it. We had funds in the project to facilitate their collaborative activities, and a few dollars to fund demonstration projects of their choosing, but the project provided no funds for investment in actual development projects. The success or failure of the project in any particular community would be in the hands of the people of that community. Thus, our second principle was: “Local organization, local investment, and local control.”

Another basic premise was that everyone in a community should be considered in every decision that affected the community. Our working hypothesis was that one reason for the demise of many rural communities was that community leaders had lost touch with the real wants and needs
of their community members. They had become so preoccupied with replacing jobs and rebuilding the tax base that they were sacrificing the quality of life of many for the economic benefit of a few. Many of the new “economic development” strategies for these rural communities were based on little more than exploitation of rural people who were desperate for jobs and exploitation of the natural environment. If the development of these communities was to be sustainable, all community members needed to be involved, or at least considered, in the decision making process, and all needed to be able to share in the benefits. Thus, our third principle was: “Shared leadership, shared responsibilities, and shared rewards.”

Our final working principle was based on the concept of sustainable development – that communities must find ways to meet the needs of all in the present while leaving equal or better opportunities for those of the future. Sustainable development must be socially responsible, economically viable, and ecologically sound. Many rural communities have become so preoccupied with raising economic capital that they have allowed the social and ecological capital of their communities to become depleted. Economic development is rooted in social and ecological resources. Thus, economic development cannot be sustainable without social and ecological development. Our fourth principle was: “Building community while creating wealth and caring for the land.”

To carry out the project effectively, we knew that we couldn’t follow the traditional technology development and transfer model typically used by the Land Grant University system. This project was not to be technology-based, but instead had to be people-based. Our goal was to empower people to be productive by using innate human abilities to think, not to provide technology that would reduce the need to think. Thus, one of our objectives was: “to develop and demonstrate a new research and extension model which relies on participatory research and information sharing rather than technology development and transfer.”
My role was that of overall project leader for the three-state project and state coordinator for Missouri. I was the “keeper of the purpose and principles” of the project. The other state coordinators and the facilitators were free to interpret the purpose and principles as they saw fit. My responsibility was to make sure that everyone understood what we had in mind when we developed the project proposal and what we had promised Kellogg we would do. When people asked me if I thought something was or was not consistent with our commitments, I would give my opinion. I was the judge, but not a prosecutor. Our project plan was our “constitution” and I was Chief Justice of the “Supreme Court.” However, I was ultimately responsible to the Kellogg Foundation for carrying out the project as promised in our agreement.

Sustainable agriculture – a foundation for sustainable rural communities
We believed that the problems of communities in agricultural areas was not so much that they had relied on agriculture and other natural resource development, but that they had relied on unsustainable systems of agriculture and natural resource development. They had relied on an industrial development paradigm or model – specialization, standardization, and centralization of control. The industrial system of agriculture didn’t require as many farmers, and thus didn’t support rural communities, or at least not as many people in as many rural communities. This type of agriculture moved more of the processes involved in food and fiber production off farms and out of rural communities. The ninety percent of the consumer’s food dollar going to pay for marketing services and commercial inputs has little positive effect on rural economics.

Even by mid-1990s, a new model or paradigm of agriculture clearly was emerging under the conceptual umbrella of sustainable agriculture. And that new way of farming was supportive of rural communities. A sustainable agriculture, like sustainable development, must meet the
needs of all in the present, while leaving equal or better opportunities for those of the future. It must be ecologically sound, economically viable, and socially responsible. The industrial model of agriculture is failing on all three fronts. The specialized, standardized, large-scale systems of farming are polluting the environment with pesticides, fertilizers, and manure from confinement animal feeding operations. Industrialization is driving independent farmers out of business and replacing them with corporate contractors – who turn out to be little more than tractor drivers or livestock building supervisors. And industrial agriculture is ripping the social fabric of rural areas by destroying family farms and rural communities. An industrial agriculture quite simply is not sustainable.

Sustainable agriculture became a public policy issue during the decade of the 1980s. It was first promoted by organic farmers who went to Washington DC in the early 80s and demanded recognition as a legitimate alternative to the industrial farms that were polluting the environment with pesticides and fertilizers. The movement was joined by farmers concerned with the economic viability of family farms as thousands were forced out of business during the farm financial crisis of the 1980s. The necessity for a socially responsible agriculture became apparent when rural communities felt the full impact of the agricultural crisis. By the mid-1990s sustainable agriculture was emerging as a viable alternative to industrial agriculture. Although the proportion of farmers currently following the principles of sustainability – including organic, holistic, biodynamic, permaculture, low-input, grass-based, etc. – is small, their numbers were growing.

This new paradigm for agriculture provided a new paradigm for rural community development. Sustainable farming was more management intensive. It takes more people on the land to maintain the natural fertility and health of the land, and thereby, to reduce reliance on pesticides and fertilizers. It takes more farmers to produce a given quantity of output on a diversified livestock/crop farm that produces food without polluting the
environment. It takes more people to market direct and to begin to rebuild local food systems, which not only re-link farmers and local people but return more of the food dollar to the farm. Sustainable agriculture reverses the industrialization process by substituting labor and management for land and capital. A sustainable agriculture would support more people on farms and more people in rural communities.

In the Sustainable Communities project, we weren’t claiming that rural communities could once again depend entirely on agriculture, only that a sustainable agriculture could provide a solid foundation upon which a sustainable rural economy could be built. In the post-industrial, new knowledge-based era of the future, people would be seeking out places to live that provide open-spaces, scenic landscapes, clean air and water, and friendly people. Sustainable agriculture would make rural areas ideal residences for those people who, in the new era, would be able to carry out their work from anywhere they choose to live. Sustainable agriculture would be compatible with other forms of economic development that rely on the unique creativity and productivity of the human mind, rather than on exploitation. Sustainable agriculture would provide the link between people, purpose, and place.

Communities as living systems
We knew that to challenge the conventional wisdom – of agriculture, of community development, and of research and extension -- we would need an unconventional organization. Our organizational model was a variation of a chaordic organization, a model developed by Dee Hock, the founder of Visa Corporation. A chaordic organization is defined by its purpose and principles of operation. With clearly defined purpose and principles, the organization structure can remain dynamic, evolving to accommodate an ever-changing organizational environment. Each person has a wide degree of latitude among alternative means of carrying out their work, as long as they remain true to organizational principles, and thus, contribute to the overall purpose of the organization. This contrasts with the
industrial organization, which builds its purpose into the organization structure, so that if each person in each position carries out their assigned task, the organization will fulfill its purpose. Industrial organizations are changed only through restructuring, whereas, chaordic organizations naturally evolve.

The differences between chaordic and industrial models of organization are analogous to differences between “living and dead” systems. Living systems are organismic in nature, whereas, dead systems are mechanistic. Both living and dead systems have fixed and unchanging “patterns” of organization. For example, the pattern of living organisms is encoded in their DNA, and the pattern of a machine is represented by its blueprint. However, living and dead systems differ with respect to structure. The structure is the physical embodiment of the pattern of organization. A dead system, a machine or building for example, has an unchanging structure. Once it is built, it maintains the same basic form until it is replaced or remodeled. For a living system, however, the structure is continually changing. The physical structure of living things naturally change and evolve as they are born, mature, reproduce, age, and die – even though their DNA, their pattern, is always the same. The “processes” of living and dead things also differ in one important respect. Both living and dead things fulfill their purpose by converting input to output, regardless of whether it is food into energy and work in the case of living things, or fuel into energy and work in the case of dead things. However, for living things, the continual regeneration of the structure is a fundamental part of the process of living. Thus, regeneration is a part of the process of living with purpose.

In the Sustainable Communities project, our basic purpose was sustainable community development – to help people of these communities find ways to meet the needs of all today while leaving equal or better opportunities for those of the future. Our fundamental principles: resource-based development, self-development, inclusiveness, and
economic, ecological, and social balance, provided the conceptual DNA. If people in a community followed these principles, whatever they did would contribute to the purpose of creating a sustainable community. The people of the communities could organize themselves any way they choose, and could carry out whatever activities they chose by any means they chose, as long as they remained true to the purpose and principles.

Some General Observations
The project ended in mid-2000. We experienced both successes and failures during the five-year span of the Sustainable Communities project. Don Voth of the University of Arkansas was our “outside” project evaluator. Don has presented a paper at these meetings related to this project that goes into much more detail than I will attempt here. I’m sure Don will make his paper available to anyone who is interested. So, I want to focus primarily on some general observations and some of the lessons learned.

On the positive side, I am confident that the lives of many rural people, in all three states, were changed in some very fundamental and positive ways as a consequence of their involvement with the project. We can’t claim much credit for these changes because these people changed their own lives. But our being there provided encouragement and support for those who were willing and otherwise ready to change. Those who were already inclined toward more sustainable farming systems and more sustainable community development strategies were able to obtain more information on alternatives and were given more encouragement to turn their ideas into action than if we had not been there. For some, information and encouragement were the only critical missing ingredients. Thus, from the standpoint of empowering people who shared the purpose and principles of the project, I feel we were successful. We learned that many people will take positive actions on their own if they are given a bit of encouragement and support.
However, we were far less successful in our efforts to help people “build community.” In stating our objectives, we had used the concept of “learning communities.” We had wanted to bring people together from all segments of communities around a common purpose or vision – farmers and townspeople, leaders and those who had never led, advocates of conventional agriculture and sustainable agriculture, young people and old people, wealthy people and poor people. We wanted to help people find a common vision of hope for the future and to help them learn, evolve, and grow together as a whole community rather than just a collection of individuals that happened to live in the same area. Perhaps we were too idealistic, but we didn’t even come close to achieving this goal.

Our communities were simply too fractured to be brought together by any single initiative, even one that lasted for five years. We were committed to the principle of inclusiveness, which meant that we refused to exclude anyone, explicitly or implicitly. But, people excluded themselves, because we refused to exclude others. In some communities we ended up working with the traditional leadership and existing power structure, because those outside considered this to be a “typical” community development project and choose not to participate. In some communities we worked primarily with people in agriculture, because others perceived this to be an agricultural project and choose not to participate. In some cases we worked primarily with conventional agriculture groups and in others with sustainable agriculture groups, because the two groups choose not to collaborate with each other. In spite of everything that we could to ensure inclusiveness and of our best efforts to bring people together, the people insisted on dividing themselves into their traditional peer groups.

In all honesty, we held firm to our stated “purpose and principles” in some communities, but in others we did not. In some communities, the single principle of community “self-development” prevailed, and the people gave little regard to linkages of purpose with place, to inclusiveness, or to...
sustainability. A couple of communities focused on economic development within the conventional agricultural community. Producers pooled their capital and formed “new-age,” closed cooperatives to add value to their traditional agricultural commodities. These communities showed the most impressive, tangible and measurable results, with millions of dollars of local investments. They built soybean and alfalfa processing plants and formed a hay marketing cooperative. But, they did little if anything to strengthen the social fabric of the community or to protect local natural resources from exploitation.

One of these two projects included producers from a broad geographic area, reflecting little sense of either community or place. One facilitator worked closely with existing community leaders and the other worked with existing farm leaders. One utilized the traditional technology transfer model of extension, while the other relied very little on extension. Both communities’ projects would have to be considered successful using traditional measures of success in economic development. But neither provided much insight into the basic question of whether rural community development can be sustained through sustainable agriculture. Neither focused on sustainability, either in agriculture or in community development.

In communities where the purpose and principles of the project were upheld, traditional community and agricultural leaders choose not to participate. Contrary to our working hypothesis, we were forced to conclude that the purpose and principles of sustainability are not sufficiently understood or accepted to allow sustainable community self-development to occur. Apparently, economic development is so engrained into the minds of community leaders and conventional farmers that they refuse to accept the basic premises of sustainability. They don’t see any means by which the social and environmental objectives of sustainability can be pursued without sacrificing economic performance. They are locked into short run thinking, where economic results can be
achieved through exploitation of social and environmental resources, rather than thinking about the longer term, where economic, social, and ecological objectives must be mutually supportive. They apparently don’t believe that caring for each other and being good stewards of the land are as important as are jobs and income in determining their quality of life.

In one community the conventional and sustainable groups were neither able to work together nor was either willing to accept a leadership role in the project. Some potentially productive communication took place and some good things happened in this community, but little was achieved in the way of community building. In one community a group of farmers who were already oriented toward sustainable agriculture eventually came together to form a loosely organized collective marketing group, which has some hope, at least, for continuation. In another community, those initially involved with the project had some history of working together on environmental issues, and thus, were able to make more progress than most others in initiating joint projects that show promise of enhancing the overall sustainability of their communities. But across all communities and all states, the converts from conventional economic development to sustainable community development were few and far between.

One of the biggest disappointments of the project to me was our failure to demonstrate a new model for extension programming. Our new model would have transformed extension agents into facilitators rather than technical specialists. The role of facilitator was to help people gain access to information rather than to provide the information themselves. A facilitator helps people learn what they want to learn rather than teaching them what they “need to know.” A facilitator doesn’t make things happen, but helps other people make things happen. We had facilitators hired from project funds in all of our communities. These facilitators worked very effectively, but we were not able to get the various University Extension programs to embrace, or even support, the concept of extension agents as community development facilitators.
In Missouri, the Sustainable Communities project was carried out within the extension system – we weren’t given a choice. When I announced that this would be a “different kind” of community development project, I was told that we would either “do it within the existing extension framework, or it wouldn’t be done.” So we relied heavily on county level extension agents in the initial stages of project implementation. Our extension agents were supposed to serve as facilitators; the facilitator we hired through the project was supposed to support the extension agents. Without going into a lot of details, this plan didn’t work. We were forced to abandon our initial collaborative arrangement with extension in the middle of the project to avoid complete failure.

I formed the following conclusions regarding the role of extension, based on my experiences in Missouri. The extension organization is not willing to turn over control of programs to people in local communities. Giving up control means giving up the ability to “create the illusion of success,” which is an essential element in any extension program. The organization will not tolerate being associated with potential failure. Most extension agents are not willing to give up their role as experts – to become a “guide on the side” rather than the “sage of the stage.” Extension has developed close ties with existing community and agricultural leaders in order to maintain funding. Extension agents are not willing to jeopardize those relationships by working with “fringe” groups, such as organic farmers, small farmers, and opponents of factory hog farms. In Missouri, only two of the original seven extension agents stayed with the project until it was complete. One of these two has since left the Extension Service. These two agents were tremendous assets to the project – they were “exceptionally” good. But in general, Extension “talks the talk” of community self-development, but just isn’t able to “walk the walk.”

If I had it to do all over
Part of my responsibility as project leader was to provide the Kellogg
First, my experience with the project has only served to strengthen my commitment to its fundamental purpose – helping build sustainable rural communities through sustainable agriculture. I remain convinced that the future of rural America is rooted in its people and its natural resources. The future of rural communities, and of the nation, depends on our finding ways to help rural people develop rural resources by sustainable means. I also remain committed to the organizational principles of living systems. I believe that the industrial organizational model is a root cause of the degradation of both human and natural resources, and that we must use models appropriate for living systems in order to manage living systems, including human systems, without destroying them. I learned that it is extremely difficult to get people to abandon the industrial paradigm with its hierarchical structure of command and control. Regardless of the difficulty, we must learn to organize and to work while being guided by a common commitment to the purpose and principles of sustainability.

However, if I had it all to do over, I would do a lot of other things differently. I am not sure that future failures could be avoided, but at least they wouldn’t be our past failures. First, I would not try to carry out a similar project through the Extension Service, or even through a university. Universities simply lack the flexibility in programming and funding to support sustainable community development programs – or any program of true community self-development. Unfortunately, protection and maintenance of “the institution” has become more important than meeting the real needs of common people. My suggestion to Kellogg was to fund such efforts in the future through existing rural advocacy groups – groups that are already committed to bring about the changes that Kellogg would like to see happen.

Second, I don’t believe that community “self-development” can be
constrained by any predetermined purpose or set of principles. The purpose and principles of sustainability were broad, but were not broad enough to allow communities to pursue “their own” hopes and dreams for the future. Most current economic development strategies, including conventional farming, are not sustainable, but most people don’t yet understand this fact, or at least are not willing to admit it. True sustainable community development must arise from within the community – must be community self-development. So we can’t have sustainable community self-development until the principles of sustainability arise naturally from within the community. They can’t be imposed on the community from the outside.

As a result, I believe that programs in sustainable community development should focus on “teaching and preaching” the fundamental principles of sustainable agriculture and sustainable development to people of rural communities, rather than continuing to support existing programs which invariably promote community economic development. Current community economic development strategies are exploiting rural people and the rural environment, the very resources that must be protected and regenerated for sustainable community development. Those who are truly concerned about the future of rural America, including those working in public institutions, should do everything in their power to stop the economic exploitation of rural communities. We need to help rural people to understand that the quality of their lives can be enhanced only through programs that allow them to care about each other and to take care of their environment while taking care of themselves. We cannot, in good conscience, help people degrade their own quality of life and destroy the future of their communities.

I still trust rural people to pursue their own best interests. I have no less confidence in the ability of rural people to shape their own destinies today than I did when I drafted the first Sustainable Communities project proposal more than ten years ago. However, I now realize that powerful
economic and political interests are working to keep people in rural areas from controlling the development of their resources. People in remote rural areas are prime targets for economic exploitation by corporations seeking cheap labor. And, remote rural areas are prime targets for environmental exploitation by corporations looking for some place to dump their wastes. These corporations have strong political support at all levels of government, from Washington DC to the County Court House. Most rural people are being misled into believing that they have no better alternatives than to settle for whatever they are offered by corporate investors from outside of their community. Rural people will not be free to choose their destiny until they understand that there are realistic alternatives to options currently being offered by dominant political and corporate interests. Rural people today, quite simply, are not free to choose sustainability.

The Rural Renaissance

However, I am optimistic about the future of rural America. I sincerely believe that human society is in the midst of a great transition – at least as great as the beginning of the “industrial revolution” and probably as great as the beginning of the “age of enlightenment.” Terms such as the “information age” and “the new economy” barely begin to describe the multitude of the changes ahead – many of which have barely emerged. The most common mistake when describing this transition is to refer to the “changes in technologies” rather than to the “changes in thinking” that created the technologies, or the “changes in thinking” that will be made possible by the technologies. The miracles of the industrial era were the products of changes in ways of thinking that began some 400 years ago. But society is beginning to realize that industrial ways of thinking aren’t sustainable. Most people don’t yet know what to do about this fundamental problem, so they choose to ignore it. But it won’t go away. Others have already abandoned industrial ways of thinking. These new thinkers are the creators of the new post-industrial era of human development.
The question of sustainability is a driving force in the great transition. I have referred to sustainable development and sustainable agriculture, but sustainable forestry, sustainable oceans, sustainable environment, and sustainable living also are common themes. People are concerned about their ethical and moral responsibilities for future generations, but a more powerful driving force is that people are beginning to realize that sustainability also is about quality of life, right now. We are beginning to realize that quality of life is not something that we can buy at Wal-Mart or Disney World with the money we earn from working all day every day. Quality of life is a product of positive relationships, from caring about other people, and a sense of purpose and meaning, from our belief in some higher order of things. Certainly, meeting individual needs is an important dimension of quality of life, but so is meeting our interpersonal and spiritual needs. Our quality of life is made better when we pursue social and ecological, as well as economic objectives. Sustainability is about improving the quality of life of people.

This new way of thinking is fundamentally transforming our society. It reflects a holistic, organismic, living systems worldview that is fundamentally different from the reductionist, mechanistic, dead systems worldview that has dominated the industrial era. The new way of thinking has its roots in quantum physics and chaos theory rather than mechanical physics and statistics. The truly revolutionary technologies are emerging from these new ways of thinking and in turn will support these new ways of thinking. These new ways of thinking will truly revolutionize human society.

The great transformation will fundamentally change America’s farms and rural communities. We will have more farmers, rather than fewer, in the future, and we will have more people, rather than fewer, in rural communities. We are not going back to the past, but forward to a fundamentally different and better way of life in rural areas. The question
in my mind is no longer “if,” but “how and when.” In the meantime, we need to do everything in our power to stop the degradation of rural people and rural resources, so we will have as solid a foundation as possible on which to rebuild rural America.

I remain hopeful for the future of rural America – in spite of what seems to be a chronic state of rural crisis. I know more about agriculture than rural communities in general, but I am optimistic about what I see happening. Family farmers are finally beginning to fight back against the giant agribusiness corporations, and against the agricultural establishment that supports them. Hog producers voted to eliminate the pork checkoff program that was using their own money to drive them out of business. Farmers and rural residents are joining environmental groups to bring lawsuits against the giant factory farming operations that pollute the rural environment as they drive family farmers out of business. Farmers are joining together to demand enforcement of antitrust laws against the giant corporations and to restore competitiveness to markets. Farmers are beginning to realize that their general farm organizations and commodity organizations are far more supportive of industrial agriculture than of family farms. Farm groups are beginning to talk about multi-functionality, rather than economic efficiency, as a guiding principle for government farm programs. Farmers are beginning to fight back, and they have a real chance of winning.

I am optimistic also about the people who attend conferences dealing with sustainable agriculture and related issues all across the continent. The Land Grant Universities may not be increasing their support for sustainable agriculture programs, but the grass-roots sustainable agriculture movement is booming. There are already several “sustainable agriculture” conferences that draw over 1,000 people. Conferences with 400 to 500 people are becoming almost commonplace. And, the numbers of conferences drawing 100 people or more are too many to count. Sustainable agriculture is no longer a novelty and the people who attend
these conferences are no longer idealists who attend out of idle curiosity. Most of the people who attend are farmers attending because they want to learn more about what they are already doing, or are seriously seeking a better way to farm. These people are a diverse lot. They are young and old, male and female, well-educated and uneducated, well off and poor, they are a cross section of the “people” of rural America – not representative of the existing power structure. These people are building the future of rural America – with very little help from their government, their universities, or anyone else. I think these people deserve a lot more help than they are getting. But, I think they are going to succeed, with or without us.

I have hopes that we are nearing a “tipping point” in the sustainable development movement. A recent book by the same name, the author, Malcolm Gladwell, uses the analogy of a disease in explaining a “tipping point.” He describes it as the point at which an infection that has been lingering among the general population suddenly explodes into a full blown epidemic. He suggests that “epidemics of ideas” reach a tipping point when three conditions are present. First, people who are effective in spreading ideas to others must be “infected” with this idea. Second, people must learn to express the idea in a way that makes sense to a lot of people. And finally, people must be searching for new ideas to replace the old ones.

I think all of these tipping point conditions are imminent, if not already present, in the sustainable development movement. More and more people of influence are accepting sustainability as a fundamental guiding principle for future development. More and more people are beginning to understand that sustainability is not about sacrifice, but is about helping people achieve a higher quality of life -- realizing a higher concept of self-interest. And finally, more and more people are realizing that industrialization is destroying our civil society and natural ecosystem, and that corporatization is destroying our democracy and our national
We are in the midst of a great transition that is changing the ways people are willing to think about everything. More and more people are realizing that there is something very wrong in America and they are ready for fundamental change. The great transition creates an environment of change.

Finally, there has never been a time when what we do, or don’t do, could make more difference in the future of rural America. We can continue to defend economic efficiency as the guiding principle for America, and thus, side with the corporate interests that are promoting the exploitation of rural areas. We can sit on the sidelines and observe – rationalizing somehow our accepting the peoples’ tax dollars while we silently observe their exploitation. Or we can take a stand with the rural people who are fighting back. We can accept our responsibility to provide people with choices without making the choices for them. We can help spread an epidemic of positive change in rural America. We can help move the country toward the tipping point of explosive change – moving toward a more sustainable agriculture and a more sustainable rural America.
A true community is something far more than a collection of individuals, who happen to be living in the same general geographic location, or even a group of individuals that happen to share common interests. A true community is made up of people who care about each other and are committed to each other. Their commitments may stem from the fact that they live in a common area or place, and have come to care about each other in the process of learning to share that place. Or their commitments might stem from the fact that they share some common concerns, and have come to care about each other in the process of learning to address those concerns. Regardless, the caring is what matters. Be it a community of place or a community of interest, a community is a reflection of the fact that people care about each other and are committed to each other’s well-being.

Within true communities, there is a sense of belonging, a sense of connectedness, a sense of being interrelated – a sense of being more than a collection of individuals. The whole of a true community embodies something in addition than that which is in its individual members. It includes those things that do not exist within individuals, but between and among individuals – the connections, the relationships, and the sense of being a part of something beyond ourselves.

A Disconnected Nation
Most of the groups that we refer to as communities in America are nothing more than collections of individuals who happen to live in the same place or belong to the same organization. We have become a nation of disconnected people. Our families are scattered across the country. We don’t know the people who live across town, down the street, and maybe not even the people who live next door. We don’t really care much about
most of the people we know.

We deal with each other only indirectly, for the most part – through transactions, through agents, or through lawyers and courts. Our relationships are defined by buying and selling, by contracts, and by laws rather than by common interests, commitment, and trust. Our disagreements are addressed through argument, arbitration, and lawsuits rather than through honest discussion of our differences.

Truly personal relationships, based on believing, trusting, caring, and sharing, are labeled as naïve or idealistic. Personal commitments are labeled as risky, maybe even foolish, unless they are confirmed in writing. It shouldn’t be surprising that, as a nation, we have lost all sense of commitment to our common good. In general, Americans feel no commitment to each other, no sense of true community, no concern for, or connection to, each other.

Nowhere is this disconnectedness more evident than in our systems of food and farming – in agriculture. Most consumers, particularly younger consumers, have no sense of where their food actually comes from. They may know that farmers grow crops and livestock, and that someone processes, packages, and delivers their food to grocery stores and restaurants, but they have little sense of what’s involved in this process. Few people even stop to consider that soil is essential to all life – as essential as air, water, and sunlight – and that farming is the means of bringing life from the soil. There is no general sense of connectedness between the people and the earth.

But, does it really matter if people don’t understand where their food comes from? Does it really matter whether people have become disconnected from the land? People don’t understand where their automobiles come from, or where their clothes, their houses, their movies, or anything else comes from, and no one seems to be complaining about
their lack of knowledge of such things.

However, disconnections do matter, even if no one complains. Seeds of dissension are sown in the gaps of understanding and appreciation that exist among people. Dissension leads to loss of trust, to lack of concern, to disconnectedness. Conflict, frustration, depression, anger, and other miseries in life are but symptoms of our disconnectedness. People may not have associated the symptoms with the cause, but the cause still matters. It matters very much whether or not people understand and appreciate each other. But, it matters even more that we consumers understand our connectedness with farmers, and through them, our connectedness with the earth.

Our disconnectedness matters because many farmers feel they are forced to mine nutrients from the soil, pollute the environment with chemicals, and abandon their communities, because the only thing that seems to matter to consumers is the cost of food. It matters because farmers feel that they are being forced to value the economic bottom-line above virtually all else, above their neighbors and communities, and sometimes even above their families. It matters because many farmers want to be good neighbors and good stewards of the land, but the competitive pressures of a consumer-driven, market economy won’t let them. Disconnectedness matters because farmers are slowly destroying the land, and ultimately, may destroy the ability of the earth to support human life – all because people don’t understand their connectedness with the land and with the people who farm it.

The Cause of Our Disconnectedness
It’s no coincidence that America lost its sense of community during the last half of the 20th century – during the latter stages of industrialization. Disconnectedness is an inescapable, though unintended, consequence of the industrial approach to economic development. As we industrialized, we became disconnected.
The fundamental principles of industrial development are specialization, standardization, and centralization of decision making. When workers specialize in doing fewer things, each person can become more efficient in the task they perform, and by working with others can produce more with less total work. By standardizing the tasks of specialized workers and standardizing the things they produce, workers and their products become interchangeable, greatly facilitating the coordination of separate specialized functions. Finally, specialization and standardization simplifies decision making processes, and makes it possible to centralize management and to consolidate large numbers of workers and functions into large business operations.

Economists call the gains from industrialization economies of scale. Regardless of whether the result is assembly line production by giant automobile manufacturers or a large scale confinement animal feeding operation, the principles are the same. The gains in efficiency from industrialization result from carrying out specialized functions by standardized means under centralized management.

Over the past two hundred years, our economic system has evolved to accommodate industrialized systems of production and distribution. Adam Smith, in his landmark book of 1776, *The Wealth of Nations*, developed the blueprint for our industrial economy. He used the example of making straight pins to illustrate the potential for tremendous gains in productivity from division of labor – specialization and standardization of production processes. But, Smith went on to explain how free, competitive markets allowed specialized producers of food – the butcher, the brewer, and the baker – to best serve the needs of society in general by pursuing their individual self-interest.

Up through the early 1900s, most Americans produced their own food, bartered for it, or bought it from someone who had produced it.
Relationships between consumers and producers were direct and personal. As the economy became more specialized, however, merchants such as butchers, bakers, and brewers bought from producers and sold to consumers, and the farmer-consumer connections became one-step removed. Then came the grocery store owners, who bought from the butchers, bakers and brewers, and then, consumers were at least two-steps removed from the farm.

As people left rural areas for the cities, consumers were separated by distance as well as function, and added functions, such as transportation, further processing, storage, and packaging, served to magnify the degrees of separation. Consumers and producers alike became increasingly reliant upon the impersonal marketing system. They relied on laws to facilitate buying and selling, on grades and standards to define quality, on health requirements to ensure safety, etc. – and they relied less on personal relationships.

This same type of disconnection was occurring all across society – increasingly, people were relating to each other through the marketplace. Confidence, commitment, and trust were replaced by guarantees, contracts, and regulations. And when disputes arose concerning market transactions, they were settled in the courts. The reservoirs of personal goodwill from which conciliation and consensus must be drawn were rapidly depleted. Our national disconnectedness is not a coincidence with, but a consequence of, the industrialization of the American economy.

The Seeds of Change
Fortunately, we are beginning to realize that many of the promises of industrialization were empty. Certainly, society benefited from the tremendous gains in economic efficiency, which freed the masses from lives of starvation, deprivation, and drudgery. No one would wish to go back to pre-industrial days when people lived by the sweat of their brow
and spent most of their time and effort just feeding and clothing themselves. However, the only promises that industrialism could keep were material in nature – the promise of more cheap stuff. Many of its promises were not kept. Having more things did not translate into, or substitute for, a lack of positive personal relationships and a sense of purpose and meaning. We sacrificed our friends and family, we sacrificed our ethics and morality, and all of the cheap stuff in the world will not compensate us for our loss. Our quality of life has not kept pace with our standard of living.

People are losing confidence in the industrial, free-market economy. We no longer have competitive markets, at least not in the economic sense to eliminate excessive profits. It’s no longer easy to get into or out of businesses, to accommodate changing consumer tastes and preferences. We don’t have accurate information concerning the actual qualities of the things that we buy, but get disinformation by design in the form of persuasive advertising. None of the necessary conditions for competitive capitalism exists in today’s economy. Capitalism has become corporatism. There is no longer any logical reason to believe that our pursuit of narrow self-interests results in the greatest societal good. Corporate industrialism may produce lots of cheap stuff, but there is no assurance that it is producing the right stuff.

The quality of our natural environment has not kept pace with our standard of living. We realized back in the 1970s that our environment was being polluted by industrial development. We established the Environmental Protection Agency at the national level, and began the task of cleanup and restoration at the state, city, and community levels as well. Each year, more effort and money is spent on environmental protection and resource conservation, but each year we introduce new chemicals, and now biological organisms, into the natural environment – and our natural ecosystems are increasingly at risk. The quality of our environment has deteriorated as we have accumulated more wealth.
The quality of our spiritual life has not kept pace with our standard of living. The foundation of industrialism is the science of logic and reason. For every effect there is a logical cause, every event has a logical explanation, and all “natural limits” are but temporary obstacles that eventually will be overcome through science and technology. By taking a thing apart and examining its pieces, we would discover the truth of the whole. But, the truth of a thing is not in its pieces, but instead in the whole. The knowledge of “how” something works does not answer the question of “why?” The purpose and meaning of a thing, the “why” of it, must be derived from the purpose of the whole of it, which can be discerned only from the next higher level of organization.

The purpose and meaning of life cannot be derived from science. Science is limited to telling us “how” things work, but not “why.” The purpose and meaning of life must be derived from the next higher level of organization, from somewhere beyond and above all of life. As we have focused more and more on the “how,” we have lost our sense of the “why” – our sense of the purpose of it all.

Paraphrasing William James, the religious philosopher, spirituality is a “felt need to live in harmony with some higher, unseen order of things.” We have lost our sense of purpose and meaning in life, because as we have focused on “tangible reality” we have become disconnected from our “higher reality.” The quality of our spiritual life has deteriorated as science and technology has advanced our standard of living.

More and more people are becoming disenchanted with materialism and are demanding something better – something more than economic prosperity. More and more people seem to be concluding that what we are doing quite simply is not sustainable. We are destroying our relationships, within families, communities, and society in our blind pursuit of ever more and cheaper stuff. We are destroying our natural
environment through pollution, depletion, and extinction, in our blind pursuit of ever more and cheaper stuff. We have lost our sense of ethics and morality, in our blind pursuit of science and technology. More and more people are looking for something of lasting value. They want to live lives of purpose and meaning. They are searching for a sustainable quality of life.

Dawning of the Post-Industrial Era
Thankfully, a new post-industrial paradigm is emerging from broad-based concerns for sustainability. The sustainability movement is about meeting the needs of the present, while leaving equal or better opportunities for those of the future. Sustainability is a common sense concept that applies the “Golden Rule” within and across generations. First, we must have a sense of self-respect, and concern for self, before we are capable of respect and concern for others. But, we also must be concerned for the well being of others, just as we would have them be concerned for us. Finally, we must treat those of future generations, as we would have them treat us if we were members of their generation and they were the caretakers of the earth today.

The three cornerstones of sustainability are ecological integrity, economic viability, and social responsibility. Any system of development that degrades the productivity of its resource base eventually will lose its ability to produce, and thus, is not sustainable. Any system of development that is not financially sound, eventually will lose the ability to make decisions concerning how resources are used, and thus, is not sustainable. Finally, any system of development that does not meet the needs of society, not only as consumers but also as people, will not be sustained by society, and thus, is not sustainable. All three are necessary.

The basic concepts of sustainability are the same, regardless of where they are applied within society – sustainable development, sustainable communities, sustainable resources, sustainable seas, sustainable
forestry, etc. However, since all life arises from the earth, a sustainable agriculture must provide the foundation for a sustainable society.

Our farms must be ecologically sound, economically viable, and socially responsible, otherwise, our human society will not be sustainable. Ecologically sound farming means farming in harmony with nature – nurturing nature rather than dominating or manipulating nature. Socially responsible farming means farming in harmony with people – within families, communities, and societies – not dominating or manipulating people. Economically viable farming means profits must come from fitting the methods of farming to the farm, the farmer, and the community – not forcing either to fit some predefined prescription for productivity. Sustainable farming means farming in harmony, both within and across generations. Sustainability is inherently rooted in spirituality – the need to live and work in harmony with the “higher order” of things. At its very foundation, sustainability is a matter of ethics and morality.

Sustainable farming requires that farmers reconnect with people, with people as customers and with people as neighbors, as they reconnect with the land, and through the land, with the fundamental order and nature of things. Wendell Berry, a Kentucky farmer and writer, has clearly articulated the connections among people, the land, and sustainable agriculture.

"...if agriculture is to remain productive, it must preserve the land and the fertility and ecological health of the land; the land, that is, must be used well. A further requirement, therefore, is that if the land is to be used well, the people who use it must know it well, must be highly motivated to use it well, must know how to use it well, must have time to use it well, and must be able to afford to use it well" (p. 147).

Farmers will not have time to use the land well, or be able to afford to use it well, unless they live in a society that understands how important it is
that farmers be able to use the land well. To farm sustainably, farmers and consumers must become reconnected.

The good news for the future of food and farming is that thousands of farmers are finding ways to farm sustainably. They are finding ways to be good stewards of the land, while sustaining a desirable quality of life for themselves and their families and helping to build local communities. They may label themselves as organic, low-input, alternative, ecological, biodynamic, biological, holistic, permaculture, or claim no label at all. However, they are all pursuing common economic, ecological and social goals. By their actions, these farmers are defining a new kind of American farm.3

Reconnecting People through Agriculture
These new American farmers are reconnecting with their customers at farmers markets, roadside stands, Community Supported Agriculture organizations (CSAs), in-store demonstrations, on-farm recreational experiences. They even connect through less personal means of telephone or Internet, as they communicate directly person-to-person, rather than through some paid advertisement or promotion scheme. These farmers also are reconnecting with each other, as they are learning that they can accomplish more through cooperation than competition, once they break away from the economic, industrial mind-set. They learn from each other and work together for social, economic, and ethical reasons. They are building new farming communities.

Many urban people may not have an opportunity to reconnect to the land, to nature, and to each other by farming, or even buying food directly from farmers. But, through urban agriculture, people in cities have the same opportunities as farmers to reconnect with the land, with nature, and with each other. By reconnecting with the land, through gardening, we can reconnect with each other – forming communities of place around shared community gardens, and communities of interest, around a common
commitment to growing things of usefulness and beauty.

Even if only in the small part of our life that relates to our urban garden, through gardening, we are making a tangible commitment to valuing nature and people over *cheap stuff*. We soon begin to realize how much we have sacrificed in our pursuit of ever more and cheaper *stuff*. As we begin to enjoy the bounty of our own harvests, we begin to understand the true meaning in product quality. We see and taste the difference between products that are local, fresh, and harvested at the peak of maturity, rather than being picked green and spending days, or weeks, in shipment over thousands of miles.

Not only do we benefit directly from gardening, but we also begin to understand how much we have compromised the quality of our food supply by demanding that our food be quick, convenient, and cheap. We begin to understand that the quick, convenient, and cheap food, at the supermarket or fast-food joint, may not be worth the time, effort, or money. We begin to seek out opportunities to buy fresh produce from nearby farmers, at urban farmers’ markets, or through retail food stores who buy from local farmers. We begin to buy fresh products and learn to prepare foods for ourselves. We begin to understand that what we gain in nutrition, flavor, and overall quality, in addition to personal self-esteem, more than makes up for our investment of time and effort.

Through gardening, we come to realize that making friends and caring for the earth contribute to our quality of life in ways that quick, convenient, and cheap food never could. As we share in the tasks of caring for living, growing plants in a community garden, we come to share a common commitment. As we share concerns and insights about helping living things grow, we come to share a common commitment to understanding the nature of life.

**Garden as Metaphors**
The living things in gardens become a metaphor for the living people in families and communities – gardeners become connected through our common concern for the health and well being of our gardens. The interconnectedness among the living organisms in the soil, the living plants that are fed by the soil, and the insects, birds and people, who are fed by the plants, provide a metaphor for interconnected human communities. Soon, personal connections among gardeners begin to grow, in a pattern of positive interdependence, complementing, and extending beyond, our common connection to urban agriculture.

Communities of caring people, built around agriculture, are better able to address problems such as those relating to raising children, resolving family conflicts, investing in education, fighting crime, and building communities. We learn valuable lessons in how to relate to other people, as we learn how to grow plants, rotate crops, build soil fertility, manage pests, and create an interconnected garden that somehow is more than just a collection of plants.

As we care for our gardens, we come to realize in very tangible ways that the earth is the source of all life, and that our quality of life depends upon the quality of the earth. The garden becomes a metaphor for all of nature. All life on earth depends on the interaction of sunlight, air, water, and soil. Plants are solar energy converters. All fossil energy on earth is stored sunlight from times past. Plants must have air, water, and soil to grow. Even plants that grow in water must be fed nutrients from the earth. All of the living things on earth, including humans, are part of an interconnected web of life – none can live in isolation from the others. We learn also that while we humans may dominate other life forms, we are no less dependent on them than they are on us. We are all part of the same interconnected whole.

Gardeners also come to realize quickly that while humans may “manage” nature by tipping the ecological balance of nature in our favor, we most
certainly do not control nature. There are fundamental laws of nature that
underlie all of life, including human life. If we understand and learn to
work with those laws, or principles, then nature will respond with a
bountiful crop. However, if we violate the laws or principles of nature, our
seeds will not germinate, our plants will not grow, the pests will devour our
crops, and our efforts to “manage” nature will have been in vain.
Gardeners learn quickly that there is a “higher order of things” within
which we must carry out our vocation.

A garden can be a spiritual place, where the purpose and meaning of
one’s life is revealed. As we find our place within nature, we begin to
understand our place within the larger order of things as well. We begin
to understand that the working of nature is not some biological accident,
or some mechanistic process set in motion by some clashing of stars in
the distant past. There is an order, a harmony to it all. We see all things
are working together according to some fundamental principles that
cannot be changed or controlled by humans. There can be no logical
reason for such laws of nature if there were no purpose for the processes
of nature. There can be no logical reason for principles of human
relationships if there were no purpose for human civilization. The only
logical and reasonable explanation for the existence of order is to guide
us toward some purpose, thus, giving our lives meaning. This order, this
purpose and meaning, arises not from the science of rationality and logic,
but from something beyond science, something higher – something
spiritual. This spirituality is always present in a garden.

The lessons from nature’s community within urban gardens complement,
and extend, the social communities of people that arise around gardens.
Communities built around urban agriculture are more likely to be spiritual
communities – not necessarily in a religious sense, but in a sense of
sharing a common understanding in the “higher order of things.” People
in garden communities learn to look for fundamental causes of problems
rather than simply treat the symptoms. We can see that most social and
economic problems arise from our violation of some fundamental law of nature, some spiritual principle, rather than some error in personal or political strategy. Thus, true solutions are far more likely to arise from an understanding of nature, including human nature, and from changes in our ways of thinking, or philosophy, rather than from some change in personal or political strategy. Gardeners understand that lives of peace and happiness, ultimately, must be lives lived in harmony, with each other and with the fundamental principles of life – just as the garden thrives in harmony with nature.

Sustainable Communities through Urban Agriculture
Urban gardeners are far more likely to understand the basic nature and importance of sustainable agriculture than are most people who are not connected with the land. We can understand why agriculture must be about far more than just supplying food that is quick, convenient, and cheap. We can understand why an agriculture that degrades and destroys the productivity of the land is not sustainable. We can understand that an agriculture that degrades families, destroys communities, and disconnects people from the land, is not sustainable. Gardeners can understand that agriculture must be productive and profitable – the economic costs must be covered. But gardeners can understand why agriculture also must be ecologically sound and socially responsible, if it is to be sustainable.

Urban gardeners and local farmers constitute natural “communities of interests.” Together we can form “community food circles” – to pursue a wide range of common interests in recreating a local food system. The goal of community food circles is not necessarily to bypass completely the industrial food system, although that might someday be possible. Instead, the goal is to create a “sustainable” food system, which in most cases will require a far greater reliance on independently owned and operated local sources of food. Sustainability will demand that consumers and farmers share a common commitment to maintaining food systems that are
ecologically sound, economically viable, and socially responsible. The “free market” will not ensure sustainability. It will require conscious, purposeful decisions by connected, committed people.

Communities of urban gardeners, through connections with local farmers and a commitment to sustainability, can create a metaphor for sustainable urban communities. Sustainable communities, like sustainable agriculture, must be ecologically sound, economically viable, and socially responsible – regardless of whether they are located in rural or urban areas.

A sustainable urban community must have a safe, healthful, and productive natural environment. The gardens, parks, and open spaces may constitute a small part of an urban environment, but they provide useful models for sustainability. The physical environment in which people live is no less important to their development and success than is quality of soil, water, air, and sunlight to the life and growth of plants. Healthy communities cannot be sustained in an unhealthy natural environment.

A sustainable urban community must be made up of socially responsible people. There must be a sense that the community is something more than a collection of individuals – it is an integrally interconnected whole, like a living organism. If the source of a problem in a community is quickly detected and addressed at its source, a community, like a living organism, can heal itself. However, if a problem in a community is allowed to linger and grow, if treatments never get beyond the symptoms, a community can wither and die, just like a diseased living organism. A socially responsible community is concerned about all of its members, not just the most prominent or influential. A socially responsible community understands that we are all part of the same whole.

Finally, people in sustainable urban communities must have opportunities
to be productive and successful economically, just as a sustainable agriculture must be economically viable. This certainly doesn’t mean that economic opportunity is the only thing that counts, or is even the most important thing, in sustaining an urban community. But without economic opportunity, people won’t be able to take care of the natural environment, or to take care of each other. The key is harmony and balance among the ecological, social, and economic, in sustainable agriculture or in sustainable communities.

Sustainable urban gardening provides us with a metaphor for sustainable urban communities, a sustainable agriculture, and a sustainable society. As we come together around our gardens, we should not see our work as limited to growing food or engaging in a creative hobby. We have opportunities to create communities around our gardens. Our communities of interest can be extended into communities of place. We can link our urban communities with communities of local farmers and with other groups of caring people, who are committed to building a sustainable society. As we come together, as we connect, within sustainable communities, and as our sustainable communities connect with each other, we begin forming the critical connections that are necessary for a sustainable human society.

As we reconnect to each other and with the land, we rediscover true quality of life. Life is not just about us individually; it is also about the interpersonal and spiritual. Relationships and stewardship are not sacrifices, they are privileges – they give purpose and meaning to life. In the garden, we discover the meaning of a life of quality – a life of harmony and balance among the economic, ecological, and social. The garden is a metaphor for life.

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1 Presented at the 22nd Annual Conference of American Community Gardening Association, Salt Lake City, UT. September 8, 2001.

2 John Ikerd is Professor Emeritus, University of Missouri, Columbia, MO – USA. E-mail: JEIkerd@AOL.COM

web site: http://www.ssu.missouri.edu/faculty/jikerd

3 For 50 real life examples, see “The New American Farmer – Profiles in Agricultural Innovation,” the SARE Program, USDA, Washington DC. ($10 US – call: 802-656-0484 or e-mail: sanpubs@uvm.edu , also available free on line at http://www.sare.org/newfarmer )
Most American rural communities have roots in agriculture. When Europeans arrived in the New World, they found a land of great natural wealth. Some of that wealth was in minerals and timber, but most of it lay in vast plains and winding valleys of fertile farmland. However, it took people to transform this wealth into material wellbeing. People cleared the land and tilled the soil bringing forth a bounty of food and fiber from the fertile fields. People cared for cattle and sheep as they grazed the vast plains. As these people, these farmers and ranchers, achieved surpluses beyond their own needs, they needed other people in towns and rural communities. Farmers needed people who would take their surpluses in exchange for things that farms could not produce. They needed blacksmiths, dry goods stores, livery stables, banks, and salons. They also needed schools, churches, and medical care, if they were to move beyond economic survival to achieve a more desirable quality of life.

Some of the early American communities built up around timber and mining towns, but most towns were farming and ranching towns. The number of people in these towns reflected the nature of agriculture on the surrounding farms and ranches. The larger the number of people needed to care for the land, the larger the number of people needed in town to support those farmers and ranchers. It is likely true that distance between most rural towns relate to a day’s roundtrip by horse and wagon. However, the number of people in those towns was determined in large part by the nature of agriculture. For example, lands well suited for vegetables and row crops were farmed more intensively – supporting more families per acre or section. Lands suited only for small grains or pasture were farmed less intensively – supporting fewer families per section or township. Of course, town folks also had mouths to be fed with locally grown foods – greens, milk, eggs, and bacon. But, the density of population in most rural places reflected the nature of the surrounding agriculture.

At the turn of the 20th century, America was still an agrarian country -- about 40 percent of its people were farmers and well over half lived in very rural areas. However, then came the second phase of the industrial revolution and the need to collect large numbers of people into cities to "man" the factories and offices of a growing manufacturing economy. The simultaneous industrialization of agriculture – mechanization, specialization, standardization -- made it possible for fewer farmers to feed more people better at a lower cost to consumers. This "freed" farmers and other rural people to find work in the cities and freed consumer income to buy those things the industrial economy was to produce.

The same technologies that pulled rural people toward the cities pushed them off the farms and out of rural communities. These technologies increased production per person by substituting capital and generic knowledge for labor and individual management. As successful new farming technologies were developed, they invariably reduced production costs -- per bushel or per pound of production -- but only if each farmer produced more. Thus, the incentive to realize greater profits by reducing costs was inherently an incentive to buy bigger equipment and more commercial inputs in order to farm more land and produce more output. As farmers individually responded to these incentives, production in total invariably expanded, market prices fell, and the promise of continuing profits vanished. The new technologies were then necessary – no longer for profits but now for survival. Those who adopted and expanded too little too late were unable to compete. They were "freed" from their farms to find jobs in the city.
The farms that survived grew larger and larger. In fact, with a limited population to feed and a limited amount of land to farm, it was possible for only fewer and fewer farmers to survive. In addition, large specialized farms often bypassed their local communities in purchasing inputs and marketing their products in order to remain competitive with other large farms. Their competitors were not just down the road or even across the country, but might be half way around the world.

Fewer farmers buying less locally meant less need for farm related businesses in small towns. Fewer farmers also meant fewer farm families to buy groceries, clothes, and haircuts in small towns. Fewer families also meant fewer people to fill the desks in rural schools, pews in rural churches, and the waiting rooms of rural doctors. Fewer people with a purpose for being in rural areas meant that many rural communities were losing their purpose for being as well.

Today, America is no longer an agrarian nation. Less that 2 percent of Americans call themselves farmers and most farm households earn most of their household income off the farm. Somewhere around 25 percent of the people live in non-metropolitan areas – but many if not most commute to a city to work. There are few people left in farming communities to move to town and no longer any social justification for moving them. Industries are "downsizing" and "outsourcing" -- laying off workers by the thousands. As consumers, we spend on the average a little over a dime out of each dollar for food and the farmer only gets a penny of that dime. The rest goes to pay for commercial inputs and marketing services – packaging, advertising, transportation, etc. Society no longer has anything to gain from further industrialization of agriculture -- yet it continues. In addition, rural communities in farming areas continue to wither and die.

Feeling the stress of an industrializing society, many small towns turned to industrial recruitment – trying to become a city rather than a town – as a means of survival. Others have tried to capture natural advantages in climate or landscapes to become destinations for tourists from the cities. Those near the growing industrial centers "rented out their communities" as bedrooms for those who are willing to commute to the city. However, most rural communities in agricultural areas have not been successful in their efforts to regain prosperity – or even to survive. Most rural communities have become and remain places in search of a purpose.

As the industrialization of agriculture moves into its final phase – the centralization of decision making among giant agribusiness corporations – there might seem little hope for either family farms or rural communities. The futures of both family farms and rural communities most certainly are at risk. The wounds of the past one hundred years will not be easy to heal. Nevertheless, there is still hope for the future. The industrial era appears to be nearing an end elsewhere in the economy, even as it continues to consume agriculture. The emergence of a new post-industrial era for human society may create opportunities for a new kind of American farm and new American communities. However, the wounds of the past will not heal themselves. Rural people must address their problems at their root causes, and must find the wisdom and courage to develop and pursue a new holistic vision for the future of rural America.

Removing the Sacred from Food and Farming

The wounding of rural America has several root causes, but none is more fundamental nor more important than the dehumanizing and desacralizing of food and farming. As we have specialized, standardized, and centralized control of agriculture to make it more efficient, we have forced living systems, including people, to behave as lifeless machines. Not only have we removed the life from agriculture -- we have also removed its soul. We will never restore life to rural communities until we restore the live and health of agriculture. We can never restore its life and health until we first restore its soul. Before we can heal rural America, we must reclaim
Farming is fundamentally biological. All of life arises from the soil. The essence of agriculture begins with conversion of solar energy through the living process of photosynthesis carried out by plants that feed on the soil. The food that sustains our lives as people comes from other living things. If life itself is sacred, then food and farming must be sacred as well. In fact, people have considered food and farming to be sacred throughout nearly all of human history. Farmers prayed for rain, for protection from pestilence, and for bountiful harvests. People gave thanks to God for their "daily bread" as well as for harvests at annual times of Thanksgiving. For many, farming and food are still sacred. But for many more, farming has become nothing more than another business and food just something else to buy. Those who still treat food and farming as something sacred, modern are labeled as old-fashion, strange, radical, or naïve.

However, the time to reclaim the sacred in food and farming may well be at hand. The trends that have desacralized farming have run, and overrun, their course. There is a growing skepticism concerning the claim that more "stuff" – be it larger houses, fancier cars, more clothes, or more food – will make us happier or more satisfied with life. There is growing evidence that when we took out the sacred, we took out the substance. As agriculture has been robbed of its natural productivity, our lives have been robbed of depth and meaning. But, people now are beginning to question the logic of our materialistic society. We have more "stuff" than any society has ever had but our wants seem as great as ever. How much is "enough?" Can anyone ever have "enough?"

The old question of how can I get more is being replaced with the question, how can my life be more fulfilling? The answer to this question, at least in part, is that we must reclaim the spiritual dimension of our lives. But, how can we reclaim the sacred? And, how will doing so change our farms and rural communities? We will address these questions later, but first we need to understand why we took spirituality out of food and farming in the first place and why we now need to put it back in.

Until some four hundred years ago, people considered nearly everything in life to be spiritual or sacred. The religious scholars were the primary source of knowledge in the intellectual segments of society. The uneducated masses accepted claims that kings, chiefs, and clan leaders -- the people who other people looked to for wisdom -- had special divine or spiritual powers. Only during the seventeenth century did the spiritual nature of the world come under serious challenge. Among the most notable challengers was Decartes, a Frenchman, who proposed the spirit/matter dualism. "The Cartesian division allowed scientists to treat matter as dead and completely separate from themselves, and to see the material world as a multitude of different objects assembled into a huge machine" (1983. p.22). Sir Isaac Newton, an Englishman, also held this mechanistic view of the universe and shaped it into the foundation for classical physics.

Over time, scientists expanded the mechanical model to include the living as well as the "dead." Scientists now treat plants, animals, and even people, as complex mechanisms with many interrelated, yet separable functioning parts. During the early part of this century, physicists developed fundamentally new theories they called quantum physics. The emergence of quantum physics challenges the old mechanistic worldview. Quantum physics views everything as interconnected -- there is no separation of cause from effect. However, mechanical reductionism, which attempts to explain all biological processes as purely chemical and mechanical processes, still dominates the applied biological sciences from agriculture to medicine.

Scientists consider the spiritual realm, to the extent considered at all, to be in the fundamental nature of things -- the unchanging relationships that they seek to discover. In science, there is no active spiritual aspect of life, only the passive possibility that spirituality was involved somehow in the initial creation of the universe that we
are now exploring. The more we understood about the working of the universe, the less we needed to understand about the nature of God. The more we "knew" the less we needed to "believe." As we expanded the realm of the "factual" we reduced the realm of the "spiritual" until it became trivial, at least in matters of science.

Over time, the concept of science had shifted from a "science of understanding" to a "science of manipulation" (Schumacher). Over time, the goal of science had shifted from increasing "wisdom" to the goal of increasing "power." We did not want just to understand the universe; we wanted to dominate it. The purpose of science had become to enhance our ability to influence, direct, and control.

Farming was one of the last strongholds for the sacred in the world of science. "Mechanical" processes – using machines to manufacture things from "dead" matter – were relatively easy to understand and manipulate. But, "biological" processes – involving living organisms, including humans – proved much more difficult to understand and to manage. Farming and food are fundamentally biological in nature. So it took far longer to learn to manipulate and control agriculture. Farmers continued to pray for rain, and people continued to give thanks for food – although scientists would have advised us that both were either unnecessary or futile.

However, science eventually succeeded in taking the sacred out of farming – at least out of modern, industrialized farming. People tend to be difficult to understand and manipulate. But, machines took the laborers out of the fields, so farming became more manageable. Selective breeding brought genetic vagaries more or less under control. Genetically modified organisms (GMOs) are but the latest attempts by humans to manipulate and control other life forms. Commercial fertilizers gave farmers the power to cope with the uncertainties of organic-based nutrient cycling. Commercial pesticides provided simple scientific means of managing predator, parasites, and pests. Deep-well irrigation reduced the grower’s dependence on rainfall. Processing, storage, and transportation – all mechanical processes – removed many of the previous biological constraints associated with form, time, and place of production.

Farms have become factories without roofs. Supermarkets and restaurants are but the final stages in long and complex assembly lines for food. Why pray for rain when we can drill a deep well and irrigate? Why thank God for food created by ConAgra? Who needs God when we have modern science and industrial technology?

The Inevitability of Change

Admittedly, If past trends affecting food and farming were to continue into the future, there will be little hope for rural agricultural communities. But, trends never continue, at least not indefinitely. A few years back, a couple of scientists proposed a list of the top twenty "great ideas in science" in Science magazine, one of the two most respected scientific journals in the world (Pool). They invited scientists from around the world to comment on their proposed list. Among the top twenty were such ideas as the relationship between electricity and magnetism, and the first and second laws of thermodynamics. The top twenty also included the proposition that "everything on the earth operates in cycles." Some scientists responding to the Science survey disagreed with the proposed theory of universal cycles, but most left it on their list of the top twenty great ideas in science (Culotta).

In essence, the theory of universal cycles claims that trends never continue forever. Trends are nothing more than phases on longer-term cycles. In reality, it’s just common sense – everything that goes up eventually comes down, everything that goes around eventually comes around.
The theory of cycles implies that farms will neither get larger nor smaller forever, but instead will cycle between larger and smaller over time. If we think back over past centuries and around the globe, we can find examples where control of land became concentrated in the hands of a few, such as in feudal times, only later to be dispersed among the many. The most significant such occurrence in the U.S. may have been the development and later demise of plantation agriculture in the South. The most significant such occurrence in the world at present is taking place in what once was Communist Russia. These cyclical turning points have been associated with major historical events. However, large-scale, industrial agriculture is coming under increasing environmental and social challenges all around the globe. So, the trend toward fewer and larger farms in the U.S. is but a phase of a cycle that may well be nearing an end.

The theory of cycles implies that people will not migrate from the country to cities forever, but instead, cycle between rural to urban and urban to rural migration over time. In fact, human history is marked by such cycles in spatial dispersion and concentration of people in general. Anthropological evidence indicates that people have concentrated in large cities in centuries past, but later, for a variety of reasons, have abandoned those cities and dispersed themselves across the countryside. Thus, there is reason to believe that migration from rural areas to U.S. cities during the twentieth-century was simply a phase of a cycle rather than an unending trend.

Most large center-cities are already losing population as people move to the suburbs in increasing numbers. A further migration back to rural areas might be a logical continuation of the dispersion phase of this cycle. The phenomena we call urban sprawl today eventually may lose its ties to the city and evolve into patterns of dispersed rural resettlement. The most relevant question for rural communities might be, when will people abandon the cities and suburbs to resettle rural areas and why? There is nothing in cycle theory that dictates that people return to the same rural areas they left.

The Great Transition

Today, as in the seventeenth century, we are in a time of "great transition." "We are at that very point in time when a 400-year-old age is dying and another is struggling to be born – a shifting of culture, science, society, and institutions enormously greater than the world has ever experienced. Ahead, the possibility of the regeneration of individuality, liberty, community, and ethics such as the world has never known, and a harmony with nature, with one another, and with the divine intelligence such as the world has never dreamed." These are not the words of a priest of a philosopher but of Dee Hock, founder of one of the largest financial institutions in the World, the VISA Corporation.

Hock is certainly not alone in this thinking. A whole host of futurists from the secular business community, including Alvin Toffler, Vaclav Havel, Tom Peters, Peter Drucker, John Naisbitt, Robert Reich, and others agree that we are in a time of fundamental change.

Capra, a physicist, writes about a "turning point," in scientific understanding that will shake the very foundations of science. They talk and write of a shift in worldview from the mechanistic, industrial era where people derive power from control of capital and the technical means of production to a post-industrial era where the source of human progress becomes knowledge. People will enhance their quality of life by learning to live better with what they have rather than by acquiring more "stuff." Knowledge is biological rather than mechanical in its fundamental nature – it changes, grows, and multiplies over time. Thus, the knowledge based era of human progress will require a new "science of understanding" to replace the old "science of manipulation."
The transitions in agriculture and rural communities are but small parts of the great transition that is taking place all across society. The questioning that is driving changes in agriculture, however, exemplifies the broader questioning of society that is fueling the great transition.

Questions concerning sustainability of agriculture and rural communities arise directly from our loss of spirituality. Using almost anyone’s definition, concerns for sustainability imply concerns for intergenerational equity – meeting the needs of our current generation while leaving equal or better opportunities for those of generations to follow. The three cornerstones of sustainable agriculture – ecological soundness, economic viability, and social responsibility – rest upon a foundation of intergenerational equity. Intergenerational equity, in turn, has its foundation in human spirituality. Sustainability applies the Golden Rule across generations. Paraphrasing William James, a well-known religious philosopher, we may define spirituality as a "felt need to live in harmony with some unseen order of things." The sustainability issue ultimately is rooted in a perceived "need to be in harmony with the order of things" -- in spirituality. Finding harmony with a higher order requires an understanding of that order – wisdom not power and control. Sustainable farming means farming in harmony with nature – nurturing nature rather than dominating or manipulating nature. Sustainable farming means farming in harmony among people – within families, communities, and societies. Sustainable farming means farming in harmony with future generations – being good stewards of finite resources. A life of quality is a spiritual life.

However, sustainable agriculture is also about economic viability. A farm is not sustainable unless it makes sufficient profits to stay in business financially. Sustainable farming systems generate profits by fitting farming to the farm, the farmer, and the community – not forcing either to fit some predefined prescription for productivity. Thus, sustainable farming must be knowledge-based – knowledge of how to work with nature rather than against it. Sustainable farmers must match their unique abilities and talents with their land, their community, and their markets. It requires a higher level of understanding of consumer tastes and preferences and the uniqueness of relationship markets. It requires greater sensitivity to sources of potential support, as well as sources of concern, within the community. Sustainable farming requires a higher level of understanding of the land and of nature’s productive processes. Sustainable farming requires more intensive resource management – more thinking and creativity per acre or land or dollar of investment.

Sustainable agriculture, with attention to equity, stewardship, and high levels of management skills is consistent with post-industrial trends in the broader economy. The increased knowledge needed to manage resources sustainably suggests a trend toward smaller family farms that allows farm families to remain personally connected to the land. Sustainable agriculture strategies provide more opportunities for local ownership, hands-on management, and long term commitment to the local community. A high level of farming skill increases returns to management and leads to greater profitability for small farms. Farming becomes profitable for farmers and for rural communities as more dollars remain in the community.

Agricultural sustainability requires a systems approach to decision making which treats farms, families, and communities as parts of shared ecological systems. Such systems embody enormous complexity in simultaneous and dynamic linkages among a multitude of interrelated factors. Cognitive scientists have shown that humans can deal consciously with only a very small number of separate variables simultaneously. Yet humans can perform enormously complex tasks; such as driving a car in heavy traffic, playing a tennis match, or carrying on a conversation that baffles the most sophisticated computers. People are capable of performing such tasks routinely by using their well-developed subconscious minds.

The subconscious human mind appears to be virtually unlimited in its capacity to cope with complexity. As
organizational theorist Charles Keifer puts it, "When the switch is thrown subconsciously, you become a systems thinker thereafter. Reality is automatically seen systemically as well as linearly. Alternatives that are impossible to see linearly are surfaced by the subconscious as proposed solutions. Solutions that were outside of our 'feasible set' become part of our feasible set. 'Systemic' becomes a way of thinking and not just a problem solving methodology" (as quoted in Senge, p. 366). The subconscious mind is capable of assimilating hundreds of feedback relationships simultaneously as it integrates detail and dynamic complexities together (Senge, p. 367). The human mind may be the only mechanism capable of dealing effectively with the systems complexities embodied in the concept of sustainable agriculture.

Wendell Berry, a Kentucky farmer, has clearly articulated the connections among people, quality of life, and a sustainable agriculture. "...if agriculture is to remain productive, it must preserve the land and the fertility and ecological health of the land; the land, that is, must be used well. A further requirement, therefore, is that if the land is to be used well, the people who use it must know it well, must be highly motivated to use it well, must know how to use it well, must have time to use it well, and must be able to afford to use it well" (p. 147).

The words of Wendell Berry, the farmer and writer, are completely consistent with Peter Drucker, the industrial business consultant and writer, "In the knowledge society into which we are moving, individuals are central. Knowledge is not impersonal, like money. Knowledge does not reside in a book, a databank, a software program; they contain only information. Knowledge is always embodied in a person, carried by a person; created, augmented, or improved by a person; applied by a person; taught by a person, and passed on by a person. The shift to the knowledge society therefore puts the person in the center (p. 210 )."

Sustainable agriculture, the new vision for the future of agriculture, is a knowledge-based approach to meeting the food and fiber needs of society that puts people at the center.

Human Creativity and Sustainable Rural Communities

Sustainable rural communities, like sustainable farms, must maintain the productivity of their local resources while protecting their physical and social environment. Sustainable communities must also provide an acceptable level of economic returns and otherwise enhance the quality of life of those who live and work in the community. Strategies that rely solely, or even primarily, on local natural resources are unlikely to fulfill these latter requirements. However, rural people can overcome the obstacle of limited local resources through a clear vision of the new realities of post-industrial development and a firm commitment to the concept of community. They can leverage limited natural resources -- in much the same way as they might leverage equity capital in financing a business. As the local economy continues to grow, its natural resource "equity" will become a smaller proportion of its total economy, but no less important than is equity capital to a business in ensuring its survivability and sustainability.

Robert Reich, former Secretary of Labor, stresses that the economy is no longer local, or even national in scope, but is truly global. Neither communities nor nations can depend on capturing the benefits of local capital, local industries, or even locally developed technologies in a global economy. Money, jobs, and technology can and will move freely to anywhere on the globe where they can be used to the greatest advantage.

First, sustainable development must be linked to something that cannot easily be moved. Second, sustainable development strategies must give local workers and investors a logical reason for investing, working, and spending in the communities where they live. Communities cannot be sustained without strong economic interdependencies among those within communities. But, people must have strong logical reasons for
Reich outlines two fundamental strategies for national economic development in a global economy. First, he advocates investment in infrastructure, including such things as roads, bridges, airports, and telecommunications access systems. Infrastructure has two important development dimensions. First, it facilitates productivity by making production processes easier and more efficient. Second, infrastructure is fixed geographically. If producers want to use U.S. roads, bridges, airports and communications accesses, they have to use them where they are, in the country that built them. Fixed natural resources – such as agricultural land – achieve this same critical developmental impact without building anything. The challenge is to find ways to leverage the local land base to support more people better without degrading it.

Reich's second, and even more important, development strategy is to invest in people. People who work with their minds will be the fundamental source of productivity in a knowledge-based era of the twenty-first century. Human creativity provides the foundation for sustainable economic development in the post-industrial era. Creativity makes the local natural base less limiting, but no less important, than in the industrial era of development. If a nation is to be productive in the post-industrial economy, its people must be productive. If agriculture is to be a cornerstone for rural community development, it must employ the talents of thinking, innovative, productive people – it must be a sustainable agriculture. These thinking, innovative, productive people who can then leverage a limited resource base into vibrant, caring, sharing rural community.

Many people have strong ties to rural areas; however, rural communities cannot depend on an allegiance of rural residents to their communities to keep productive people from moving to town. People can and do move freely among communities within the U.S. Thus, it will be critically important for sustainable communities to be able to attract new mind workers, if there are to be places where "home-grown" mind workers will want to stay. The primary attraction of rural communities for current and future mind workers will be the promise of a desirable quality of life.

Quality of life is a product of human relationships -- relationships among people and between people and their environment. Obviously, other things such as employment, income, personal safety, economic security, and access to health care are important aspects of quality of life. However, quality of life also includes peoples' subjective judgments regarding self-determination, freedom to participate, individual equity, freedom from discrimination, economic opportunity, ability to cope with change, social acceptance, and treatment according to accepted social principles of one's culture.

Rural communities that survive and prosper in the future will be culturally diverse. Successful rural communities will be made up of long-time rural residents, bright young people who choose to stay, returning rural residents, those born in urban areas of the U.S., and those born in other countries. They may also be Anglo American, Afro American, Asian, Mexican, and Canadian as well. Male and female, young and old, rich and poor, educated and less well educated, may be viewed as different, but they must be respected for their differences in the workplace and in the town halls of rural renaissance communities. This diversity will be an important source of creativity, innovation, and synergistic productivity, and will be an important aspect of quality of life in rural areas. In rural such communities, people will have an opportunity to know each other individually rather than simply accept the stereotypes of their cultural groups.

The most important single step toward success may be for those in the community to develop a shared vision of hope for their future -- for a better way of life and a brighter future of their community. The vision of each person in the community will be different from the vision of others in many respects and not all will be hopeful. However, the people of a community must search for and find some common positive elements among their
different visions to provide the nucleus for a shared vision of hope. Otherwise, the group is not really a community but rather a collection of people who happen to live in the same general area. A community that has found its shared vision has made its first critical step toward self-revitalization and community sustainability. Hope then can begin to transform reality. To paraphrase Jesse Jackson, the articulate civil rights leader, "if they can conceive it, and believe it, they can achieve it." The future of rural America belongs to those who have a vision of hope and courage to seize it.

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"Every few hundred years in Western history there occurs a sharp transformation. Within a few short decades, society rearranges itself – its worldview; its basic values; its social and political structure; its arts; its key institutions. Fifty years later, there is a new world. We are currently living through just such a transformation."  (Peter Drucker, Post-Capitalistic Society, p. 1)

Rural Communities: Places Without a Purpose

The roots of most American rural communities are in agriculture. The land that is now the United States was a land of great natural wealth. Some of that wealth was in minerals and timber, but most of it lay in vast plains and winding valleys of fertile farmland. However, it took people to transform this wealth into wellbeing. People had to clear the land and till the soil to bring forth the bounty of food and fiber from the fertile fields. It took people to care for the cattle and sheep that grazed the vast plains. And as these people -- these farmers and ranchers -- achieved surpluses beyond their own needs, they came to need other people in towns and rural communities. They needed people with whom they could trade their surpluses for the things they couldn’t produce. They needed blacksmiths, dry goods stores, livery stables, banks, and salons. But they also needed schools, churches, and medical care if they were to move beyond economic survival to achieve a desirable quality of life.

Some of the early American communities were built around timber and mining towns, but most towns were farming and ranching towns. And the more people needed to care for the land, the more people needed in town to support those farmers and ranchers. It’s likely true that distances between many towns were determined by a day’s round trip by horse and wagon. But, the number of people in those towns was determined in large part by the nature of agriculture. For example, lands well suited for vegetables and row crops could be farmed more intensively – supporting more families per acre or section. Lands suited only for small grains or pasture were farmed less intensively – supporting fewer families per section or township. Of course, town folks also had mouths to feed with locally grown foods – greens, milk, eggs, and bacon. But, the density of population in most rural places reflected the nature of their agriculture.
At the turn of the 20th century, America was still an agrarian country – about 40 percent of its people were farmers and well over half lived in very rural areas. But, then came the second phase of the industrial revolution and the need to collect large numbers of people into cities to "man" the large factories and offices of a growing manufacturing economy. The simultaneous industrialization of agriculture – mechanization, specialization, routinization, -- made it possible for fewer farmers to feed more people better -- "freeing" farmers and other rural people to find work in the cities.

The same technologies that pulled rural people toward the cities pushed them off the farms and out of rural communities. These technologies increased production per person by substituting capital and generic knowledge for labor and individual management. As successful new farming technologies were developed, they invariably reduced production costs -- per bushel or per pound of production -- but only if each farmer produced more. Thus, the incentive to realize greater profits by reducing costs was inherently an incentive to buy bigger equipment and more commercial inputs in order to farm more land and produce more output. As farmers individually responded to these incentives, production in total invariably expanded, market prices fell, and the promise of continuing profits vanished. The new technologies were now necessary – no longer for profits but now for survival. Those who adopted and expanded too little too late were unable to compete. They were "freed" from their farms to find a job in the city.

Farms were forced to get larger and larger just to survive. In fact, with a limited population to feed and a limited amount of land to farm, fewer and fewer farmers could possibly survive. In addition, large specialized farms often had to bypass the local community in purchasing inputs and marketing their products in order to remain competitive with other large farms. Their competitors were not down the road or across the country, but might be half way around the world.

Fewer farmers buying less locally meant less need for farm related businesses in small towns. Fewer farmers also meant fewer farm families to buy groceries, clothes, and haircuts in small towns. Fewer families also meant fewer people to fill the desks in rural schools, pews in rural churches, and the waiting rooms of rural doctors. Fewer people with a purpose for being in rural areas meant that many rural communities were losing their purpose as well.

Today, America is no longer an agrarian nation. Less that 2 percent of Americans call themselves farmers and even those earn more than half of their income off the farm. Somewhere around 25 percent of the people live in non-metropolitan areas – but many if not most commute to a city to work. There are few people left in farming communities to
move to town and no longer any social benefit in moving them. Industries are "downsizing" and "outsourcing" -- laying off workers by the thousands. As consumers we spend on the average a little over a dime out of each dollar for food and the farmer only gets a penny of that dime. The rest goes to pay for commercial inputs and marketing services -- packaging, advertising, transportation, etc. Society no longer has anything to gain from further industrialization of agriculture, but yet it continues. And rural communities in farming areas continue to wither and die.

Feeling the stress of an industrializing society, many small towns turned to industrial recruitment -- trying to become a city rather than a town -- as a means of survival. Others have tried to capture natural advantages in climate or landscapes to become destinations for tourists from the cities. Those near the growing industrial centers "rented out their communities" as bedrooms for those who are willing to commute to the city. But, most rural communities in agricultural areas have not been successful in their efforts to regain prosperity -- or even to survive. Most rural communities have become and remain places in search of a purpose.

Farming: A Profession without a Future

As rural communities have lost their purpose, farming -- at least farming, as it is known today -- has lost its future. There is no future in farming -- at least not in the kind of farming that requires ever-increasing amounts of capital and commercial inputs to produce basic commodities for processing into food and fiber for global markets. By definition, if the trend toward larger, more specialized production units continues there will be room for fewer and fewer of these units until only a handful remains.

As capital requirements continue to grow, a corporate share-holding organizational structure will be required to finance agricultural enterprises. Giant corporate entities already control the processing and distribution sectors for most agricultural commodities. As corporations gain control of agricultural production -- through outright ownership or through contractual arrangements with individual producers -- those who refuse to contract will find they have no markets for their products. The surviving "farmers" will, in fact, become corporate "hired hands." Thus, there is no future in farming -- as long as the only options farmers are given are to get big, give in, or get out.

One need only look to corporate structure of the poultry industry as a model for future livestock production. Corporate domination of cattle feeding has been a fact of life for years and the farm cattle feeder has become a rarity. Corporate control of hog production is becoming a reality -- with recent attempts by large operators to gain market share...
forcing hog prices to their lowest levels since the Great Depression. Corporate contractual control of ranching operations is likely not far in the future.

Corporate control of fresh fruits and vegetable production has been around for decades, but may not be the model for the future of field crops. Genetic engineering instead is the key to corporate control of crop production. Genetically modified organisms (GMOs) can be patented – giving the patent holder exclusive rights to their utilization. The corporations who hold the patents on the seed stock will either control or contract with those who control processing and distribution of the resulting farm commodities. Thus, the only viable markets will be for commodities from organisms that have been genetically modified in some way – and are produced under contract for the patent holder. This same strategy will likely be employed by livestock operations as well – as corporate consolidation of firms in both the crop and livestock sectors continues.

The publicly stated justifications for the demise of farming will be to "ensure that the public continues to have an adequate supply of safe and healthful food at a reasonable price" – the same as the oft-stated justification for the industrialization of agriculture. However, the true motivation for the corporate take-over of agriculture is pure economic power. Those corporations that have been able to gain control of significant sectors of agriculture have been able to reap large profits in return. If a handful of corporations gain control of the global food supply – they will have more economic power than has ever been seen. It is a prize they are willing to pursue at any risk.

Can farmers compete head-to-head with the big corporations by forming cooperative organizations and networks? Perhaps, for a while, but the longer-term outlook for farmer collectives is doubtful at best. Will farmer groups grow big enough, fast enough to keep up with the consolidation of corporate power? This game is not just about economic efficiency, or minimizing costs of production, it is about raw market power. Will farmer groups be willing to rape the environment and gut rural communities -- if necessary -- to pursue their economic goals? If they are, is society any better served by a group of such farmers than by a group of similar minded businessmen?

Farming as we know it is coming to an end. There is no future for farming, and no future for most rural communities, unless we are willing to embrace a new and different kind of farming and a new and different vision for rural communities.

The Inevitability of Change

There might seem to be little hope for farming, or for many rural communities. But,
current trends, toward industrialization and corporate domination, will not continue. Trends never continue, at least indefinitely. And these too will come to an end – maybe far sooner than might now seem reasonable.

A couple of scientists proposed a list of the top twenty "great ideas in science" in Science magazine, and invited scientists from around the world to comment (Pool, 1991). Among their top twenty were such well known ideas as the universal laws of motion, the first and second laws of thermodynamics, and the proposition that all life is based on the same genetic code. But, the top twenty included another proposition -- that "everything on the earth operates in cycles." A few scientists responding to the Science survey disagreed with the proposed theory of universal cycles. But most who responded left "everything operated in cycles" on their list of the top twenty great ideas in science (Culotta, 1991).

Based on this theory of universal cycles, any observed trend is, in fact, just a phase of a cycle. This theory of cycles implies that farms will not continue to get either larger or smaller, at least indefinitely, but instead will cycle between growing larger and smaller over time. History provides numerous examples where land became concentrated in the hands of a few only later to be dispersed and controlled by the many. For example, vast feudal land holdings once dominated much of Europe, only to be replaced by independent land ownership. In the U.S., large plantations grew to dominate the South – only to later be dispersed among many individual landholders. In what once was the Soviet Union, giant communal farms are now being divided into smaller individual plots. It seems ironic that many of the advisors sent to the former U.S.S.R to facilitate this process of dispersion are deeply involved in the consolidation of independent farms into large-scale corporate production units in the U.S.

There have been similar cycles in the collecting and scattering of people. Anthropological evidence indicate that people who have concentrated in large cities in centuries past, have later -- for a variety of reasons -- abandoned those cities and dispersed themselves across the countryside. There is reason to believe that migration from rural areas to U.S. cities during the twentieth-century was simply a phase of a similar cycle rather than an unending trend. Most large center-cities have been losing population for decades as people move to the suburbs in increasing numbers. The current trend is called "urban sprawl" -- people now abandoning the suburbs for a few acres in the country. Even further migration to more isolated rural areas might be a logical continuation of the dispersion phase of this cycle. The most relevant question for rural communities might be when, and for what reasons, will people abandon the cities and suburbs to resettle rural areas? They won't necessarily come back to the same places abandoned by people before.
Toward A Post-Industrial Economy

Alvin Toffler, in his book Powershift, points out that many forecasters make the mistake of simply projecting unrelated trends into the future, as if they would continue indefinitely. Such forecasts provide no insight regarding how the trends are interconnected or what forces are likely to reverse current trends and move them in opposite directions.

Toffler contends that the forces of industrialization have run their course and have already begun to reverse. He believes the Industrial models of economic progress are becoming increasingly obsolete, and the old notions of efficiency and productivity are no longer valid. The new "modern" model is to produce customized goods and services aimed at niche markets, to constantly innovate, to focus on value-added products, and specialized production. Innovations that tailor products to the wants and needs of specific customers are replacing cost cutting as a source of profits and growth.

He goes on to state that "the most important economic development of our lifetime has been the rise of a new system of creating wealth, based no longer on muscle but on the mind" (p. 9). He contends that "the conventional factors of production -- land, labor, raw materials, and capital -- become less important as knowledge is substituted for them" (p. 238). "Because it reduces the need for raw material, labor, time, space, and capital, knowledge becomes the central resource of the advanced economy (p. 91).

Peter Drucker, a time-honored consultant to big business, talks of the "Post Business Society," in his book, The New Realities. He states "the biggest shift -- bigger by far than the changes in politics, government or economics -- is the shift to the knowledge society. The social center of gravity has shifted to the knowledge worker. All developed countries are becoming post-business, knowledge societies" (p. 173).

Knowledge-based production embodies enormous complexity in simultaneous and dynamic linkages among a multitude of interrelated factors. Cognitive scientists have shown that humans can deal consciously with only a very small number of separate variables simultaneously. Yet humans can perform enormously complex tasks; such as driving a car in heavy traffic, playing a tennis match, or carrying on a conversation -- tasks that baffle the most sophisticated computers. In fact, people are capable of performing such tasks routinely by using their well-developed subconscious minds.

The subconscious human mind appears to be virtually unlimited in its capacity to cope with complexity. The human mind is capable of assimilating hundreds of feedback relationships simultaneously as it integrates detail and dynamic complexities together.
Sustainable Farming and Rural Community Development

(Senge, p. 367). In fact, the human mind may be the only mechanism capable of dealing effectively with the systems complexities embodied in the production concepts that will dominate economic development in the future.

Drucker points out also that there is an important, fundamental difference between knowledge work and industrial work. Industrial work is fundamentally a mechanical process whereas the basic principle of knowledge work is biological. He related this difference to determining the "right size" of organization required to perform a given task. "Greater performance in a mechanical system is obtained by scaling up. Greater power means greater output: bigger is better. But this does not hold for biological systems. Their size follows their function. It would surely be counterproductive for a cockroach to be big, and equally counterproductive for the elephant to be small. As biologists are fond of saying, 'The rat knows everything it needs to know to be a successful rat.' Whether the rat is more intelligent than the human being is a stupid question; in what it takes to be a successful rat, the rat is way ahead of any other animal, including human beings" (p. 259).

Differences in organizing principles may be critically important in determining the future size and organizational structure of economic enterprises and ultimately in determining their optimum geographic location. Other things being equal, the smallest effective size is best for enterprises based on information and knowledge work. "'Bigger' will be 'better' only if the task cannot be done otherwise" (Drucker, p. 260). Small enterprises can be located almost anywhere.

When there is no longer any economic justification for bigness, there will no longer be any economic justification for corporations. The only societal motivation for chartering corporations was to make it easier to raise the capital necessary to finance enterprises larger than could be financed by individuals or partnerships of investors. Corporations have been subsidized by various means, providing additional incentives for businesses to become larger, under the assumption that larger organizations would be more efficient, and would pass along their cost savings to consumers. There are serious questions concerning whether corporations today serve any positive public purpose – even in cases where large operations might be more cost efficient. In an era where "smaller is better," corporations will have lost even their original claim to special treatment. Corporations exist only at the consent of the people -- the public granted their original charters, and the public can revoke those charters. The practical question for the future is whether corporations have gained so much political power that they may continue to exist, and even be subsidized, long after they have lost any societal purpose for being. But once they have lost their purpose, the era of corporations eventually will come to an end – regardless of their political power at the present.
Robert Reich, former U.S. Secretary of Labor, addresses future trends in the global economy in his book, The Work of Nations. He identifies three emerging broad categories of work corresponding to emerging competitive positions within the global economy: routine production service, in-person service, and symbolic-analytic services (Reich, p. 174). He calls routine service workers the old foot soldiers of American capitalism in high-volume enterprises. They include low- and mid-level managers -- foremen, line managers, clerical supervisors, etc. -- in addition to traditional blue-collar workers. Production workers typically work for large industrial organizations. These workers live primarily by the sweat of their brow, or their ability to follow directions and carry out orders, rather than by using their minds.

In-person service, like production service, entails simple and repetitive tasks. The big difference is that these services must be provided person-to-person. They include people such as retail sales workers, waiters and waitresses, janitors, cashiers, child-care workers, hairdressers, flight attendants, and security guards. Like routine production work, most in-person service work is closely supervised and requires relatively little education. In-person service providers utilize a diversity of organizational structures, ranging from individual providers to large franchised organizations. Unlike routine production work, individual personality can be a big plus, or minus, for in-person service workers.

Symbolic-analysts are the "mind workers" in Reich's classification scheme. They include all the problem-solvers, problem-identifiers, and strategic-brokers. They include scientists, design engineers, public relations executives, investment bankers, doctors, lawyers, real estate developers, and consultants of all types. They also include writers and editors, musicians, production designers, teachers, and even university professors. He points out that symbolic analysts often work alone or in small teams, which are frequently connected only informally and flexibly with larger organizations. Like Toffler and Drucker, Reich believes that power and wealth of the future will be created by symbolic-analysis, by mind work, rather than by routine production or in-person service.

John Naisbitt and Patricia Aburdene in their book, Megatrends 2000, call the triumph of the individual the great unifying theme at the conclusion of this century. They talk about greater acceptance of individual responsibility as new technologies extend the power of individuals. Their "mind workers" are called individual entrepreneurs. They point out that small-time entrepreneurs have already seized multibillion-dollar markets from large, well-heeled businesses – successes of small "upstart" in microcomputers and microbreweries provide a couple of examples (p. 324).
They point out, that the industrial revolution built the great cities of Europe, America, and Japan. But today's cities are based on technologies of 100 years ago such as indoor plumbing, electric lighting, steel frame buildings, elevators, subways, and the telephone. Railroads and waterways made it easy and inexpensive to move raw materials and finished goods over long distances, but it was much more expensive then to move people even short distances.

But, the cities have already lost much of their purpose as places for people to live. Multi-lane freeways and extended mass transit systems have allowed people to retreat to the suburbs by making it easier for them to get to and from work. Naisbitt and Aburdene contend that "In many ways, if cities did not exist, it now would not be necessary to invent them" (p. 332). Drucker adds that the real-estate boom, and the associated new skyscrapers, in big cities in the seventies and eighties were not signs of health. They were instead the signals of the beginning of the end of the central city. "The city might become an information center rather than a center of work -- a place from which information (news, data, music) radiates. It might resemble the medieval cathedral where the peasants from the surrounding countryside congregated once or twice a year at the great feast days; in between it stood empty except for the learned clerics and its cathedral school" (Drucker, p. 259).

People are abandoning the cities for the suburbs for quality of life reasons: lower crime rates, quality housing at a lower cost, and recreational opportunities. Many people are now free to abandon the suburbs for rural area for quality of life reasons as well: more living space, a cleaner environment, prettier landscapes, and, perhaps most important, for a place to regain a sense of community, a sense of belonging.

Many knowledge workers, while working alone or in small groups, are choosing not to face the world alone but rather are seeking community -- the free association among people. Large business organizations, government bureaucracies, labor unions, and other collectives have provided hiding places for avoiders of responsibility. In a community there is no place to hide. Everyone knows who is contributing and who is not. In communities, individual differences are recognized and rewarded. Enlightened individuals may well choose to restore a sense of community -- all but destroyed by corporate industrialism. These people are not looking for a place to hide but rather for a place to be recognized -- a place to belong.

**Toward A Post-Industrial Agriculture**

If the rest of society is moving toward a post-industrial economy, why are some sectors of
the agricultural economy, specifically swine and dairy, continuing to experience rapid industrialization? In Joel Barker's book: Paradigms, he points out that new paradigms (including developmental models) tend to emerge while, in the minds of most people, the old paradigm is doing quite well.

Typically, "a new paradigm appears sooner than it is needed" and "sooner than it is wanted." Consequently the logical and rational response to a new paradigm by most people is rejection (Barker, p. 47). New paradigms emerge when it becomes apparent to some people, not necessarily many, that the old paradigm is incapable of solving some important problems of society. Paradigms may also create new problems, while providing poor solutions to the old ones, when they are applied in situations where they are not well suited.

American agriculture provides a prime example of both over application and misapplication of the industrial paradigm. The early gains of appropriate specialization in agriculture lifted people out of subsistence living and made the American industrial revolution possible. But, the potential societal benefits from agricultural industrialization were probably largely realized by the late 1960s. More recent "advances" in agricultural technologies may well have done more damage to the ecological and social resources of rural areas than any societal benefit they may have created from more "efficient" food production.

Industrialization of agriculture probably lagged behind the rest of the economy because its biological systems were the most difficult to industrialize. Agriculture, due to its biological nature, doesn't fit industrialization; it is being forced to conform. Consequently, the benefits are less, the problems are greater, it is being industrialized last, and it likely will remain industrialized for a shorter period of time.

A new post-industrial paradigm for American agriculture is already emerging to replace the industrial model of agriculture. The new paradigm is emerging under the conceptual umbrella of sustainable agriculture. A sustainable agriculture must meet the needs of the current generation while leaving equal or better opportunities for those of future generations. To achieve sustainability, farming systems must be ecologically sound, economically viable, and socially responsible. All are necessary and none alone or in pairs is sufficient. Sustainable agriculture cannot be defined as a set of farming practices or methods, but instead must be defined in terms of its purpose – sustaining people across generations through agriculture -- and the ecological, economic, and social principles that must be followed in achieving that purpose.
The sustainable agriculture paradigm has emerged to address the problems created by the industrial model, primarily pollution of the natural environment and degradation of the natural resource base. This new paradigm seems capable also of creating benefits that are inherently incompatible with the industrial model -- such as greater individual creativity, greater dignity of work, and more attention to issues of social equity. It is conceivable that industrial agricultural systems might be developed that appear to be both profitable and ecologically sound – at least in the short run. But, industrial systems inherently degrade the human resources – the people they employ – they simply cannot meet the sustainability test for social responsibility.

The sustainable agriculture paradigm is consistent with the visions of Toffler, Drucker, Reich and others of a post-industrial era of human progress. Sustainable agriculture is management intensive, rather than management extensive. Sustainable farms must be managed holistically as a living organism – with consideration given to multitudes of interdependencies and feedback loops among their interrelated parts or organs. Sustainable systems must be individualistic, site-specific, and dynamic. They must be capable of responding to the every changing capacities and abilities of both the farmer and the land. Thus, sustainable farming is inherently information, knowledge, and management intensive.

Complexity, interdependency, and simultaneous processes are fundamental elements of the sustainable model, which is clearly biological rather than mechanical in nature. For such systems, size and form must follow function. In biological systems, individual elements must conform to their ecological and social niche. Big, specialized farms will be sustainable only if their "niche" is equally large and homogeneous. Most conventional commercial farming operations have already outgrown their niches. That's the basic source of their ecological, social, and economic problems.

The sustainable agriculture paradigm in agriculture is at about the same stage of development as was agricultural industrialization in the days of steam-driven threshing machines and steel wheeled tractors. In other words, a few sustainable agriculture pioneers are out on the frontier of knowledge, but this new frontier of farming is still far from being settled. Much remains to be learned about this new paradigm and only time will reveal how it is to be implemented in sustaining a desirable quality of life for farmers and for society as a whole. Some current examples of its application include: organic production of vegetables, grains, and meats; low-input production for local, direct markets; community supported agriculture (CSAs); farmers' markets and other niche market for ecologically grown products; management intensive grazing of livestock and seasonal dairies; free range and pastured poultry; and organic cotton. The USDA is supporting a project to develop mini case studies of one thousand successful sustainable
farmers. This project quite likely will illustrate a thousand different approaches to sustaining agriculture – as many as there are farmers who pursue it. But, the project will also illustrate a common dedication to the same basic purpose and to the fundamental principles of sustainability.

It will take knowledge, "mind work," not physical or economic muscle, for farmers of the future to find a niche where they carry out farming by means that are ecologically sound, economically viable, and socially responsible. Returning to Peter Drucker's Post-Capitalistic Society: "In the knowledge society into which we are moving, individuals are central. Knowledge is not impersonal, like money. Knowledge does not reside in a book, a databank, a software program; they contain only information. Knowledge is always embodied in a person, carried by a person; created, augmented, or improved by a person; applied by a person; taught by a person, and passed on by a person. The shift to the knowledge society therefore puts the person in the center" (p. 210). People are at the key to farming sustainably. People – not new technologies – are the key to the future of farming and of rural communities.

The Renaissance of Rural Communities

Community economic development strategies are already changing to reflect knowledge-based approaches to economic development. As large companies and branch plants leave rural areas and move overseas for cheaper labor, communities are beginning to concentrate on improving the quality of jobs remaining. Rural people – if not community leaders – are beginning to question the old strategies of industrial recruitment, industrial parks, and tax breaks for new industries. The new strategies for community self-development are in line with the business theories of Reich and others. These strategies invest in mind-workers by encouraging entrepreneurs within the community to build small businesses and strengthen the local economy. Local buyer-supplier projects are encouraged to plug the loss in dollars leaving the community by replacing imports with locally produced goods and services.

However, most communities still seem to be lacking a clear vision of a new fundamental purpose for their existence. They know they can no longer depend on agriculture as the primary engine of rural economic development. They realize that industry recruitment is destined to fail for most rural communities -- there simply won't be enough American based industries in the future to go around. They see promotion of small-scale projects; such as niche markets, bed and breakfasts, and local festivals; as piecemeal, stop-gap strategies with limited long run potential for developing their community.

Rural communities that have no development strategies of their own essentially forfeit the
rights to develop their communities to others – others from outside the community. Those "others" already have their own vision of the future in mind for rural areas – as places to dump whatever they don’t want in "their back yards" in urban areas. They see rural areas as open spaces where they can build prisons, garbage dumps, landfills, toxic waste incinerators, and large confinement animal feeding operations. They are looking for open spaces housed by a few desperate people who will accept almost anything that offers a minimum wage job or a chance to sell out and move to town.

Rural communities need positive development strategies of their own – strategies that will create economic opportunity without degrading either the land or the people. They need strategies for "sustainable" development. They need development that is linked to local resources, that maintains the productivity of those resources, and protects their physical and social environment. However, sustainable development must also provide an acceptable level of economic returns and otherwise enhance the quality of life of those who live and work in the community. Development strategies that rely solely, or even primarily, on local natural resources are unlikely to fulfill these latter requirements. However, the obstacle of limited local resources can be overcome by those who have a clear vision of the new realities of economic development and a firm commitment to make their community a part of the coming rural renaissance. Limited natural resources will be leveraged -- in much the same way as equity capital is leveraged in financing a business. As the local economy continues to grow, its natural resource "equity" will become a smaller proportion of its total economy, but no less important than is equity capital to a business in ensuring its survivability and sustainability.

Robert Reich stresses that the economy is no longer local, or even national in scope, but is truly global. Neither communities nor nations can depend on capturing the benefits of local capital, local industries, or even locally developed technologies in a global economy. Money, jobs, and technology can and will move freely to anywhere on the globe where they can be used to the greatest advantage. First, sustainable development must be linked to something that cannot easily be moved. And second, sustainable development strategies must give local workers and investors a logical reason for investing, working, and spending in the communities where they live. Communities cannot be sustained without strong economic interdependencies among those within communities. But, people must have strong logical reasons for developing interdependent relationships.

Reich outlines two fundamental strategies for national economic development in a global economy. First, he advocates investment in infrastructure, including such things as roads, bridges, airports, and telecommunications access systems. Infrastructure has two important development dimensions. First, it facilitates productivity by making production processes easier and more efficient. Second, infrastructure is geographically fixed in the
country where it is built. If producers want to use U.S. roads, bridges, airports and communications accesses, they have to use them where they are, in the country that built them. Fixed natural resources – such as agricultural land – can be used to achieve this same critical developmental impact without building anything. The challenge is to find ways to leverage the local land base to support more people better without degrading the resource – to develop a more sustainable agriculture.

Reich's second, and even more important, development strategy is to invest in people. People who work with their minds will be the fundamental source of productivity in a knowledge-based era of the twenty-first century. This makes the local natural base less limiting, but no less important, than in previous eras of development. If a nation is to be productive in the post-industrial economy, its people must be productive. Reich apparently depends heavily on national allegiance to keep productive people working in the nation that helped them develop their minds. If agriculture is to be a cornerstone for rural community development, it must be the type of agriculture that employs the talents of thinking, innovative, productive people – it must be a sustainable agriculture. These are the types of people who can leverage a limited resource base into a vibrant, sustainable community.

With one important added element, Reich's strategy for national economic development – investing in infrastructure and local people -- becomes a logical strategy for rural community development. However, rural communities cannot depend on an allegiance of rural residents to their communities to keep productive people in rural areas. People can and do move freely among communities within the U.S. During the rural renaissance, it will be critically important for communities to be able to attract new mind workers, if there are to be places where "home-grown" mind workers will want to stay. The primary attraction of rural communities for current and future mind workers will be the promise of a desirable quality of life.

Quality of life is a product of human relationships -- relationships among people and between people and their environment. Obviously, other things such as employment, income, personal safety, economic security, and access to health care are important aspects of quality of life. However, quality of life also includes peoples' subjective judgments regarding self-determination, freedom to participate, individual equity, freedom from discrimination, economic opportunity, ability to cope with change, social acceptance, and treatment according to accepted social principles of one's culture.

Communities that survive and prosper during the rural renaissance will be culturally diverse. Diversity will be an important source of creativity, innovation, and synergistic productivity, and will be an important aspect of quality of life in rural areas. In rural
Successful rural communities will be made up of long-time rural residents, bright young people who choose to stay, returning rural residents, those born in urban areas of the U.S., and those born in other countries. They may also be Anglo American, Afro American, Asian, Mexican, and Canadian as well. Male and female, young and old, rich and poor, educated and less well educated, may be viewed as different, but they must be respected for their differences in the workplace and in the town halls of rural renaissance communities. Communities that fail to meet the challenges of the cultural renaissance will be unlikely to provide the quality of life necessary to participate in the economic renaissance as well.

Basic Strategies for Rural Revitalization

Successful rural revitalization strategies for the future will be unique to each community that succeeds. Standard operating procedures, best practices, and recipes for success were characteristics of the industrial era but not of the post-industrial era of knowledge-based development. However, the fundamental principles and concepts outlined above can provide some guidance for those who have the vision of a rural renaissance and the determination to participate in this historic process. The following are a few of the more obvious elements of a successful rural revitalization strategy.

• Invest in people: People are the basic source of productivity in a knowledge-based era of economic development. The "virtuous cycle" of education, increased innovation, increased investment, increased value, and higher wages offers an alternative to the vicious cycle of industrial recruitment, low wages, declining emphasis on education, declining communities, and resulting downward spiral (Reich, 1991). The common practice of preparing the "best and the brightest" to leave rural areas will have to be reversed to meet the cultural and economic needs. "Home-grown" mind workers have a sense of the quality of rural life that immigrants from urban areas will be seeking. Quality life-long education will be equally critical to prepare people to succeed in the new, dynamic era of economic development.

• Invest in infrastructure: Good roads and access to airports will be important. However, modern telecommunications systems will be the key element in making rural areas competitive with urban and suburban areas in an information driven, knowledge-based society. A national initiative to bring twenty-first century communications systems to rural communities may be
more important to rural areas today than was the rural free mail delivery and rural electrification programs of times past. Invest in facilities that will bring people together. A good farmers’ market may be more effective than a recreation facility in helping people within the community understand each other’s way of life.

- Invest in quality of life: Help people make the most of local climate, landscapes and recreational opportunities. Land use planning and zoning can make and keep quality spaces in rural communities providing quality places for people to live. However, farming, residential, and recreation land uses can be compatible – and must be compatible – in a sustainable rural community.

Make health care an investment in the future. Provide maternity wards and pediatricians not just cardiac units and nursing homes. Make personal security and safety a top priority. This, as much as any single factor, will enhance the perception of rural communities a quality place to live.

- Make a commitment of understanding, accepting, and valuing diversity: Quality of life is about relationships among people. Thinking, learning, behaving, and working alike was necessary for success in the industrial era of development. Thinking, learning, behaving, and working differently, but working in harmony, will be the key to success in the knowledge-based era of development. Communities that fail to understand, accept, and value diversity among people are unlikely to succeed in a knowledge-based era of development.

- Link development to local resources: This is the key to making development sustainable in any given place. Natural resources such as land, minerals, landscapes, and climates must be utilized, at least initially, in the geographic locations where they exist. Agricultural land is still the most valuable geographically fixed resource for many rural communities. Large scale, industrial agriculture provides little local community support. Sustainable agriculture, on the other hand, is a knowledge-based system of farming that depends on the productivity of local people. Wendell Berry points out, "...if agriculture is to remain productive, it must preserve the land and the fertility and ecological health of the land; the land, that is, must be used well. A further requirement, therefore, is that if the land is to be used well, the people who use it must know it well, must be highly motivated to use it well, must know how to use it well, must have time to use it well, and must be able to afford to use it well" (p. 147). Agricultural mind-work can multiply the value to agricultural products before they leave rural areas and replace many
agricultural inputs that are brought in from elsewhere. Investments that sustain local agriculture may well be the most important investment many rural communities can make to sustain their local economies.

• Share the vision: A community must share its vision of the future rural America, and what it is doing to shape its own future with others, if it is to share in the rural renaissance. There may be a great-untapped demand for what rural communities have, or can have, to offer. Productive people who desire a better quality of life may simply be locked into an old vision of rural communities as places of depression, decline, and decay.

The most important single step toward success may be for those in the community to develop a shared vision of hope -- for a better way of life and a brighter future of their community. The vision of each person in the community will be different from the vision of others in many respects and not all will be hopeful. However, the people of a community must search for and find some common positive elements among their different visions to provide the nucleus for a shared vision of hope. Otherwise, the group is not really a community but rather a collection of people who happen to live in the same general area. A community that has found its shared vision has made its first critical step toward self-revitalization. Hope then can begin to transform reality. To paraphrase Jesse Jackson, the articulate civil rights leader, "if they can conceive it, and believe it, they can achieve it." The future of rural America belongs to those who have the courage to seize it.

REFERENCES


A Historical Perspective on Rural Economic Development

The fundamental purpose of economic development in "rural" areas has been realization of private and social benefits from the use of geographically fixed resources. People and money can move from one location to another in response to economic or social incentives. Thus, human and financial resources need not be developed or utilized in any specific geographic area, although very substantial relocation costs are often ignored. On the other hand, natural resources such as land, timber, minerals, landscapes, and climates must be utilized, at least initially, in their specific geographic location.

The historic purpose of most rural community development in the U.S. was to realize the potential economic value of agricultural land. Historical settlement patterns reflect historical land uses. The numbers of farmers or ranchers needed to manage the land resource largely determined rural population densities. The range lands of the West were sparsely populated because one rancher could manage a herd of cattle roaming over hundreds or even thousands of acres. Areas suited for truck farming or vegetable production, on the other hand, were more densely populated because of the high human input requirement for those enterprises. The Midwest was most suitable for diversified farming, resulting in rural settlement patterns characterized by scattered family farms.

Non-farm activities in rural communities also were closely related historically to numbers and types of farms. More economic services -- mercantile, blacksmiths, banks, and saloons -- were needed in areas with larger farm populations. More people also needed more doctors, schools, churches and other social services. The distance between towns is said to be related to the distance that could be traveled by horse and wagon in a day. However, the sizes of these towns were related to the number of families needed to utilize the natural resources within horse and wagon distance.

Changing Perspectives of Rural Economic Development

The initial phase of rural development in much of the U.S. might be characterized as resource exploitation. Resources were treated as stocks of potential economic wealth to be transformed into products of market value. A sufficient number of lumberjacks, miners, or farmers moved into a region to exploit the natural resource base, whether it was standing timber, minerals below the ground, or productive agricultural soils. Farming practices of the 1800s were little different in concept from logging or mining. Land was cleared, plowed, and farmed until its productive ability was depleted. Farmers then moved on to new frontiers, leaving spent land to be restored by nature. Boom towns became ghost towns as the natural resource base was used up and the people moved on.

Farming methods in the early 1900s utilized livestock wastes and legume-based crop rotations to retain soil fertility, allowing farmers to keep land fertile long after continuous cash cropping might have depleted its initial productivity. Thus, many rural settlements survived to become more stable farming communities as farmers began to learn to sustain productivity from the land. However, soil erosion, by both water and wind, continued to be a major problem, culminating in the dust bowl days of the 1930s which drove the "Okies" to California and created ghost towns on the Great Plains.

A second wave of rural development might be characterized as resource substitution. This was the industrial era in agriculture of the mid-to-late1900s. New life was breathed into some declining rural communities by emerging agricultural technologies. Commercial fertilizers, for example, could be substituted for inherent fertility in the basic land...
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resource. Irrigation could offset lack of rainfall. Weeds and insects could be controlled by pesticides in climates where they otherwise would have thrived. Terracing, conservation tillage, and wind breaks reduced soil loss. New technologies and inputs appeared to be effective substitutes for natural resources. Rural community development became less constrained by the inherent fertility of the local land resource.

Specialization, mechanization, and economies of scale, the trademarks of industrialization, were the hallmarks of increasing agricultural productivity. Commercial fertilizers and pesticides allowed farmers to break away from crop rotations and diversified crop and livestock farms. They could now specialize in crops, or livestock, or even in single crops, or single phases of the livestock business. By doing fewer things better, each farmer could do more. Mechanization and inexpensive fossil fuels allowed farmers to farm more acres or produce more livestock, and thus, achieve greater economies of scale. Input-intensive, industrial farming systems eventually dominated U.S. agriculture and became the model of efficient food production for the World.

The Growing Costs on Industrialized Agriculture

Industrialized farming systems, however, have begun to raise significant economic, environmental, and social concerns. First, there are growing indications of declining effectiveness of the inputs and technologies that supports specialized systems. Increased concentration of single crops within specific geographic regions increase pest pressures. In addition, many insects and weeds have become resistant to pesticides and require higher rates of application or new, more costly pesticides for control.

Previously fertile soils in some areas have lost organic matter and natural fertility through mono-cropping, conventional tillage, and removal of crop aftermath year after year. Lower organic matter has meant less microbial activity, less ability to hold water, and less availability of nutrients in root zones, meaning lower yields from a given level of water and fertilization or higher fertilizer and irrigation costs to maintain yields.

Water tables in some of the major irrigated areas are declining as rates of irrigation surpass rates of natural regeneration of aquifers, and irrigation supports some of the largest of the large farming operations. Salinization of soils is occurring in some of these areas as a consequence of continuous irrigation. Soil conservation rose to the top of the political agenda in 1980s, primarily because of rising soil erosion rates. Soil losses went up as farmers abandoned forage, grass, and legume based crop rotations in the 1960s and rose still further as farmers intensified row crop production for growing export markets during the 1970s.

Other costs of increasing specialization began to show up in the environment of farm families, farm workers, and rural residents. Health risks in handling pesticides, for example, have become a major issue in farm safety. Chemical contamination of farm and rural water supplies and risks of pesticide residues in food supplies are additional concerns. Nitrate leaching into groundwater may be attributed as much or more to organic sources, such as livestock waste and crop residues, as to the use of commercial fertilizer. However, this issue, as much as any other, increased awareness in rural areas of the potential environmental hazards of chemically dependent farming.

The industrialization of agriculture has also changed rural landscapes. Farmers planted “fence row to fence row” during the 1970s and many tore down the fences and plowed out the fence rows. Farming areas were no longer patchworks of fields, meadows, grassy hills, and valleys separated by rows of trees. Rural landscapes became field after field of corn, soybeans, wheat, and cotton across the hills and valleys. Timber was cleared to make room for cow herds. Livestock feeding and poultry production became concentrated into large confinement feed operations -- animal factories.

Larger, more specialized farming operations have meant fewer farming families. The number of farmers declined from about 6.5 million in the mid-1930s to less than 2 million by the mid-1990s. The only notable exception to the downward trend was during the export boom years of the 1970s. Fewer people are needed on farms with industrial farming.
technologies. Not only have purchased inputs been substituted for land and climate, but also machines have been substituted for labor, and technology has been substituted for management.

The unneeded human resources have been squeezed out of agriculture as a natural economic consequence of substitution of capital and technology-based inputs for human resources. Technological advances reduced costs of production and provided incentives for expanded production which, in turn, reduced market prices and ultimately reduced profits per unit or production. The profits went only to those farmers who adopted new technologies first. Those who lagged behind were forced to adopt in order to survive.

As profit margins continually narrowed, survival required more farmers simply remaining cost competitive. It simply took more and more acres and larger and larger investments just to generate a decent income for a family by farming. Those who couldn’t adopt and expand quickly enough were forced to sell out to their more progressing or lucky neighbors. The continual repetition of this process kept numbers of farms declining, and ensured that incomes of those who survived were kept below incomes in economic sectors with growing employment.

Rural communities are as much the victims of a more productive agriculture as are displaced farm families. Rural America has consistently had lower levels of income, education, employment, health, nutrition, and community service than has urban America (Hyman). The agricultural technology treadmill has been a major contributor to chronic depression in many rural communities.

Historical trends would seem to justify the prevailing view that farming is no longer a positive factor in the economy of most rural communities. But the problem is not necessarily with agriculture in general but with industrialized, input-dependent systems of farming. And the sustainability of large-scale, specialized, industrial farming systems is being seriously questioned by society. The future of agriculture and of rural communities may be significantly impacted by the ways in which society addresses the sustainability questions.

Toward Sustainable Rural Community Development

For a rural community’s development process to be sustainable, it must be linked to realization of values inherent in its geographically fixed resources. These resources represent the link between developmental purpose and place. Sustainable rural development must conserve non-renewable resources, protect the physical and social environment, provide an acceptable level of economic returns, and enhance the quality of life of those who work and live in rural communities.

Many communities may be overlooking the development potential of a significant agricultural resource base because they are operating with a conventional, industrial agricultural paradigm. The conventional wisdom is that fewer, larger farmers will continue to buy fewer inputs from local suppliers and will sell fewer commodities to local marketing firms and processors. This type of development will support fewer and fewer people in rural communities.

The alternative, sustainable agriculture paradigm is one based on substitution of internal resources, including labor and management, for externally purchased inputs. Sustainable farms systems will rely on management strategies such as crop rotation and integration of crop and livestock enterprises. Sustainable farming systems may require more farm operators, more farm labor, and more farm families than do conventional farming systems. In addition, operators of sustainable farms are motivated by environmental and social, as well as economic objectives. Thus, they may show a preference for local markets and local input supply sources if this preference does not threaten their economic survival. Substitution of management and labor for land and capital would reverse the industrial trends of the past. Thus, a sustainable agriculture may help reverse past rural population trends by supporting more, rather than fewer, people in rural communities.
Community Impacts of Alternative Agricultural Systems

Specific management practices associated with sustainable agriculture include: more incorporation of "natural" processes such as nutrient cycling, nitrogen fixation, and pest-predator relationships; reduction in off-farm inputs with greatest potential environmental risks; greater reliance on biological and genetic potential of plants and animals; improved matching of farming activities with resource limitations; and improved management and conservation of soil, water, energy, and biological resources (NRC, p. 4).

From a community economic standpoint, the shift toward the goal of sustainability is a shift from reliance on inputs external to the community, such as commercial fertilizer and pesticides, to reliance on resources that are internal to the community, such as labor and more intensive management. The fundamental question is whether this shift will result in significant increases in local employment and other economic activity.

"Arguments can be made in both directions regarding whether an agriculturally dependent community benefits more from a high production, high input system or from a comparably profitable reduced input system" (Lockeretz p. 75). Heffernan points out that the net impact of substituting local resources for external inputs will depend on the nature of the substitution. Reductions in the use of purchased inputs such as pesticides and fertilizers, for example, will reduce local business activity and employment. However, increases in returns to labor and management will increase local incomes and employment. The fundamental question is, which impact is larger?

Few commercial farm inputs are manufactured in rural communities. Local economic impacts of locally purchased inputs, in most cases, are associated only with the functions of wholesaling and retailing rather than manufacturing. The value added to pesticides and fertilizers by these local merchandising activities is typically only a small fraction of total purchase costs. In addition, local employment and income of local residents may account for only a fraction of the marginal value added locally.

On the other hand, increased returns to farmers in their managerial roles represent dollar-for-dollar increases in farm incomes that can be spent to generate additional non-farm income in the local community. Larger returns to labor provided by farm operators, family members, and locally hired workers may have similar dollar-for-dollar impact on the local economy. The full value of returns to management and labor, not just a fraction of the margin of value added locally, accrues as expendable income to residents of the local community.

Previous Research on Community Impacts

Sustainable agricultural systems must be (1) economically viable, (2) ecologically sound, and (3) socially responsible (Ikerd, Devnio, and Traiyongwanich). All three conditions are necessary and none alone or in pairs is sufficient to ensure sustainability. Most previous studies of community impacts have been based on analysis of alternative scenarios, focusing on the economic comparisons of "conventional" and "alternative" systems of farming. "Alternative" scenarios have been developed to reflect farming systems that logically would be more ecologically sound and socially responsible than "conventional" systems. The economic consequences of the various scenarios are then compared to determine if the more ecologically sound and socially responsible systems are also more economically viable.

Most previous studies of the relationship between community economic impacts and sustainability have yielded inconclusive results. For example, Lockeretz compared the economics of high input conventional cropping systems with lower input alternatives in an attempt to draw conclusions regarding their impacts on local communities (1989). The underlying assumption was that lower input systems were more ecologically sound. Thus, lower input systems would contribute more to sustainability, if they made equal or greater contributions to the economic viability of the local community. The results from five regional comparisons were inconclusive with respect to overall sustainability.

In general, the lower input systems were found to contribute less per acre to the local economy than did the higher
input systems, resulting in a conflict between the relative economic and ecological performance of the two types of cropping systems. This conflict was addressed through questions regarding the long run sustainability of higher input systems of farming. No attempt was made to assess quality of life or social responsible indicators such as farm size, self-employment, or viability of family farms in the local community.

A South Dakota study went beyond the work of Lockeretz in evaluating impacts of alternative farming systems on consumer spending and marketing services in addition to business spending for production inputs (Dobbs and Cole, 1992). The study paired five farms classified as "sustainable" with five "conventional" farms representing different regions of South Dakota. Data for the "sustainable" farms were gleaned from on-farm interviews, but four of the five "conventional" farms were "synthesized" from various sources. The "sustainable" farms were virtually "organic" farms in that none used inorganic fertilizer and only one farm reported appreciable use of commercial pesticides.

First-round economic impacts on local input purchases and marketing services were clearly negative for the "sustainable" farms. Not only did the organic farms purchase fewer inputs and market fewer products per acre, but they also purchased more of their inputs and marketed more of their products outside the local community. Organic "inputs" and premium prices for organic products simply were not available locally.

First round effects on incomes of farm households clearly depended on whether organic premiums were included or excluded from the analysis. Without organized premiums, four of the five "conventional" farms produced more income per acre, but with premiums included, three of the five "sustainable" farms produced more income per acre. With organic premiums included, three of the five organic farms appeared to be more economically viable than their conventional counterparts and contributed as much or more than their conventional counterparts to the community -- including impacts on farm and non-farm incomes of local residents.

The authors questioned the sustainability of organic premiums, which would also seem to put in doubt the sustainability of organic farming. However, their more serious problem in drawing conclusions regarding sustainability is that the study omits any consideration of the social, or quality of life, dimension of sustainability, such as differences in size between conventional and sustainable farms.

**A Case Study of Thirteen Missouri Counties**

Development of Alternative Scenarios. The study that is reported in this paper was developed to evaluate alternative impacts of "conventional" and "alternative" agricultural systems on rural economies. A "conventional" farming system scenario was designed to reflect farming methods currently typical of Missouri farms and of current spending patterns of local farmers and county residents.

"Alternative" farming scenarios were developed to reflect more sustainable systems by utilizing increased use of crop rotations, more intensive input management strategies, and reduced tillage methods for cropping systems. Alternative livestock systems utilized more management-intensive grazing systems for beef cattle production, and assumed similar management options were possible for other types of livestock.

The alternative farming scenario was designed to achieve a balance of economic, ecological, and social benefits. An attempt was made to achieve ecological advantages over conventional farming systems while using the land in ways that would be profitable to local farmers and supportive of the local community. In other words, the alternative scenario was designed to reflect farming systems that might be more sustainable for the local community as well as for farmers. All farming systems were "synthesized" using secondary data from a variety of sources and opinions of individuals knowledgeable of farming in the state. Detailed descriptions of the two farming scenarios, methods of analysis, and the research base supporting production assumptions may be found in a 1994 Masters thesis by Tralyongwanich.
The alternative farming scenario represents a modest departure from conventional systems of farming in Missouri. For example, many sustainable agriculture advocates may view the alternative scenario’s 50 percent reduction in commercial herbicide as little more than fine-tuning of conventional farming. However, the objective of this study was to evaluate alternatives that would be viewed as reasonable, not radical, departures from common farming practices. No claim is made that the alternative systems are truly sustainable, only that such systems might be expected to move farming in the direction of sustainability.

The alternative system of cattle production was represented by a management-intensive grazing system with 24 paddocks based on data from the Forage Systems Research Center (FSRC) in North Missouri (Moore, 1994). Conventional livestock production was represented by a three paddock grazing system, which likely overestimates the intensity of management of typical Missouri livestock operations. The alternative system would allow farmers to stock more than 50 percent more livestock on the same number of acres than would the conventional system. This assumption is consistent with historic results of research at the FSRC (Moore, 1994) and with on-farm experiences of farmers who have adopted similar systems in North Missouri.

The criteria used for ecological soundness in developing scenarios for this study were natural resource conservation and environmental protection. Indicators of increased resource conservation were reduced soil loss and lower energy use for the alternative systems. Indicators of greater environmental protection were lower agricultural chemical use and greater cropping diversity.

The single economic criterion used was farm income. The indicator used for farm income was the difference between direct costs of production and market value of farm products. Direct production costs included purchased inputs for crops and livestock and interest costs associated with animal ownership for livestock operations. The difference between market value and production costs was termed "direct farm income" to minimize confusion with other more familiar measures of farm income.

Criteria for social responsibility used in developing scenarios were employment opportunities, and utilization of local natural and human resources. Indicators of social responsibility were non-farm employment, and number of households, farm and non-farm, supported by farming.

Methods of Analysis

Conventional and alternative farming scenarios were developed for 13 Missouri counties. Four clusters of counties were selected, with each cluster representing a different geographic area of the state. Three clusters of three counties each were selected from the southeast, southwest, and west central regions. A four-county cluster was selected from northeast Missouri to coincide with the geographic boundaries of an ongoing sustainable community development project.

The conventional or base scenario for each county was based on 1992 USDA Census of Agriculture data. The underlying assumption was that very few farmers in Missouri would have been using farming methods that were identified with the "alternative" farming scenario as early as 1992. Thus, county level farm data for 1992 were used to reflect "conventional" farming practices.

Market values of agricultural products sold; crops, including nursery and greenhouse products, livestock, poultry, and their products; were used to represent total direct farm income. Total farm production expenses, itemized by census expense categories, were used to represent direct cost of production. Direct farm income estimates were calculated as differences between market value of products sold and farm production expenses. Direct farm income may differ from census data for net farm income, in that the net farm income includes return and cost items other than market value of products and farm production expenses. These other items would not likely be significantly affected by differences among scenarios in this study.
Census data for government payments, other farm-related income, and direct sales to individuals were added to direct farm income to estimate total net farm income. Data for average household income, for all county households, were taken from the U.S. Census of population. Total net farm income was divided by average income per household to estimate the number of households supported directly by farming. Data for numbers of farms per county were also taken from the 1992 USDA Census of Agriculture. Estimates of households supported by farming in a county were typically significantly smaller than total number of farms in a county, reflecting reliance of farm households on non-farm as well as farm income sources.

A micro-computer-based, community impact assessment program, developed specifically to assess impacts of changes in farming systems, was utilized to estimate the impacts of both conventional and alternative farming systems for each of the 13 counties (Love and Ikerd). The program translates farm income, costs, and net income data into community impacts in terms of total farm and non-farm household income and numbers of households supported by farming in the community.

Changes in direct farm income were treated as the first round effect, or "Direct Impacts," of farming on the local economy. "Indirect Impacts" occur as a consequence of farmers buying production additional inputs or services. Each dollar spent within the local community for feed, chemical and fertilizers suppliers; equipment dealers, lenders, other farmers, farm laborers, or for any type of production cost adds to the local economy. Farmers’ purchases of production inputs create employment in the local agribusiness sector that in turn creates income to support local non-farm households. Thus, increased non-farm employment is considered an "indirect" or second round impact.

Substantial leakages typically occur between farmers’ total cost of production and indirect income and employment impacts on the local community. A large portion of total production inputs and services may be purchased from sources outside the local community. In addition, only a small proportion of total cost may be retained in the local community, even when items are purchased locally. For example, only the "difference" between the price a local farmer pays a chemical dealer for pesticides and the price the dealer pays the outside manufacture is available to add anything to the local economy.

Additional indirect effects occur when local suppliers or service providers buy their materials or services. However, additional leakages occur because a large portion of suppliers’ purchases may be made outside the community, and those goods and services bought inside the community may have been manufactured or assembled elsewhere. Additional leakages occur with each round of spending until additional impacts resulting from a given initial transaction eventually become negligible. The ratio of the ultimate total effect on local income divided by the initial local spending for production inputs is called an indirect impact multiplier.

Sales of farm commodities may also create indirect effects on the marketing, processing, or value-added sector of the local economy. Commodities sold locally generate sales commissions and other types of income for local marketing firms. Marketing firms may purchase supplies or employ local residents, resulting in indirect economic impacts similar to those associated with input purchases. As in the case of purchases, leakages occur at each round of activity, and eventually any additional impact from a given marketing transaction becomes negligible. Unfortunately, marketing costs associated with commodity sales are not reported in the Census of Agriculture. Marketing costs associated with procurement presumable are included as a portion of production expenses.

"Induced impacts" result whenever people spend money they earn from participating in the local economy. Obviously, those earning income from agricultural transactions include farmers and farm workers. Local consumption expenditures by farmers make up a major component of induced spending associated with farming. However, employees of local suppliers of agricultural inputs and other service providers also earn income linked to local agricultural transactions.
As in the case of indirect impacts, initial consumption expenditures have second, third, and higher round impacts. Those who work for local retailers spend part of their incomes for local goods and services, which in turn generates income for local residents who provide those goods and services. But, as in the case of indirect impacts, leakages at each round of consumption spending eventually reduce additional impacts from a given retail transaction until they become negligible. The ratio of the ultimate total effect on the local community divided by the initial local consumptive spending is called an induced impact multiplier.

The direct, indirect, and induced impact multipliers of interest in this particular study were those associated specifically with personal or household incomes. Thus, percentages of total farm production inputs and services purchased and produced locally were estimated and then translated into estimates of income generated for local residents. To accomplish this, estimates were made for each production input or service: (1) the percentage "purchased" from a local supplier and (2) the percentage "produced," manufactured, or otherwise generated from a local source.

These and other percentage estimates used in this study were solicited from panels of local experts and residents who collaborated in the study. No published data exists for the percentage of purchases made by farmers in a county that are made from suppliers within the county or the percentage of farm inputs or services that are produced or otherwise originate within the county where they are utilized. Neither is there any reliable data on consumptive spending of farm and non-farm residents within and outside of the counties where they live.

However, there is a great deal of general community knowledge among the people who live in rural communities. People who are involved in their communities know where farmers buy their feed, seed, fertilizers, fuel and chemicals. They know where farmers borrow money, hire workers, and rent land. Community-based Extension Specialists assembled groups of "local experts" to estimate the necessary percentages for local input procurement and consumptive spending patterns for each of the 13 counties. They used a variety of solicitation methods ranging from one-on-one interviews, to focus groups, to surveys. All data were then checked for internal consistency to ensure that each group of experts was using a common interpretation of the data needed for the study.

The local experts developed the estimates of the following for each county: (1) percent of each production expense item purchased locally, (2) percent of each production expense item produced locally, (3) percent of local purchases resulting in personal income of local residents, (4) percent of local production resulting in personal income of local residents, (5) percent of direct farm income going to local farmers – rather than landlords of others outside the county, (6) percentage of government payments going to local residents, (7) percentage of other farm related income going to local farmers, (8) percentage of direct sales for consumption sold to residents of the county, (9) percentage of farm income from all sources spent within the county, (10) percent of farm income spent locally resulting in personal income to other local residents, (11) percent of non-farm local personal income spent within the county, and (12) percent of local personal income resulting in personal income to other local residents.

These percentages were used to estimate the appropriate multipliers to translate farm production expenses and direct farm income into indirect income effects, through spending for farm inputs and services, and induced income effects, through consumptive spending of farmers and local employees of input and services suppliers. The sum of direct farm income effects, indirect income effects, and induced income effects provides estimates of the total impact of the farming sector on local incomes, and indirectly, on number of local households supported by farming. A community impact program template with sample county data is included as an appendix.

Results: Comparisons of Alternative Scenarios

Conventional Scenario: The conventional or base scenario was based on data reported in the Census of Agriculture for 1992. Census data indicate total value of marketing of farm products of $477 million for the thirteen counties included in the study. Total farm production expenses were reported at $383 million, resulting in total direct farm income of $94 million (Table 1). The 13 counties accounted for just over 10 percent of total farm value of agricultural production for
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Table 1. Alternative Scenarios: Initial Impacts on Farm Costs and Returns and Patterns of Local versus Non-Local Purchases

<table>
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<th>All Table Values are Totals for Thirteen Missouri Counties</th>
<th>Total Value Production</th>
<th>Total Prod. Expenses</th>
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<tr>
<td>Sustainable Farming</td>
<td>661,429</td>
<td>516,991</td>
<td>72%</td>
<td>79%</td>
</tr>
<tr>
<td>Sustainable Com. Development</td>
<td>661,429</td>
<td>516,991</td>
<td>86%</td>
<td>57%</td>
</tr>
<tr>
<td>Transition to Sustainable</td>
<td>569,075</td>
<td>449,840</td>
<td>80%</td>
<td>48%</td>
</tr>
<tr>
<td>Expert Expectations</td>
<td>546,014</td>
<td>433,055</td>
<td>78%</td>
<td>47%</td>
</tr>
</tbody>
</table>

Direct farm income in the 13 counties was sufficient to support nearly 4,900 farm households at county average levels of income per household (Table 2). Total number of farms in the 13 counties was nearly 12,000, indicating that well over half of total income of farm households in these counties came from non-farm sources. Missouri reported a total of 98,000 farms in the 1992 census. Comparisons among scenarios were all based on "households supported" by farming, rather than number of farms, as a means of dealing with the off-farm income issue.

Indirect and induced income effects reflect salaries, wages, and profits of non-farm households earned as a consequence of farm production inputs and consumption purchases. Estimated indirect and induced income effects within the 13 counties were sufficient to support nearly 4,300 additional households at county average levels. Thus, nearly 9,300 households were estimated to be either directly or indirectly supported by farming in the 13 counties under the 1992 base situation -- the conventional farming scenario (Table 2).

This total estimate was derived using estimates for individual county including percentages of production inputs and services purchased locally, percentages of consumption, purchases made locally, and local income generated as a consequence of production and consumption expenditures. The resulting total employment multiplier was 1.9, indicating that each household supported directly by farming resulted in 1.9 households in total supported by farming. For example 10 farming households would be expected to support themselves and 9 non-farm households.

Table 2. Alternative Scenarios: Number of households Supported, Directly and Indirectly, by Farming

<table>
<thead>
<tr>
<th>All Table Values are Totals for Thirteen Missouri Counties</th>
<th>Farm Households</th>
<th>Non-Farm Households</th>
<th>Total Households</th>
<th>Employ Multiplier</th>
</tr>
</thead>
<tbody>
<tr>
<td>Conventional</td>
<td>4,882</td>
<td>4,395</td>
<td>9,277</td>
<td>1.90</td>
</tr>
</tbody>
</table>

Individual county multipliers ranged from nearly 2.3 down to less than 1.4. Counties with higher multipliers were those with larger percentages of production inputs produced and purchased within the county and larger percentages of incomes spent with local retailers. The overall “within county” multiplier of 1.9, as expected, was smaller than “within state” multipliers, which are generally assumed to be in the 2.2 range for farming in Missouri. The difference reflects economic activity that takes place outside the local county but still within the state.

Sustainable Farming Scenario: The only difference between the conventional and "sustainable farming" scenarios were those related to differences in systems of farming. All percentages related to local input purchases, local production of inputs and services, and farm and non-farm consumption spending were the same in the conventional and sustainable farming scenarios. For the sustainable farming scenario, total market value of farm production and total costs of production inputs were adjusted from the 1992 conventional base levels to reflect differences between the conventional and sustainable farming scenarios outlined above (See Traiyongwanich for details of the process.). Separate calculations were made for livestock and crops to derive alternative levels of total revenue, total cost, and direct farm income for each county.

Total value of production sold was estimated at over $660 million for the sustainable farming scenario, an increase of 39 percent over the conventional scenario. Nearly all of the total was accounted for by increases in livestock sales as a consequence of higher stocking rates for cattle, made possible my management intensive grazing systems. Total market values of crops were essentially unchanged, but costs of inputs for crop production were substantially lower for the sustainable farming scenario.

Total production expenses were 35 percent higher for the sustainable scenario. Higher costs associated with higher stocking rates for livestock overshadowing lower production costs for crop production. One might logically question whether livestock other than beef could experience similar increases in production per acre under sustainable farming scenarios. More management intensive options exist for other species of livestock and for poultry, but are less well documented than is management intensive grazing. Beef was the dominant livestock enterprise in most counties included in this study, which further strengthens the assumption that data from beef production studies indicate potential for changes in livestock systems in general.

In general, one would expect an increase in direct farm income, due either to a reduction in production expenses, increase in value of production, or both, as a consequence of moving toward more sustainable farming systems. Total economic profit, after accounting for opportunity costs of the farm operator’s and family labor and management, may or may not be greater under more sustainable farming scenarios. However, direct farm income reflects total returns to operator and family labor and management and profits combined, which would be expected to be greater for any system that effectively substitutes labor and management for land and capital.

The number of farm households supported by farming under the sustainable scenario was nearly 7,000, an increase of more than 2,100 or 43 percent over the conventional scenario. This result is similar to those of a 1994 Nebraska study comparing detailed economic data provided by 28 farmers, half of which were classified as "conventional" and the other half as "sustainable" (Kleinschmit, Ralston and Thompson, 1994). The "sustainable" farms were only about one-
half as large, in terms of acres farmed, head of livestock and total sales, as those called conventional. However, the "sustainable" farmers actually reported a higher average farm income, or return over direct costs per farm, in spite of their smaller size.

A total of 169 people were supported on the 28 farms included in the Nebraska survey. It was estimated that 44 additional people could have been employed on the same number of acres with at least as high a per capita income if all farms in the survey area had been of the same average size as the "sustainable" farms. If all farms had been "conventional" the number supported would have been 22 less than the 169. Thus, their "all sustainable" scenarios would have supported about 45 percent more people than would have an "all conventional" scenario.

The Nebraska study did not address the issue of indirect and induced non-farm impacts. For the 13 Missouri counties, the number of non-farm households indirectly supported by farming increased from less than 4,400 to over 6,100, an increase of 1,700 or 40 percent over the base scenario. The percentage for non-farm households was smaller only because of increase economic impacts by the farm sector reduces the "relative" impact on the non-farm sector. Total of farm and non-farm households supported by farming increased from less than 9,300 up to over 13,000, an increase of 42 percent. The total employment multiplier dropped slightly from 1.90 to 1.88, due to the larger relative impact of the farm sector under the sustainable farming scenario.

Sustainable Community Development Scenario: The third scenario was labeled sustainable community development (SCD) because it assumed both changes in farming systems and changes in percentages of local purchases and of local production of inputs and services. Percentages associated with local consumption expenditures were unchanged for all five scenarios. Percentages of production inputs purchased locally were assumed to increase by amounts equal to half the distance between current levels and 100 percent. For example if base estimates indicated that 50 percent of production expenses resulted from purchases in the local county, the SCD scenario assumed that 75 percent were local purchases.

Local production of inputs and services was assumed to have lower ceiling levels than did local purchases of inputs. For example, inputs such as fuel, some fertilizers, and agricultural chemicals are not likely to be manufactured in rural Missouri counties, even though such inputs are commonly purchased rural counties. Even if reliance on commercial inputs from outside sources is reduced, it is unlikely to approach elimination. The SCD scenario assumed that local production of inputs was increased to a level halfway between the base levels and 75 percent. For example if the base percentage was 35 percent, the SCD percentage would be raised 55 percent.

Increases in local purchases of inputs are logically consistent with shifts to increased numbers of smaller farming operations that are less reliant on commercial inputs. For example, an evaluation of detailed purchase records of 30 farmers in southern Minnesota in 1993 indicated that large farms tend to buy a smaller percentage of their inputs in local markets (Chism, 1993). The study also confirmed that more diversified farms with livestock as well as crops tend to spend more locally, at least up to a point.

The smaller livestock operations bought as much as 80-90 percent of their production inputs locally whereas larger operations bought only 30-40 percent of their production needs from local suppliers. The smaller operations were more likely to be diversified family farms. The Minnesota study found little difference in local versus non-local spending between smaller and larger crop farms, but the study did not attempt to differentiate between those with low-input and high-input farming operations.

For the 13 Missouri Counties, the Sustainable Community Development scenario resulted in a total of just under10,000 non-farm households supported by farming. This compares with less than 4,500 under the conventional scenario, an increase of 127 percent. The number of farm households was the same as for the sustainable farming scenario, 7,000 compared with 4,900 for the conventional scenario. Thus, total households supported by farming rose to nearly 17,000 compared with 13,000 for the sustainable farming scenario and 9,000 for the conventional scenario, an increase of 83
percent over the base scenario. The total local employment multiplier for the SCD scenario was 2.43 compared with about 1.9 for the two previous scenarios. More than 1.4 non-farm households were employed indirectly somewhere in the county for each farm household employed directly by farming.

With the higher multiplier, the potential positive impacts associated with changes in local versus non-local spending patterns were approximately equal to the potential impact of changing from conventional to more sustainable farming systems. However, the two types of impacts are but two aspects or dimensions of the same phenomena – a change in philosophy or approach to earning a living from farming. The substitution of labor and management for land and capital associated with sustainable agriculture would result in smaller, more diversified, more locally connected farms. In general, operators of smaller, diversified farms would be expected to spend a larger proportion of whatever they spend for production needs in the local community.

Transition Scenario: The fourth scenarios represent an intermediate level of change, with resulting impacts between those of the conventional and sustainable community development scenarios. Results were calculated by assuming that half of each county's agricultural production would remain conventional while the other half shifts to sustainable farming approaches. Likewise, changes in percentages of local versus non-local purchases were assumed to be half way between those used in the conventional and SCD scenarios. Thus, the fourth scenario is labeled a "transition scenario."

The increase in households supported directly by farming was half as large as for the two previous sustainable scenarios, by nature of the transition assumption -- an increase of 21 percent over the conventional scenario. The increases in non-farm households supported indirectly increased by 57 percent over the conventional scenario. This increase over conventional is compared with 40 percent for sustainable farming and 127 percent for the SCD scenario. Total households supported both directly and indirectly by the transition scenario was about 12,800. This was a 38 percent increase over the conventional scenario and compares with a 42 percent increase for the sustainable farming scenario and 83 percent for the SCD scenario.

Experts Expectations Scenario: The final scenario was based on estimates of the magnitude of changes in farming systems that the local "experts" thought might be experienced within the next five years. The experts’ estimates of potential changes on a county by county basis resulted in total of almost 5,700 farm households supported by farming, an increase of 16 percent over the conventional scenario. This compares with a 21 percent increase for the sustainable farming scenario.

Percentage for local purchases and locally produced inputs were chosen to reflect similar relationships relative to conventional and sustainable farming scenarios. The result was an estimate of just over 6,200 non-farm households supported by farming, 700 less than for the transition scenario, but 1,800 more than for the conventional scenario. The resulting total numbers of households supported by farming, including both direct farm and indirect non-farm, were nearly 12,000 -- about 800 less than for the transition scenario, but more than 2,500 more than the conventional scenario. Total employment based on the expert’s estimates of change within the next five year showed a 16 percent increase in farm households, a 41 percent increase in non-farm employment related to farming, and an increase of 28 percent in total local employment related to potential changes in agriculture.

Summary and Conclusions

The industrial era of the twentieth century has left many rural communities seemingly without a viable economic purpose for being. Many rural communities were settled to support mining, logging, or farming operations in the surrounding countryside. With the minerals depleted, the timber gone, and farms continuing to grow larger and fewer in these numbers communities are searching for new economic opportunities to help define their purpose for the future. Some have become bedroom communities for nearby urban areas. Others captured the value of local climate and landscapes to become tourist recreation areas. But, most have been left with far less desirable economic options.
Their options are mostly low-skill, low-pay jobs and enterprises others don’t want -- such as prisons, waste dumps, and factory livestock and poultry operations.

Many rural community leaders consider farming as an important part of their past, but few see farming as a key development strategy for their future. Previously farming dependent communities are unlikely to see a return to agriculture as a dominant role in local economy. Future rural economies likely will be much more diverse than those of the past. However, agriculture can be a key component of that future diversity for many rural communities.

The conventional wisdom is that farms will continue to become larger and larger and fewer and fewer in numbers. If the conventional wisdom is true, then farming quite likely will be more of a liability than asset to rural community development. However, the conventional wisdom is being seriously challenged by the questions raised by the emerging sustainable development movement, of which sustainable agriculture is a part. Sustainable development will require economic development strategies that conserve and protect the local natural and human resource base. Sustainable agriculture will require the substitution of labor and management for land and capital – reversing the industrial trends of the past. The trend toward a sustainable agriculture will require more, smaller, more management intensive farms. Sustainable agriculture challenges the conventional wisdom. Thus, sustainable agriculture may be a key component of logical sustainable community development strategies in many rural areas.

No attempt is made in this study to prove that sustainable agriculture is a viable alternative to conventional agriculture. The proof of that proposition is reflected in changes that are taking place on thousands of farms across the country and around the world. The transition is in its very early stages and still represents a very small fraction of total farming operations and an even smaller fraction of total agricultural production. But the possibilities for farmers to earn a better living by farming less land with fewer capital inputs, by managing more intensively, are real.

This study does not attempt to answer the questions of if, how quickly, and to what extent sustainable farming will become significant and then dominant. The purpose of this study was to examine the potential impacts of such changes on rural communities, and thereby, to evaluate the potential of sustainable agriculture as a rural community development strategy. The speed and extent of the shift toward sustainability may well depend or whether or not people see its potential for tangible, immediate benefits in their lives.

The results of the study indicate that sustainable agriculture may be a viable rural economic development strategy for many rural communities, in Missouri and elsewhere. The thirteen Missouri counties included in this study were all classified as rural, but varied widely in their dependence on farming and reliance of local farmers and consumers on local suppliers and retailers. On a weighted average basis, weighted by value of farm production, farming supported just under 400 farm households per county in 1992. Another 370 non-farm households per county were supported indirectly by farming, for an average county total of just under 770 households.

A complete shift to the sustainable farming scenario would provide support for more than 165 additional farm households per county and more than 300 additional farm and non-farm households in total. The sustainable scenario used in this study reflects only very modest changes from current farming practices – primarily conservation tillage and better input management for crops and management intensive grazing systems for livestock. Nothing in the scenario would be considered a radical change for most Missouri farmers. Few community leaders would ignore the potential for creating 165 new self-employment opportunities and the means of supporting 300 new households in total in their counties.

A shift to a sustainable community development scenario would have even more dramatic impacts on the local economy. Changes in local versus non-local spending patterns magnify the indirect and induced impacts of changes in the farming sector of the economy. A successful SCD strategy could add 300 more non-farm households for a total increase of more than 600 households per county over the conventional scenario. It should be pointed out that added households in this study add far more than minimum wage or low pay jobs. Each household in the study is supported

at the average household income level for the county. In many cases, current households may be supported by more than one full or part-time job.

Obviously, the shift to more sustainable farming and community development strategies will take time, even under the most optimistic of scenarios. One reason industry hunting appears so attractive as an economic development strategy is that announcement can be made that "x" number of new jobs will be created within the next "y" period of time by the new industry coming to town. Sustainable development is a more long-term strategy that must be based on enhancing the inherent productivity capacity of the people within the community rather than providing jobs from outside. New industries can and do leave town just as suddenly as they arrive, leaving people with no marketable skills behind. Development that is achieved by the people, one-by-one over time, is far more likely to multiply than it is to subtract over the long run.

The transition and expert expectations scenarios provide insights to possible impacts over time periods similar to those that might be required for industry recruiting. The transition and expectations scenarios would each add about 300 households to the average county, on a weighted average basis.

At first glance it might appear that the experts, in this study, expect little more than a half-step toward sustainable farming – even in the very modest sense that it is represented here – to occur within the next five years. But, it is highly significant that the experts' expectations reflected an increase, rather than decrease, in numbers of households supported by farming. Obviously, if sustainable agriculture and sustainable community development became proactive strategies common among Missouri's rural communities, changes could come much more quickly and be much more dramatic.

The results of this study point the potential for agriculture to become a key element in strategies for sustainable community development in many rural counties across Missouri and across the country. The first step in realizing that potential may be to recognize that it exists.

REFERENCES


Most rural communities were established for the fundamental purpose of realizing private and social benefits from use of natural resources located in rural areas. People and money can move from one location to another in response to economic or social incentives. Thus, human and financial resources need not be developed or utilized in any specific geographic area; although very substantial relocation costs are often ignored. On the other hand, natural resources such as land, minerals, landscapes, and climates must be utilized, at least initially, in the geographic locations where they exist. People became dispersed across the American countryside because natural resources were likewise dispersed.

Some early American settlements were mining communities. But, the historic purpose of most communities in the U.S. was realization of the social value inherent in agricultural lands. The density of farm population across the land was determined by the number of farmers or ranchers needed to realize the perceived benefits from managing the land resource. The range lands of the West were sparsely populated because one rancher could manage a herd of cattle roaming over hundreds, even thousands, of acres. Areas suited for truck farming and dairy operations were more densely populated because of the high human input requirement for those enterprises. The Midwest was covered with diversified family farms with a corresponding rural population density.

Non-farm economic activity in rural communities has been closely related historically to numbers and types of farms. More service activities were needed in areas with larger farm populations. More people need more health care, education, and other social services. Business activities in rural communities have been closely related to the basic nature of farming enterprises and the related need for markets and farm inputs such as credit, machinery, feed, and fuel. Rural service communities evolved into trade centers as early farmers moved away from self sufficiency and began to specialize and trade among themselves. Many rural communities later became agribusiness centers as more people left nearby farms for urban areas and the remaining farmers became more reliant on mechanization, markets, and purchased inputs.

Places Without a Purpose
Over the past fifty years many rural communities seem to have lost their purpose. The basic trend during this period has been toward fewer, larger, and more specialized farms. The result has been declining rural populations, declining demand for local markets and locally purchased inputs, and a resulting economic decay of many rural communities. Some communities attempted to diversify their economy to reduce their dependence on agriculture, and others abandoned agriculture entirely as a basis for economic development. Industry hunting became a preoccupation of many small town councils and chambers of commerce. Jobs, any kind at any cost, seemed to be the primary development objective in some declining rural communities. Any lack of a geographically foundation to support sustained development was given little, if any, consideration.
Many development activities, lacking a geographic foundation, were rooted in nothing more than short-run exploitation of undervalued people, capital, and natural resources in rural areas. Large companies, although they may provide a large number of jobs, often pay poorly, are expensive to attract and retain, and are slow to respond to new economic conditions. The number of working poor -- workers with full time jobs who live below the poverty line -- in rural areas has continued to rise. In addition, many manufacturing companies and branch plants that initially relocated in rural areas are now moving overseas where laborers are willing to work even harder for far less money. Efforts to attract low quality, low paying jobs are increasingly regarded as expensive and ineffective strategies for rural economic development.

Some new rural economic activities such as tourism, vacation homes, retirement communities, and rural residences can have strong geo-economic foundations in climate, landscapes, or proximity to urban employment. Such activities have helped some rural communities survive the harsh reality that they had no major purpose during the industrial era, other than to facilitate the forced migration of rural people to the cities. However, most rural communities are continuing to search for a new, fundamental purpose for their existence.

The Inevitability of Change

If past trends affecting rural areas continue into the future, there will be little hope for revitalizing rural communities. But, trends never continue, at least not indefinitely. A proposed list of the top twenty “great ideas in science” was reported in Science magazine, and scientists from around the world were invited to comment (Pool, 1991). Among the top twenty were such ideas as the relationship between electricity and magnetism, and the first and second laws of thermodynamics. The top twenty also included the proposition that "everything on the earth operates in cycles." Some scientists responding to the Science survey disagreed with the proposed theory of universal cycles, but many others left it on their list of the top twenty great ideas in science (Culotta, 1991). Based on the universal cycle theory, any observed trend is, in fact, just a phase of a cycle.

The theory of cycles would imply that farms do not get either larger or smaller forever, but instead cycle between larger and smaller over time. If we think back over past centuries and around the globe, we can find examples where control of land became concentrated in the hands of a few only to later become dispersed in control among the many. The most significant such occurrence in the U.S. may have been the development and later demise of plantation agriculture in the South. The most significant such occurrence in the world at present is taking place in what once was Communist Russia. These cyclical turning points have been associated with major historical events. However, large-scale, industrial agriculture is coming under increasing environmental and social challenges all around the globe. The trend toward fewer and larger farms in the U.S. might also be a phase of a cycle that is nearing an end.

There have been similar cycles in spatial dispersion of people. Anthropological evidence indicates that people have concentrated in large cities in centuries past, but later, for a variety of reasons, have abandoned those cities and dispersed themselves across the countryside. Thus, there is reason to believe that migration from rural areas to U.S. cities during the twentieth-century was simply a phase of a cycle rather than an unending trend. Most large center-cities are already losing population as people move to the suburbs in increasing numbers. A further migration back to rural areas might be a logical continuation
of the dispersion phase of this cycle. The most relevant question for rural communities might be when, and for what reasons, will people abandon the cities and suburbs to resettle rural areas? There is nothing in cycle theory which dictates that people return to the same rural areas they previously populated.

New Realities of Economic Development

Alvin Toffler, in his book *Powershift*, points out that many forecasters simply present unrelated trends, as if they would continue indefinitely, without providing any insight regarding how the trends are interconnected or the forces likely to reverse them. He contends that the forces of industrialization have run their course and are now reversing. The Industrial models of economic progress are becoming increasingly obsolete. Old notions of efficiency and productivity are no longer valid.

Mass production no is longer a symbol of "modern" business operation. The new "modern" model is to produce customized goods and services aimed at niche markets, to constantly innovate, to focus on value-added products, and specialized production. Toffler contends that these are the trends of the future.

He goes on to state that "the most important economic development of our lifetime has been the rise of a new system of creating wealth, based no longer on muscle but on the mind" (Toffler, p. 9). He contends that "the conventional factors of production -- land, labor, raw materials, and capital -- become less important as knowledge is substituted for them" (Toffler, p. 238). "Because it reduces the need for raw material, labor, time, space, and capital, knowledge becomes the central resource of the advanced economy (Toffler, p. 91). Toffler also provides some insights into the nature of knowledge-based production. He states that separate and sequential systems of production are being replaced with synthesis and simultaneous systems of production. Synergism is replacing specialization as a source of production efficiency. Tailoring products to desires of specific customers is replacing low price as source of value. Simultaneity, synthesis, synergism, tailored production; this is the "mind work" of the future.

Synergistic production systems embody enormous complexity in simultaneous and dynamic linkages among a multitude of interrelated factors. Cognitive scientists have shown that humans can deal consciously with only a very small number of separate variables simultaneously. Yet humans can perform enormously complex tasks; such as driving a car in heavy traffic, playing a tennis match, or carrying on a conversation that baffle the most sophisticated computers. However, people are capable of performing such tasks routinely by using their well developed subconscious minds.

The subconscious human mind appears to be virtually unlimited in its capacity to cope with complexity. As organizational theorist Charles Keifer puts it, "When the switch is thrown subconsciously, you become a systems thinker thereafter. Reality is automatically seen systemically as well as linearly. Alternatives that are impossible to see linearly are surfaced by the subconscious as proposed solutions. Solutions that were outside of our 'feasible set' become part of our feasible set. 'Systemic' becomes a way of thinking and not just a problem solving methodology" (as quoted in Senge, p. 366). The subconscious human mind is capable of assimilating hundreds of feedback relationships simultaneously as it integrates detail and dynamic complexities together (Senge, p. 367). The human mind may be the only mechanism capable of dealing effectively with the systems complexities embodied in the production concepts that will dominate economic development in the future.

Realities. He states "the biggest shift -- bigger by far than the changes in politics, government or economics -- is the shift to the knowledge society. The social center of gravity has shifted to the knowledge worker. All developed countries are becoming post-business, knowledge societies. Looked at one way, this is the logical result of a long evolution in which we moved from working by the sweat of our brow and by muscle to industrial work and finally to knowledge work" (Drucker, p. 173).

Drucker contends that there is an important, fundamental difference between knowledge work and industrial work. Industrial work is fundamentally a mechanical process whereas the basic principle of knowledge work is biological. He related this difference to determining the "right size" of organization required to perform a given task. "Greater performance in a mechanical system is obtained by scaling up. Greater power means greater output: bigger is better. But this does not hold for biological systems. Their size follows function. It would surely be counterproductive for a cockroach to be big, and equally counterproductive for the elephant to be small. As biologists are fond of saying, 'The rat knows everything it needs to know to be a successful rat.' Whether the rat is more intelligent that the human being is a stupid question; in what it takes to be a successful rat, the rat is way ahead of any other animal, including human beings" (Drucker, p. 259).

Differences in organizing principles may be critically important in determining the future size and organizational structure of economic enterprises and ultimately in determining their optimum geographic location. Other things equal, the smallest effective size is best for enterprises based on information and knowledge work. "'Bigger' will be 'better' only if the task cannot be done otherwise" (Drucker, p. 260). Small enterprises can be located almost anywhere.

Robert Reich, the new U.S. Secretary of Labor, addresses future trends in the global economy in his book, The Work of Nations. He identifies three emerging broad categories of work corresponding to emerging competitive positions within the global economy: routine production service, in-person service, and symbolic-analytic services (Reich, p. 174). He calls routine service workers the old foot soldiers of American capitalism in high-volume enterprises. This category includes low- and mid-level managers -- foremen, line managers, clerical supervisor, etc. -- in addition to traditional blue collar workers. Production workers typically work for large industrial organizations. These workers live primarily by the sweat of their brow, or their ability to follow directions and carry out orders, rather than by using their minds.

In-person service, like production service, entails simple and repetitive tasks. The big difference is that these services must be provided person-to-person. This category includes people such as retail sales workers, waiters and waitresses, janitors, cashiers, child-care workers, hairdressers, flight attendants, and security guards. Like routine production worker, most in-person service work is closely supervised and requires relatively little education. In-person services may be provided through a diversity of organizational structures, ranging from individual providers to large franchised organizations. Unlike routine production work, individual personality can be a big plus, or minus, for in-person service workers.

Symbolic-analysts are the "mind workers" in Reich's classification scheme. They include all the problem-solvers, problem-identifiers, and strategic-brokers. They include scientists, design engineers, public
relations executives, investment bankers, doctors, lawyers, real estate developers, and consultants of all types. They also include writers and editors, musicians, production designers, teachers, and even university professors. He points out that symbolic analysts often work alone or in small teams, which are frequently connected only informally and flexibly with larger organizations. Like Toffler and Drucker, Reich believes that power and wealth of the future will be created by symbolic-analysis, by mind work, rather than by routine production or in-person service.

The Rural Renaissance
John Naisbitt and Patricia Aburdene in their book, *Megatrends 2000*, call the triumph of the individual the great unifying theme at the conclusion of this century. They talk about greater acceptance of individual responsibility as new technologies extend the power of individuals. Their "mind workers" are called individual entrepreneurs. They point out that small-time entrepreneurs have seized multibillion-dollar markets from large, well-heeled businesses (Naisbitt and Aburdene, p. 324). In fact, in the past ten years, about two-thirds of all new non-farm jobs were created by small businesses. A recent National Science Foundation study showed that small businesses produce 24 times as many innovations per research dollar as do large businesses.

Naisbitt and Aburdene contend that empowered individuals, while working alone or in small groups, will choose not to face the world alone but rather will seek community, which they define as the free association of individuals. Large business organizations, government bureaucracies, labor unions, and other collectives have provided hiding places for avoiders of responsibility. In a community there is no place to hide. Everyone knows who is contributing and who is not. In communities, individual differences are recognized and rewarded. The sense of community, all but destroyed by industrialism and collectivism, may well be restored by individuals empowered with knowledge. These people are looking for a place to be recognized, a place to belong, and not a place to hide.

Naisbitt and Aburdene talk of a new electronic heartland. They contend that a new breed of mind workers will reorganize the landscape of America. They will be linked by telephone, fax machines, Federal Express, and computers into information networks that span the globe. "Free to live almost anywhere, more and more individuals are deciding to live in small cities and towns and rural areas" (Naisbitt and Aburdene, p. 329.) Many rural areas are already as technologically linked to urban centers as are other cities. They point out that the industrial revolution built the great cities of Europe, America, and Japan. But today's cities are based on technologies of 100 years ago such as indoor plumbing, electric lighting, steel frame buildings, elevators, subways, and the telephone. Railroads and waterways made it easy to move raw materials and finished goods cheaply over long distances, but it was very expensive then to move people even short distances.

The cities have already lost much of their purpose as places for people to live. Multi-lane freeways and extended mass transit systems have allowed people to retreat to the suburbs by making it easier for them to get to and from work. But, low cost air travel has now reduced costs, in time and money, of moving people over far greater distances. In addition, knowledge-based enterprises are far less dependent on movement of either raw materials or finished products. Most knowledge work can be delivered anywhere on the globe almost instantaneously at costs representing a very small fraction of its value. Mind workers are more independent of large organizations and thus require less frequent personal contact. For the first
time in history, the link between a person's workplace and his or her home is being broken.

Naisbitt and Aburdene contend that "In many ways, if cities did not exist, it now would not be necessary to invent them" (Naisbitt and Aburdene, p. 332). Drucker adds that the real-estate boom, and the associated new skyscrapers, in big cities in the seventies and eighties were not signs of health. They are instead the signals of the beginning of the end of the central city. "The city might become an information center rather than a center of work -- a place from which information (news, data, music) radiates. It might resemble the medieval cathedral where the peasants from the surrounding countryside congregated once or twice a year at the great feast days; in between it stood empty except for the learned clerics and its cathedral school" (Drucker, p. 259).

People are abandoning the cities for the suburbs for quality of life reasons: lower crime rates, quality housing as a lower cost, and recreational opportunities. Many people are now free to abandon the suburbs for rural area for quality of life reasons as well: more living space, a cleaner environment, prettier landscapes, and, perhaps most important, to regain a sense of community, a sense of belonging. The challenge of rural economic development is to create places where mind workers can be developed, can be productive, and will want to stay and become a part of the community.

**Strategies for Regenerating Rural Communities**

Community economic development strategies are already undergoing significant changes consistent with knowledge-based systems of economic development. As large companies and branch plants leave rural areas and move overseas for cheaper labor, economic development professionals are beginning to concentrate on improving the quality of jobs rather than quantity. The old strategies of industrial recruitment through building industrial parks by offering tax breaks has given way to growth-from-within policies. The new strategies are in line with the business theories of Reich and others, invests in mind-workers by encouraging entrepreneurs within the community to build small businesses and strengthen the local economy. Local buyer-supplier projects are encouraged to plug the loss in dollars leaving the community by replacing imports with locally produced goods and services.

However, most communities still seem to be lacking a clear vision of a new fundamental purpose for their existence. They can no longer depend on agriculture as the primary engine of rural economic development. They realize that industry recruitment is destined to fail for most rural communities. There simple won't be enough American based industries in the future to go around. They see promotion of small scale projects; such as niche markets, bed and breakfasts, and local festivals; piecemeal, stop-gap strategies with limited long run potential for developing their community.

Communities are seeking strategies for "sustainable" rural community development. They need development that is linked to local resources, that maintains the productivity of those resources, and protects the physical and social environment. However, sustainable development must also provide an acceptable level of economic returns and otherwise enhance the quality of life of those who live and work in the community. Development strategies that rely solely, or even primarily, on local natural resources are unlikely to fulfill these latter requirements. However, the obstacle of limited local resources can be overcome by those who have a clear vision of the new realities of economic development and a firm commitment to make their community a part of coming rural renaissance.
The linkage of rural community development with local resources will be increasingly important, but far less limiting, in the knowledge-based era of economic development. Robert Reich stresses that the economy is no longer local, or even national in scope, but is truly global. Neither communities nor nations can depend on capturing the benefits of local capital, local industries, or even locally developed technologies in a global economy. Money, jobs, and technology can and will move freely to anywhere on the globe where they can be used to the greatest advantage. Thus, sustainable development must be linked to something that is less easy to move.

Reich outlines two fundamental strategies for national economic development in a global economy. First, he advocates investment in infrastructure, including such things as roads, bridges, airports, and telecommunications access systems. Infrastructure has two important development dimensions. First, it facilitates productivity by making production processes easier and more efficient. Second, infrastructure is geographically fixed in the country where it is built. If producers want to use U.S. roads, bridges, airports and communications accesses, they have to use them where they are, in the country that built them. Infrastructure, in many respects, serves the same function as geographically fixed natural resources in linking development of a specific location.

Reich's second, and even more important, development strategy is to invest in people. People who work with their minds will be the fundamental source of productivity in a knowledge-based era of the twenty-first century. If a nation is to be productive in the post-industrial economy, its people must be productive. Reich apparently depends heavily on national allegiance to keep productive people working in the nation which helped them develop their minds.

With one important added element, Reich's strategy for national economic development becomes a logical strategy for rural community development. Rural communities cannot depend on an allegiance of rural residents to their communities to keep productive people in rural areas. People can and do move freely among communities within the U.S. During a rural renaissance, it would be critically important for communities to be able to attract new mind workers, if there are to be places where "home-grown" mind workers will want to stay. The primary attraction of rural communities for current and future mind workers will be the promise of a desirable quality of life.

Quality of life is a product of the terms by which people relate to each other; socially, politically, and economically; and the terms by which they relate to the other elements of their physical and biological environment (QOL Task Force). Thus, quality of life is a product of relationships; relationships among people and between people and their environment. Obviously, some observable factors such as employment, income, personal safety, economic security, and access to health care are important aspects of quality of life. However, quality of life also includes peoples' subjective judgments regarding such things as self-determination, freedom to participate, individual equity, freedom from discrimination, economic opportunity, ability to cope with change, social acceptance, and treatment according to accepted social principles of one's culture.

The communities that survive and prosper during the rural renaissance will be culturally diverse. Diversity will be an important source of creativity, innovation, and synergistic productivity, and will be
an important aspect of quality of life in rural areas. In rural communities people will have an opportunity to know each other individually rather than simply accept the stereotypes of their cultural groups.

Successful rural communities will be made up on long-time rural residents, bright young people who choose to stay, returning rural residents, those born in urban areas of the U.S., and those born in other countries. They will be Anglo American, Afro American, Asian, Mexican, Canadian, European, South American, Caribbean, and Indian with a healthy mixture of other ethnic groups thrown in. Male and female, young and old, rich and poor, educated and less well educated, may be viewed as different, must be respected for their differences in the workplace and in the town halls of rural renaissance communities. Communities that fail to meet the challenges of the cultural renaissance will be unlikely to provide the quality of life necessary to participate in the economic renaissance as well.

Basic Strategies Rural Revitalization
Successful rural revitalization strategies for the future will be unique to each community that succeeds. Routinized processes and recipes for success were a characteristic of the industrial era but not of the post-industrial era of knowledge-based development. However, the fundamental principles and concepts outlined above can provide some guidance for those who have the vision of a rural renaissance and the determination to participate in this historic process. The following are a few of the more obvious elements of a successful rural revitalization strategy.

Invest in people: People are the basic source of productivity in a knowledge-based era of economic development. The "virtuous cycle" of education, increased innovation, increased investment, increased value, and higher wages offers an alternative to the vicious cycle of industrial recruitment, low wages, declining emphasis on education, declining communities, and resulting downward spiral (Reich, 1991). The common practice of preparing the "best and the brightest" to leave rural areas will have to be reversed to meet the cultural and economic needs. "Home-grown" mind workers have a sense of the quality of rural life that immigrants from urban areas will be seeking. Quality life-long education will be equally critical to prepare people to succeed in the new, dynamic era of economic development.

Link development to local resources: Natural resources such as land, minerals, landscapes, and climates must be utilized, at least initially, in the geographic locations where they exist. Don't abandon agriculture. Large scale, industrial agriculture provides little local community support. Sustainable agriculture, on the other hand, is a knowledge-based system of farming that depends on the productivity of local people. Wendell Berry points out, "...if agriculture is to remain productive, it must preserve the land and the fertility and ecological health of the land; the land, that is, must be used well. A further requirement, therefore, is that if the land is to be used well, the people who use it must know it well, must be highly motivated to use it well, must know how to use it well, must have time to use it well, and must be able to afford to use it well" (Berry p. 147). Agricultural mind work can multiply the value to agricultural products before they leave rural areas and replace many agricultural inputs that are brought in from elsewhere.

Invest in infrastructure: Good roads and access to airports will be important. However, modern telecommunications systems will be the key element in making rural areas competitive with urban and suburban areas in an information driven, knowledge-based society. A national initiative to bring twenty-
first century communications systems to rural communities may be more important to rural areas today than was the rural free mail delivery and rural electrification programs of times past.

Invest in quality of life: Help people make the most of local climate, landscapes and recreational opportunities. Land use planning and zoning can make and keep quality spaces in rural communities providing quality places for people to live. Make health care an investment in the future. Provide maternity wards and pediatricians not just cardiac units and nursing homes. Make personal security and safety a top priority. This, as much as any single factor, will enhance the perception of rural communities a quality place to live.

Make a commitment of understanding, accepting, and valuing diversity: Quality of life is a product of relationships among people. Thinking, learning, behaving, and working alike was necessary for success in the industrial era of development. Thinking, learning, behaving, and working differently, but working in harmony, will be the key to success in the knowledge-based era of development. Communities that fail to understand, accept, and value diversity among people are unlikely to succeed in a knowledge-based era of development.

Share the vision: A community must share its vision of the future rural America, and what it is doing to shape its own future with others if it is to share in the rural renaissance. There may be a great untapped demand for what rural communities have, or can have, to offer. Productive people who desire a better quality of life may simply be locked into an old vision of rural communities as places of depression, decline, and decay.

The most important single step toward success may be for those in the community to develop a shared vision of what they want their community to be in the future. The vision of each person in the community will be different from the vision of others in many respects. However, the people of a community must search for and find some common elements among their different visions to provide the nucleus for a shared vision. Otherwise, the group is not really a community but rather a collection of people who happen to live in the same general area. A community that has found a shared vision for the future has made its first critical step toward self revitalization. To paraphrase Jesse Jackson, if they can conceive it, and believe it, they quite likely can achieve it. The future of rural America belongs to those who are willing to claim it.

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What will the world be like fifty years from now? Will it be better, or worse? There is no way of knowing for sure. But there are two things about the world of the future that we know with relative certainty; first, it will be different than the world of today, and second, the world of tomorrow will be affected by what we do today.

The world is always changing. Regardless of how much we might like for it to stay the same, it won’t. If we can’t keep it the same, we would like the future to at least be somewhat predictable, but it isn’t. Our expectations for the future most often are nothing more than extensions of what we see happening today – and, those expectations are usually wrong. If the stock market is booming today, we just know that stocks will be a good investment for the future – only the foolish keep their money in Certificates of Deposit. But only a few years ago, interest rates were high, stock prices were going nowhere, and CDs were the only place for the smart investor to have their money. In 1976, farm commodity prices were high, export markets were growing, and farmers wanted “freedom to farm” – they wanted to get the government out of agriculture. So, farmers were given the freedom to produce as much as they wanted. Today markets are flooded with surpluses, farm commodity prices are in a three-year slump, and farmers want the government to “restore the safety net.” Our problems of today are almost always the result of decisions we made in the past, based on expectations that things in the future were going to be pretty much continuations of whatever we see today.
The things we do today help to shape the future. Certainly, many things are beyond our individual control – even beyond our ability to influence. We can’t change the economy, we can’t change the weather, and we can’t change people so that they will care about each other – at least not all by ourselves. But, we can change how we respond to the economy, we can change how we react to the weather, and we can choose to care about other people – regardless of what else happens. And when our choices are combined with the choices of everyone else, our collective choices certainly can change the world – the economy, society, and maybe even the weather. We can at least help shape our future by the things we do, and don’t do, today.

What Kind of World Do We Want?
So, if we know the world fifty years from now will be different from today, and if we know what we do today can help shape the future, why shouldn’t we try to help create the world as we would like it to be? If we can help make the future better rather than let it get worse, shouldn’t we do it? We can’t necessarily create just any sort of world we might choose. There are plenty of other people who might choose a different kind of world. Our hopes and dreams may be different. But, surely we can agree on some things we want, and some things we don’t, and together we can help to make a world that will be better for us all.

If the world fifty years from now is to be far better than it is today, what will it take to make it so? Our common sense tells us that “better” will not mean that we have “a lot more cheap stuff.” Perhaps having more stuff – particularly food, clothing, shelter, medical care, etc. – made life better at some time in the past. But, what about today? How much more food do we need? Most Americans are already overweight, and more food won’t feed the hungry unless they have the money to buy it. How many more clothes do we need? Most of our closets are already so crowded we can’t find what we want to wear. How much bigger house do we need? Many of us have rooms we rarely use, and hardly have time to live in the rest.
How many more cars do we need? We can only drive one at a time. What about computers, cell phones, the Internet – information technologies – but for what? Are we going to use these technologies only to build more sophisticated “things?” How many sophisticated things do we need?

What about personal services – recreation, things that make our chores less tiresome, make leisure time more relaxing, or things that take the hassle out of everyday living? This is not just more cheap “stuff;” these things will allow more of us to really “live the good life.” But then, what would life be about? Where would our pursuit of “the good life” actually lead us? Perhaps one day in the future, a person could be born, could be hooked up to a “virtual reality machine,” could take capsules for hydration and nourishment, eliminating the unpleasant matter of human waste, and could be entertained “virtually,” all day every day, until they eventually grow old and die. Or perhaps, we could devise means by which no one would even have to grow old and die. Maybe we could do it, but why? What would be the purpose of it all? What difference would it make to anyone or anything whether we lived or died or whether we had even existed?

Common sense tells us that the next step in human progress will not come about as a result of having more “stuff” or through more personal services. We already have more “stuff” and more services than we need. What most of us really need goes beyond our narrow self-interests. What most of us need is an ability to get along better with other people – within families, among friends, within communities, within nations, and among people of all nations. We need to learn to build positive human relationships. We need to learn to build each other up rather than tear each other down – and to receive something in return that builds us up as well. We need to learn that relationships can have value in and of themselves – not just in terms of what they do for us as individuals. We are rewarded when we treat another person as we would have them treat
us – caring is not a sacrifice, but an opportunity.

A world with less conflict – fewer fights, fewer lawyers, fewer broken families; that would be a better world. A world with less crime – fewer prisons, fewer policemen, fewer judges; that would be a step forward for humanity. A world without war would truly be a giant step toward human progress. All of these things are possible, but only if we break free of our destructive patterns of focusing only on today and only on ourselves. We must be willing to devote our time and energies toward building positive, interdependent relationships.

Another thing most of us really need is the ability to lead lives of purpose and meaning. Purpose and meaning can only come from some higher level of understanding – from some higher order of things of which we are but a part. We cannot gain purpose and meaning from our relationships with other people or things – no matter how strong or positive they may be. We are at the same level of organization as all of the tangible things we can see and feel; we are all part of the same whole. We can never expect to fully understand the meaning of our lives without seeing them from the perspective of the whole of everything else. We can never understand the purpose of the heart, for example, by exploring its relationship to the brain and the lungs. The purpose of the heart can be derived only in relation to the whole of the human body. We are but parts of the whole biosphere of the earth. Our lives take on meaning only when viewed from the perspective of the biosphere – from a higher level of organization.

We must rely on the spiritual dimension of our being for insight into the unique purpose and meaning of our lives. Through this spiritual dimension we are rewarded when we practice stewardship – when we take care of the other living things of the earth and take care of the earth itself. Through spirituality we are rewarded for treating those of future generations, as we would like to be treated by them, if we were of the
future and they were of the present.

A world in which people respect and take care of other living things – accepting that plants and animals provide food for people as people give live and sustenance to them; that would be human progress. A world in which people cared for, nurtured, and restored the environment for the benefit of themselves as well as for those of the future; that would be a step forward for humanity.

The Need for New Economic Thinking
If we are going to build this new and better world, we are going to have to have new ways of thinking about the decisions we make today – beginning with a new way of thinking about economics. Our current economic system is designed and programmed to provide humanity with “more cheap stuff.” That is all it was ever meant to do – to use the scarce resources of the earth more efficiently in giving people, as consumers, more of what they want.

In times past, more cheap stuff may well have been what humanity needed most. A couple of hundred years ago many people lived lives of drudgery – many starving, freezing to death, or struggling day-to-day with pestilence and disease. But those times are long past – at least for most of the world. The system of competitive capitalism gave people food, clothing, and shelter and helped people lead longer, healthier lives. But, in the process of producing more cheap stuff, it has depleted the resources – people as well as nature – upon which its future productivity must depend. It is destroying itself as it destroys human society and destroys the natural environment. It has evolved from a system of competitive capitalism to a system of industrial corporatism that has become a cannibalistic system for reckless resource exploitation rather than rational resource use. The corporatist economic system of today cannot possibly support another fifty years of human progress. It is destroying the very things that must be restored before humanity can take its next step.
forward.

We must find a new, shared vision for the future of humanity, and it must be built on a new economic foundation. Our focus on short run, self-interest and our worship of economic materialism is a major contributor to, if not the sole cause of, nearly every major problem we face in today’s society. Nearly every incident of environmental degradation and destruction is a consequence of economic rationalization that the earth’s resources are ours for the taking. Hunger and disease in the world are not consequences of a lack of food or medicine, but of our acceptance of the economic logic that only those who are willing and able to pay are deserving. Our blind faith in free-markets has caused us to surrender both the private and public sectors of our society to corporate control. Our political campaigns are planned and paid for by the corporations who then have access and influence, if not outright control, of the politicians who are supposed to represent the people. Any positive vision for the future of humanity must be based on a new and different vision of economics – as E.F. Shumacher said, an “Economics as if People Mattered.”

The economy of the future must focus on people rather than production and profits. To achieve such an economy, we must challenge the economic assumption that people are best served by ever-increasing production and profits. Economists argue that since people invariable prefer more money to less, more money obviously enhances our quality of life. Thus the more we produce, spend, and consume the higher will be our quality of life. Economists argue that any means we might choose to address the ills of society invariably costs money, and more money comes only from increased production. Production creates jobs from which people pay the taxes, and those taxes support various social services. Economists argue that only the affluent can afford to protect the environment. So, we must continually increase production if we are to have the wealth from which we derive the means of caring for the natural environment. To economists, the well being of people is simply some
linear transformation of production and profits – the greater the production, the greater the profits, and the higher the level of human well being.

However, the foundation for contemporary economic thinking is based on observations of the world of 200 years ago, not the world of today. Adam Smith’s observations in his 1776 book, The Wealth of Nations, are simply not relevant to the society of today. None of the assumptions needed to ensure that the pursuit of short run, self-interest is transformed into long run, societal benefits – as if by an “invisible hand” – are present in the world of today. There are no longer large numbers of buyers and sellers, but instead a few giant corporations, which make a mockery of the concept of competitive, capitalistic, free markets. It is not easy to get into enterprises that are profitable or to get out of enterprises that are unprofitable, and thus, to give people more of what they want and less of what they don’t want. Patents, specialized equipment, and large capital requirements represent formidable barriers to entry and exit. Consumers do not have accurate information concerning the value they will realize from whatever they buy, but instead are confronted with disinformation by design, in the form of persuasive advertising. Finally, the consumer is no longer king. Consumer sovereignty went by the wayside when advertising agencies began hiring Ph.D. psychologists to warp and bend consumer tastes and preferences to fit the desires of corporate producers.

There is absolutely nothing in existing economic theory to support the proposition that today’s economy is performing for the benefit of society as a whole. There is far more support for the proposition that today’s economy is functioning solely for the benefit of giant corporations and that any net benefits for people are but a side-effect of the pursuit of corporate profits and growth.

Economists have all sorts of rationalizations for continuing to worship at the altar of “free-market economics” during an era of corporatist reign.
But none of them stand up to the ultimate test of common sense. The concept of “workable competition” is not workable in a corporatist economy – there quite simply is no longer an “invisible hand” of impersonal competition to transform greed into good. The simple fact that people have jobs and make money doesn’t necessarily mean that they are willing to pay higher taxes – or that higher taxes and more social services necessarily translate into greater societal well being. We need a society in which people recognize their interdependence, understand that they are all part of the same whole, and truly care about each other. More jobs and more money simply don’t translate into acceptance of social responsibility. Our social responsibilities will be met through understanding and compassion, not through the pursuit of greed.

Stewardship of the environment is not a luxury of the rich but a responsibility of all people. The poor of the world cannot attain a higher quality of life by exploiting their natural environment or exploiting other people. Whatever they gain in material wellbeing will be more than offset by the their loss cultural and moral values, the degradation of their society, and the destruction of their natural environment. The rich degrade and destroy far more resources in their pursuit of material wealth than they have ever been willing to give back in terms of protection or restoration. “Ecological economics” is a contradiction of terms, because the economics of selfishness and greed simply can’t accommodate the principle of true stewardship. In general, contemporary economics is fundamentally incapable of addressing the social and ecological dimensions of life that are essential in sustaining human progress. We will need a new economics to build a sustainable human society.

Toward an Economics of Sustainability
Sustainability is the foundation upon which the new economics must be built. Sustainability requires that we find ways to meet the needs of the present while leaving equal or better opportunities for those of the future. We need an economy that will sustain human progress on earth – not an
economics that exploits the very resources, both human and ecological, upon which the future well being of people depends. We need a new economics of sustainability. The concept of sustainability is far broader than economics – at least as economics currently is conceived. Daly and Cobb, in their book, For the Common Good, refer to the economics of today as “chrematistics” -- the “manipulation of property and wealth so as to maximize short-term monetary exchange value to the owner.” Sustainability is also broader than ecology or sociology because sustainability includes contemporary economics. However, sustainability is quite consistent with the root-word for economics, “oikonomia” – meaning “management of the household (community, society, humanity & biosphere) so as to increase its value to all members over the long run” (p. 138). Oikonomia includes the management aspects of sociology and ecology as well as economics. Daly and Cobb suggest that we address “oikonomia” through an “economics of community,” which would be accomplished through new government policies. However, it will take more than public policy to implement “okonomia.” First, the people must embrace this new and different concept of economics. They must understand the necessity for managing the whole of human society, the environment, and the economy if we are to sustain human life on earth.

People will embrace the concept of sustainability only if they understand that sustainability is fundamentally about sustaining a desirable quality of life for people. Some find fault with this anthropocentric or people-centered interpretation of sustainability. They contend that other forms of life may be just as important as human life in the longer run scheme of things. However, if we are not concerned uniquely with sustaining the human species, there is no “economic” issue to be addressed. Economics is about managing resources to meet the needs of humans. If we weren’t particularly concerned about humans, we could simply depopulate the earth or otherwise reduce human claims on resources to a point where the sustainability of other species would no longer be in
question, or at least not threatened by humans. However, our nature as humans is not unlike the nature of other species, in that we humans have an innate instinct for survival, reproduction, and self-gratification.

We will not reduce our claims on earth’s resources for the sole purpose of ensuring the sustainability of other species or of the earth. But, we will protect other species if we perceive it to be in our best interest to do so. The fact that we are concerned uniquely with sustaining the human species does not imply that we are concerned exclusively with sustaining the human species. Contrary to what the economics of “chrematistics” might imply, our best interest is not exclusively individualistic in nature. Our interests as members of society and as members of the human race are linked with the integrity of the rest of the biosphere. Thus, our interests may well be served best through sharing and stewardship, including preservation of other species, rather than through expressing our individualistic human greed. Our interests are best served through “oikonomia” rather than “chermatistics.”

The new sustainable economy must be multidimensional – having social and ecological dimensions, as well as the conventional individualistic dimension. The three dimensions must be considered as interdependent aspects of the same whole, but makes distinctive contributions to a sustainable economy. The new economics must deal with ways of managing the ecological, social, and individual economies to increase their value to all members of society over the long run.

First, conventional economics will continue to play an important role in society – in meeting the needs of individuals. There will continue to be a large and legitimate private sector in a sustainable economy. However, in order for the private economy to function in the “collective” interests of society, economic competition must be restored. This is not an impossible task. The people broke the corporate monopolies of the early 1900s. When the people learned and understood the implications of a
corporately dominated economy, they rebelled. They started the Progressive Movement, the “trusts were busted,” and competition was restored. They didn’t do the job perfectly, and corporate monopolies have emerged again.

This time we have far larger, multi-national corporations. The job may be more difficult this time, but the consequences of failing to control corporate power may be far more severe. People still have power over corporations – people grant corporate charters and people can take those charters away. Corporations are not people, and it’s people, not corporations, that matter. When the people become convinced that competition must be restored to the private sector of the economy, it will be restored. In the process, the people will come to understand the limitations of the private sector in meeting the social and spiritual needs of people, and will come to embrace the social and ecological economies as means of meeting their needs and wants.

The social economy will not be directed by dollars and cents, but instead will be directed by the will of the people. In the private economy, the ability to get more if you earn more is a powerful motive for production and growth. However, in the social economy, everyone must be given an equal voice in the decision making process, regardless of income or wealth. In the public economy, all people are equal, and each person has but one vote. This is the only means of maintaining and building the social capital needed to support positive, productive relationships among people of differing abilities and means. The social economy includes the legitimate institutions of government, but also includes all of the other private, nonprofit institutions that are committed to building a more civil society.

The social economy simply recognizes the necessity for people to work together for the common good. The “collective” economy of the private sector treats society as a collection of individuals. The social economy
recognized that families, communities, and societies are distinct wholes with characteristics not embodied in their individual members. The social economy is about pursuing the “common” good. The concept of a social economy extends and legitimizes many current functions of government – local, state, and national – by recognizing, explicitly that our relationships are valuable aspects of our quality of life. Through the social economy, we make deliberate, purposeful decisions to build each other up so that we may all share a higher quality of life by being part of something that extends beyond ourselves. The social economy recognizes that communities of people matter.

The ecological economy will be directed neither by dollars and cents nor by the vote of people, but instead by moral and ethical consensus. Eventually, we will realize that stewardship of the earth’s resources is a spiritual matter. The natural environment is not a commodity to be bought and sold in the marketplace, nor is it a public good to be negotiated and compromised in the halls of Congress. The environment is a sacred trust – a gift that must be conserved and preserved for all generations.

However, stewardship is not a sacrifice but a privilege. We humans are not making sacrifices when we choose to protect other living species or natural resources that have no present nor anticipated market value. We people are inherently interdependent with the other elements of our natural environment, regardless of whether we understand the nature of these relationships. When we protect the other things of nature, we are protecting ourselves.

The ecological economy emerges from a process of consensus – a national and global dialog concerning what we people believe to be moral and ethical or right and wrong. Ultimately, the stewardship ethics of people such as John Muir, Aldo Leopold, and Rachel Carson must be folded into a shared-vision of our ecological future. Once a consensus is reached, it can be encoded into the constitutions of nations and into
international treaties negotiated for the expressed purpose of ensuring the long-run sustainability of human life on earth. But, such a consensus must first be achieved in the hearts and souls of people.

People must come to understand that we are not sacrificing when we choose to conserve and preserve resources for the benefit of future generations of people. Stewardship is a basic human responsibility, like caring for our children or our parents. We are caring for people of future generations, as we would have them care for us. Accepting the responsibilities that go with being human is not a sacrifice – it’s a part of who and what we are, it gives meaning and purpose to our lives. Even in the ecologically economy, it’s people that matter.

The necessary components of the new sustainable economy already exist. We already have a private economy that could be fixed to pursue our individual interests, a government that could be used to pursue our social interests, and a constitution that could be amended to more fully reflect our moral and ethical values. All we need is a shared vision concerning how the individual economy, the social economy, and the ecological economy should work together to support and sustain a more desirable quality of human life. We need a vision of economics as “oikonomia” (managing to benefit the whole) rather than “chrematistics” (manipulating to benefit the individual). With this shared vision to guide us, we people can begin to make the necessary changes to the parts so as to create a new and fundamentally different whole, a new economics of sustainability, an economics as if people mattered.

A New Economy of Agriculture
The new sustainable economy will encompass nearly every aspect of our society – including agriculture. The industrial agriculture of today is a reflection of an economic philosophy that has supported and promoted the concept of industrialization – specialization, standardization, and centralization of decision making. The specialized, large-scale,
increasingly corporate farming operations of today are a reflection of an industrial economic mentality. A new economics of sustainability will support a very different approach to farming and a very different kind of farm will be the result.

First, farms in a sustainable economy will be smaller than most farms today. Sustainable farming will require balance, or harmony, among the ecological, economic, and social dimensions of a farming system. A smaller farm lacking this harmony is less likely to be sustainable than a larger farm that is more in harmony. But there are logical reasons to believe that balance and harmony will be easier to achieve with, if not absolutely require, a large number of smaller farms rather than a small number of large farms.

Nature is inherently diverse. Geographic regions are different, watersheds are different, farms are different, and fields are even different -- both among and within. Industrial agriculture treats fields, farms, watersheds and even regions as if they were all pretty much the same. Certainly, industrial systems can be fine-tuned a bit here and there to make production practices of one region fit another. Each state has a bit different set of best management practices, and some further adjustments are made from farm to farm and field to field. But, the fundamental systems of conventional production are all pretty much the same.

The same breeds and varieties, fertilizers and feeds, pesticides and antibiotics, machinery and equipment, and business and marketing strategies are used across fields, farms, and watersheds, in all regions of the country. The goal of research is to find universal solutions to common problems -- to find ways to twist, bend, and force nature to conform to some universal production and distribution process. Industrial, large-scale mass production requires this type of uniformity. Biotechnology is but the latest in a long string of futile efforts to force uniformity upon nature.
Large-scale production creates inherent conflicts with the diversity of nature – and inherently threatens sustainability. Farms that conform to their ecological niches avoid such conflicts. Some ecological niches may be large, but most are quite small. Current concerns for agricultural sustainability are based on strong and growing evidence that most farms have already outgrown their ecological niches and could be more sustainable if they were smaller.

Sustainable farms must also be of a size consistent with their markets. Conventional wisdom is that most markets are mass markets, and thus, farms must be large – or if not must market collectively. The conventional wisdom is wrong. Markets are made up of individual consumers, and as consumers – as people – we are all different. We don’t all want the same things. In fact, each of us actually prefers something just a little bit different, and thus, values the same things a bit differently.

Mass markets are created by lumping together a lot of people who are willing to accept the same basic thing – even though they might not prefer them. If mass markets can be created, the food system can be industrialized, and dollar and cent food costs will be lower. The lower price is a bribe to consumers to accept something other than what they actually would prefer. Typically, they must be coerced as well as bribed to accept what the industrial system has to offer. That’s why Americans spend more on advertising and packaging of food than they pay the farmer to produce it. It costs more to convince people to buy industrial food products than it does to produce them.

One key to economic sustainability of small farms is to capture a larger share of the consumers’ food dollar by performing some and bypassing other marketing services. Eighty cents of each dollar spent for food goes for processing, transportation, packaging, advertising and other marketing functions. Of the twenty cents the farmer gets, they keep only about ten cents as a return for what they contribute to production, the other ten
cents goes for purchased inputs. By tailoring production to consumer niche markets, and selling more directly to consumers, the farmer gets a larger share of total market value, and small farmers have an opportunity to make more profits while remaining small enough to conform to their ecological niches.

The conventional wisdom is that niche-marketing opportunities are limited and can support only a handful of farmers. Once again, the conventional wisdom is wrong. Since all people want something slightly different, the ultimate in niche marketing would be to give every individual precisely what they want. All consumer markets are made up of individuals – totally, not just in part. Thus, all markets in total are made up of niche markets. The question is not how many niches exist, but instead how many different niches does it make sense to serve? The relevant answer, at least at present, is that more than enough market niches exist to support as many small farmers as might choose to direct-market to consumers. A lack of niche markets need not place a lower limit on the size of farms. Farms can be as many and as small as needed to accommodate the ecological niches of nature.

The most compelling argument in support of sustainable farms being smaller is that sustainable farms must be more "intensively" managed. Wendell Berry puts it most succinctly in his book, What are People For, "...if agriculture is to remain productive, it must preserve the land and the fertility and ecological health of the land; the land, that is, must be used well. A further requirement, therefore, is that if the land is to be used well, the people who use it must know it well, must be highly motivated to use it well, must know how to use it well, must have time to use it well, and must be able to afford to use it well (p. 147)." Intensive management is possible only if farmers have an intensive relationship with the land – if they know it, care about it, know how to care for it, take time to care for it, and can afford to care for it – only if they love it.
Industrialization has degraded and destroyed relationships between farmers and the land. Industrialization is management "extensive." Specialization, standardization, and centralization allow each farmer to cover more land, supervise more workers, and handle more dollars. Industrial management is "extensive" in that each manager is able to manage more resources. Extensive management makes it possible for each farmer to make more profits in total, even if profits per unit of production are less. But, as the attention of each farmer is spread over more land, more laborers, and more capital, each acre of land, each worker, and each dollar receives less personal attention. The relationship of the farmer with the land, and with the people of the land, is weakened. If the large farmer no longer knows the land, no longer cares about it, forgets how to care for it, doesn't have time to care for it, or can't afford to care about it, how well will the land be used? How can it remain productive? How can a large farm be sustainable?

A small farm can be managed "intensively." Intensive management allows a farmer to manage less land, using less labor, while handling fewer dollars. By managing fewer resources more intensively, the farmer is able to make more profit per unit of output, and thus, make more total profits – even if total production or output is less. As the farmer has more time and attention to give to each acre of land, each worker, and each dollar, the farmer’s relationship to the land and the people of the land is strengthened. The small farmer has an opportunity to know the land, to care about it, to learn how to care for it, has time to care for it, and can afford to care about it. The land on a small farm can be used well and can remain productive. A small farm can be sustainable.

The fundamental purpose of farming is to harvest solar energy – to transform sunlight into food and fiber for human use. It might seem that even God favors the larger farmer because a large farm covers more space, thus, catching more sunshine and rain. But, God also has given us a choice of making either wise or foolish use of the gifts of nature with
which we are entrusted. Our industrial agriculture currently uses more energy from fossil fuels than it captures in solar energy from the sun. This can hardly be deemed wise and efficient use. But consequently, a small farmer can be more economically, socially, and ecologically viable than a large farm, simply by being a more effective harvester of solar energy. In essence, a more intensive manager is a better harvester of the sun.

Some ecosystems and farming systems are easier to manage effectively than are others, and thus, require less attention per unit of resources to manage sustainably. Those requiring less intensive management can be larger without sacrificing sustainability. Sustainable farms need not be small in terms of total acres farmed or total production, but they will need to be managed intensively. And intensively managed farms will be smaller than will otherwise similar farms that are managed extensively. Neither land nor people can be sustained unless they are given the attention, care, and affection they need to survive, thrive, and prosper. That attention, care, and affection can be more easily given on a smaller than larger farm.

Farming as if People Matter
Sustainable farming is farming “as if people matter.” Our agricultural systems today reflect the old economic mentality that the only way to benefit people as consumers is to give them “more cheap stuff,” and the only way to benefit people as workers is to give them an opportunity to earn more money. The old economic thinking treats people as if they were consuming and producing machines, not living beings with hearts and souls. The old economics treats agriculture as the means by which natural and human resources are transformed into economic commodities for exploitation and ultimate human consumption. Agriculture as a way of life, as a lifestyle, or as a moral act, is treated with disdain by economists – a “touchy-feely” thing that has no relevance to real economics.

But an economic system is a creation of people for the benefit of people.
An economic system that fails to meet the most pressing needs of people—physically, socially, or spiritually—is a failed system of economics. Our most pressing needs of today are not physical, although no one would suggest that physical needs are unimportant. Our most pressing needs of today are social and ethical in nature. We need an economy that helps to build personal relationships, not destroy them, and an economy that promotes an ethic of stewardship rather than exploitation. When we practice friendship and stewardship our lives are better—these things are not sacrifices. We need a new economy that will help us to meet the needs of the present, for others as well as ourselves, and will leave equal or better opportunities for those of the future. We need an economics of sustainability. We need an “economics as if people mattered.”

We need an agriculture that enhances the overall quality of life of people—as producers as well as consumers. We need an agriculture that respects the fact that farming is as much a lifestyle as a way to make a living—that life is about far more than just earning and consuming. We need an agriculture that works in harmony with nature so that people can eat well today while leaving opportunity for future generations of people to eat as well as we. We need an agriculture that respects the individual tastes and preferences of people as consumers and the individual abilities and passions of people as producers.

We need an agriculture that helps build strong relationships among farmers, among consumers, and between farmers and consumers. People eventually must come to understand that all of life ultimately arises from the soil; thus, we need to reconnect people with the land. We need an agriculture that will support more people in farming, because it takes people who love the land to take care of the land, and each farmer can only love so much land. We need an agriculture that contributes to the quality of life of people—physically, socially, and spiritually. We need to learn to farm sustainably. We need to learn to farm “as if people mattered.”
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Economics of Sustainable Farming

John Ikerd

University of Missouri


Farm economics
Over a period of some fifteen to twenty years, I taught the conventional principles of farm economics through various on-campus and extension courses at three different Land Grant Universities. I taught farm management, marketing, finance, farm policy and other such subjects in an effort to help farmers maximize profits from their limited economic resources. During the past ten to fifteen years, however, I have taught a different kind of farm management. I have studied and taught the principles of sustainable farm economics – the economics of sustainability. The time of transition from one to the other is a bit fuzzy, as it didn’t happen all at once, but over some time. The transition began for me during the farm financial crisis of the 1980s. During that time, I began to realize that as a teacher of conventional farm economics, I had done more to help create the crisis than I had done to prevent it. So, I didn’t have much to suggest to farmers in the way of solutions. The solution to the financial problems of farmers would require a different approach to the economics of farming.

But to understand the need for a new farm economics, I first had to confront, and eventually come to understand, the problems with the old economics of farming. I believe that farmers and those who work with farmers must come to a similar understanding, if the future of farming is to be better than the past. We must understand why farmers have done the things they have done, and why it hasn’t worked, before we can understand why we need a new approach to the economics of farming.
Conventional farm economics focuses on profit maximization. The underlying assumption is that more profit results in a higher economic standard of living, which in turn translates into a higher level of satisfaction and a higher quality of life. The discipline of economics can be characterized as a study of the optimum allocation of “scarce” resources among competing ends so as to achieve the highest possible level of satisfaction or quality of life. Scarcity in economics means that economic resources are never sufficient to satisfy completely our insatiable human wants and needs. So resources must be allocated or rationed among competing uses by putting resources to their most profitable use.

In economics, the final arbiter of value is the consumer. Resources are allocated in such a way as to best meet the wants and needs of people as consumers – producing is but a means of earning the privilege of consuming. Economics also assumes that markets are economically competitive – that any excess profits of producers will be quickly competed away and passed on to consumers. Thus, as farmers maximize their profits, so they can consume more, they are simultaneously allocating resources in such a way as to maximize the efficiency of resource use so consumers can consume more. It all fits together very nicely – under the assumptions of an economically competitive, capitalistic economy.

Maximum economic efficiency means maximum economic value relative to economic costs. For something to have an economic value, it must be scarce so market prices can allocate its use among competing ends. Air and water, for example, have great “intrinsic” value, they are essential for life, but they have no economic value, under most circumstances, because they are not sufficiently scarce to command a market price. The typical “water bill” reflects the cost of delivering water, not an actual cost of the water. Only when clean air and clean water are made “scarce” through pollution or misuse do they take on an “economic” value.
Things that have no “economic” value are not counted in calculating the economic efficiency of farming. Thus, conventional farm economics provides no incentive to protect the quality of air, water, or even soil beyond maintaining its immediate productivity. Farm economics is about maximizing the “economic” value of the things produced and sold relative to the “economic” costs of the things used to produce them.

Although I didn’t realize it in my earlier years, pursuit of economic efficiency by maximizing profits leads to a quite narrow premise concerning the best “approach” to maximizing profits, and thereby to maximizing quality of life. The pursuit of profits from farming has pushed farmers toward an industrial model of farming. The industrialization of agriculture has increased the efficiency of agriculture, but it has diminished the quality of life for many farmers – both those who have been forced out of business and many who yet continue to farm. Industrialization also has begun to raise many questions concerning the impact of agriculture on the natural environment, on food safety and quality, and on the quality of life in general.

Farmers abandoned diverse farming systems, which generally included both crops and livestock enterprises, in favor of more specialized farming systems. By specializing, farmers could become more efficient by doing fewer things better. A specialized cattle feeder, for example, could put on more pounds of beef per pound of feed than could a diversified farmer who fed out a few cattle in addition to doing a lot of other things. Farmers also discovered that gains from specialization could be enhanced if they agreed to standardize the various functions involved in various production processes. Standardization allowed each of the specialized functions to fit together effectively, in order to achieve maximum efficiency. For example, if more ranchers produced the kind of fall calf that would do well in winter stocker operations and would finish out efficiently in the commercial feed lots, the whole process of beef production could be greatly improved.
As farming systems became more specialized and standardized, each function became more simplistic and routine. Many functions could then be mechanized – allowing predictable, reliable machines to replace often unpredictable and unreliable draft animals and human laborers. Commercial fertilizers, pesticides, hormones, and antibiotics made production processes more predictable, reliable, and repetitive. The mechanization and simplification of farming allowed each farmer to farm more land, use more capital, and supervise more workers. Consolidation of decision making has allowed farmers to achieve many of the economic efficiencies of large-scale industrial production. Farms have become factories without roofs and farmers’ fields and feedlots have become biological assembly lines.

As a consequence of industrialization, America agriculture has become one of the most productive and efficient agricultural economies in the world – at least in terms of the economic value of food and fiber relative to the economic costs of production.

**Farm Management**

The industrial approach to farming has led to some rather narrowly focused farm management strategies. Enterprise analysis has been one of the fundamental building blocks of conventional farm management. Farmers are told that they must be able to separate and calculate the costs associated with each economic enterprise carried out on the farm, if they are to be able to manage for maximum profits. Also, they are told that they must separate the farm business from the business of family living. The sole function of the farm is to provide income for the family – family and farm resources, costs, and returns must be kept separate. Analysis, by definition, means to take something apart, to separate it into its component pieces, in order to understand the whole through careful examination of the parts. So enterprise analysis is designed to help farmers to understand the farm, and to achieve higher farm profits, by
taking the farm apart, piece-by-piece.

Farmers are asked to allocate the costs of all resources used among enterprises – to the maximum extent possible. The easiest cost to allocate are the variable costs, which are costs that won’t be incurred unless a particular enterprise is carried out during a particular time – costs that vary with the level of production of that enterprise. Feed, feeder animals, seed, fertilizer, chemicals, etc. are in the variable category. Fixed costs, on the other hand, are cost that will be incurred regardless of level of production, or whether anything at all is produced, and thus, are more difficult to allocate among enterprises. For any given year, fixed costs include such things as buildings, equipment, and land. Farmers are even encouraged to allocate a charge for labor provided by themselves and their families and to charge the farm for their management, although they may not pay themselves or their family actual wages or salaries.

The total costs associated with each enterprise are then compared with the projected market value of expected production to determine an expected net revenue or profit from each enterprise on the farm. The expected profit for the total farm is simply the sum of the profit estimates for the individual enterprises. Any costs that cannot be allocated to specific enterprises may be called “overhead costs” and deducted from the sum of enterprise profits.

The unspoken assumption of enterprise analysis is that the farmer will be able to identify specific enterprises that are contributing the greatest returns per unit of the farm’s most limiting resource – be it land, capital, labor or management. Farmers can increase profit only by increasing the efficiency with which they use the most limiting of the fixed resources. If the farmer has more than enough capital and labor to produce more of a crop, but lacks additional land, then land is the limiting resource. By increasing profits per acre, the farmer can increase profits for the whole farm.
By shifting land, labor, capital, or management from enterprises in which the farm is least efficient to those in which the farm is most efficient, farm profits can be increased. In addition, increased specialization may allow the farmer to achieve added efficiencies through utilization of larger or more specialized buildings and equipment, standardizing production processes and allowing an increase in scale of operation. The result is increased profits through increased industrialization – i.e. through specialization, standardization, and larger-scale operation.

However, increased specialization often results in increased risks. By specializing in one crop, or a few crops, a farmer becomes more vulnerable to a crop failure, due to weather or pest problems, or to depressed market prices for any of the crops produced. By specializing in one species of livestock, or one phase of production, a producer likewise is more vulnerable to disease or causes of poor performance or a cyclical downturn in prices. Thus, as a farm abandons diversity and becomes more specialized it becomes more vulnerable to both production and market risks.

In addition, specialization tends to increase financial risks. Financial risks are related to the ability of the farm to meet its debt repayment commitments. Financial risks are linked to production and market risks in that low yields and prices may cause the farm to suffer losses. Financial risks reflect the probability that the farm will lose more than it can afford to lose in any given year. Farms that rely more on purchased inputs, such as seed, feed, fertilizer, chemicals, etc., rather than inputs produced on the farm, increase the amount of out-of-pocket costs that must be paid up front, or at least at harvest time. As they increase investments in larger or more specialized buildings and equipment, they often borrow money that must be repaid on a regular basis. Thus, specialized, large-scale production increases financial risks. Consequently, specialized, high-input, high-investment farmers tend to rely on government commodity
programs and crop insurance to protect them from production risks. Early in my career, I spent a good bit of my time with conventional farmers talking about government programs and government subsidized crop insurance.

Industrial farmers are price-takers in the marketplace. They produce standardized commodities, and thus, have no influence over the prices they receive. One farmer’s US No. 1, hard red winter wheat is the same as another’s, as far as buyers are concerned, which means that no farmer can get a price higher than any other. Prices vary over time with changing supply and demand, but farmers are price takers, not price makers. The only marketing decisions conventional farmers make is when to establish a price for the things they produce. They may use forward contracts or options and hedging in the futures markets to manage price risks. By using such tools, farmers can price something before delivery, price at delivery, and in some cases, defer pricing until after delivery. They may set a specific price, a price range, or a minimum price. But, the price is always one that is offered by the market – the farmer can only take it or leave it. In the face of such risks, some farmers resort to comprehensive production contracts that promise the farmer a fixed amount of return per unit of production. The farmer, in essence, becomes a landlord and contract laborer.

Much of my early career as an extension marketing and farm economist was spent helping farmers maximize profits by managing the various types of risks associated with specialized, large-scale production of standardized commodities. Management of this type of farming is no different in concept from any other industrial corporation.

Sustainable farm economics
During the farm financial crisis of the 1980s, I began to realize that the industrial approach to farm management was driving farmers out of business. Every time we helped one farmer improve his or her profits by
specializing, mechanizing, and increasing their scale of operation, we were helping to force some other farmer out of business. Our new technologies and management techniques were expanding the ability of farmers’ to produce far faster than consumer demand was expanding for the things that farmers produced. Thus, farm profit margins grew narrower with each new round of technology and each farmer had to increase their size of operation just to survive – to spread their management across more land, using more capital, more hired labor. As the farms grew larger, they were forced to grow fewer in number. Some had to fail so that others might “succeed.” And, with each new round of technology, fewer farmers survived. There was no logical end to this process. This type of farming was not sustainable – at least not for farmers.

The industrialization of agriculture also made farmers more vulnerable to the periodic surplus and economic depressions, brought about by good weather or good prices, but made possible only by the American farmer’s increasing ability to produce. An industrial agriculture meant a high-capital agriculture, and much of the capital used by farmers during the 1980s was borrowed capital – loans taken out during the export boom years of the 1970s. A high-input agriculture meant a high-variable-cost agriculture – direct cash cost made up a larger portion of total costs. Thus, when farm commodity prices plummeted during the 1980s, farmers were caught with high cash commitments for loan repayment and input costs and no income from which to pay those costs. Their own labor and management, and whatever land and capital that they owned outright, contributed very little to their farming operation, and thus, they didn’t have the option of simply taking less money out for themselves. The banker and the input suppliers demanded that their accounts be settled in full – regardless of the farm financial situation. Farmers who had done the things that they were encouraged by the “farm experts” to do in the 1970s were losing their farms in the 1980s. Something was fundamentally wrong with this kind of agriculture.
As I began to rethink the economics of agriculture, I became aware that the economics of industrialization not only encouraged farmers to exploit each other, but had also encouraged them to exploit the land. Soil erosion rates had risen dramatically during the 1970s, as farmers farmed “fence-row-to-fence-row” and then tore out and farmed the fence rows. By the late 1980s, soil erosion had become a major national agricultural policy priority, as reflected in the 1990 Farm Bill. Commercial fertilizers and agri-chemicals, necessary to support industrialization, also had raised serious questions concerning the quality of water in underground aquifers and streams. Organic farmers went to Washington DC in the mid 1980s with demands that USDA support their more ecologically sound approach to farming. By the early 1990s, many people were beginning to demand a more ecologically sustainable approach to farming.

The impact of agricultural industrialization on the social fabric of rural areas rose to the public consciousness as rural communities began to feel the brunt of the farm financial crisis of the 1980s. Once prosperous farming towns withered and decayed as large numbers of farm families were forced off the land. The land was still farmed, but there were fewer people to buy groceries, school clothes, hardware, and hair cuts in the local business community. In addition, the larger industrial farms often bypassed the rural community in order to save a few dollars on input costs or to get a few more dollars out of their products. Fewer farm families and farm-related jobs in rural communities meant fewer people to support schools, churches, and local civic activities. Ultimately, the corporate takeover of hog farming with their giant” hog-factories” raised the consciousness of the public in general to the destruction of the social fabric of rural America by the industrialization of agriculture.

Today, farmers, rural residents, and society in general are demanding a more socially responsible, ecologically sound, and economically viable system of farming. This is the challenge of farm economics as we enter the 21st century – to help farmers build a more sustainable agriculture.
Farms of the future must be economically sustainable – for the farmer as well as consumers and society in general. The profitability of farming cannot be sustained through exploitation of the land or exploitation of other people. To be economically sustainable, it must conserve and protect the natural resources upon which its long run productivity must depend. To be economically sustainable, it must contribute to the social and cultural quality of life for farm families and rural residents as it provides an adequate supply of safe and healthy food and fiber for society in general. Economic sustainability demands a new approach to farm economics.

Sustainable Farm Economics
Farming for economic sustainability begins with rethinking the basic purpose of farming. The only justification for maximizing profits in the old farm economics was maximum profits were assumed to result in the highest attainable quality of life – for farmers and for society as a whole. However, such an assumption is no longer defensible in light of the reoccurring farm financial crises of the past fifty years and in light of growing evidence of the negative ecological and social impacts of agricultural industrialization. Economic well being is a necessary dimension of quality of life, for farmers and for society, but it is not sufficient to ensure a life of quality. We must pursue our economic quality of life by means that do not diminish our social and ethical quality of life in the process.

Profit maximization is a reflection of the natural pursuit of our individual self-interests. This is perhaps the single most appealing premise of conventional economic thinking. Pursuit of self-interests is a fundamental characteristic of being human. However, concern for others is also a fundamental characteristic of being human. We are social animals – we need positive relationships with other people, not only to be successful but also to survive. Thus, positive relationships with other people contribute to our quality of life, regardless of whether we consequently receive anything
that contributes to our “individual” self-interests. Ethics and morality also are fundamental characteristics of being human. Almost all of us believe in some higher power, or some higher order of things, from which we derive purpose and meaning for our lives. Thus, moral and ethical behavior, including stewardship of the natural environment, contributes to our quality of life, regardless of whether such acts contribute to our “individual” self-interests.

Conventional economic thinking has led us to believe that we best serve the interest of society by pursuing our individual self-interests. However, the assumptions upon which this proposition is based are no longer valid. The assumptions of competitive capitalism – sufficient buyers and sellers that no single one can affect the market, perfect information concerning price and performance of products, freedom of entry into profitable enterprises and exit out of unprofitable ones, and the sovereignty of consumer tastes and preferences – are no longer true in today’s economy. Large corporate entities dominate virtually every sector of the economy. It is neither easy to get into or out of most businesses today because of large capital requirements and all sorts of patents and copyrights. Billions of dollars spent on advertising designed to bend and shape consumer preferences make a mockery of assumptions of perfect information and consumer sovereignty. We no longer have a competitive, capitalistic economy – in agriculture or anywhere else.

If we are to be socially responsible, we must make conscious, purposeful decisions to build positive relationships with other people. Thankfully, most people realize that the quality of their own lives is enhanced when they share with other people. The Golden Rule, “do unto others as you would have them do unto you,” is a fundamental principle that underlies nearly every enduring religion and most of the major human philosophies of the world. Humans have learned that their lives are made better by their acts of sharing with others. A socially responsible life is a quality life.
Conventional economic thinking treats the natural environment as something outside or external to the pursuit of self-interest. The environment represents a constraint to profit maximization. In reality, stewardship of the environment is an ethical or moral issue. Pursuit of individual self-interests may cause us to avoid doing anything to the environment that threatens our own health or the health of our loved ones. We will not conserve and protect resources for the benefit of future generations unless we believe stewardship to be a moral or ethical responsibility – something that gives purpose and meaning to our lives.

People of future generations can’t participate in markets. Economics provides no incentive for being concerned about anything that happens more than two or three generations in the future – and in most cases no more than a few years into the future. People of future generations can’t vote, so they can’t shape economic outcomes through public policy. But, the practices of stewardship contribute to a desirable quality of life, and thus, we choose to take care of the natural environment for the benefit of future generations. A life of ecological integrity is a life of quality. We are just beginning to learn that the Golden Rule not only applies to others around us, but also spans generations.

The first principle of sustainable farm economics is the pursuit of “enlightened” self-interests – self-interests that recognize the individual, interpersonal, and spiritual dimensions of self. This principle is reflected in nearly all of the most popular “post-industrial” approaches to farm management, including Holistic Resource Management, Biodynamic Farming, Perm culture, and Organic Farming. The three cornerstones of sustainable agriculture – economic viability, social responsibility, and ecological integrity – are but reflections of the individual, interpersonal, and spiritual dimension of our quality of life. The three part goal of Holistic Management – forms of production, quality of life, and future landscapes – are but a different means of stating the economic, social, and ecological dimensions of sustainability. True organic farming is as much a
philosophy of life as a method of farming – as much an expression of social and moral principles as a means for making a living. In all of these approaches to farm management, economic objectives are balanced with social and ecological objectives. The overall goal is to achieve a higher quality of life through harmony and balance among things economic, ecological and social, rather than through maximization or minimization of anything.

The second principle of sustainable farm economics is taking “a holistic approach to farm management.” Rather than analysis, taking the farm apart piece-by-piece, the farm is considered as an indivisible, interdependent whole. In a sustainable farming operation, the relationships among the various components of the farm are as important as the components themselves. Traditional enterprise analysis tends to ignore, or at least distort, the contribution of positive relationships to the whole-farm economics. For example, when individual crops in rotations are evaluated separately and when livestock enterprises are evaluated separate from crops, the positive interrelationships among various crop and livestock enterprises in managing pests, maintaining soil health and fertility, efficient utilization of available labor, diversification of risks, etc. tend to be undervalued or ignored.

Holistic management requires that the potential impact of changes in one or more enterprises be evaluated in terms of their impacts on the economics of the whole farm system. The various “post-industrial” approaches to farm management each advocate somewhat different methods of whole-farm management, but they all achieve the same basic end – they consider the farm as a whole rather than as a collection of enterprises. The fundamental question is how best to synthesize a whole farm, how best to put together an effectively integrated whole-farm system rather than how to choose the best collection of individual enterprises. With holistic management, productivity is achieved through synergy – through building wholes that are greater than the sum of their parts.
One basic approach to whole-farm evaluation is closely related to “partial budgeting” in conventional farm management. In partial budgeting, a change in a specific enterprise or activity is evaluated by estimating its potential impacts on the overall farm operation. It is called “partial budgeting” because only those aspects of the farm that will be affected by the change are budgeted. First, expected additions to income from the new enterprise are added to any expected reductions in costs in other enterprises that can be expected as a consequence of the new enterprise. Next expected additions to expenses associated with the new enterprise are added to any expected reductions in income in other enterprises associated with new enterprise. Finally, the sum of the additions in costs and reductions in income are subtracted from the expected increases in income and reductions in costs to derive a net change in whole-farm income as a consequence of the proposed change.

If such a process is carried out carefully, the result should provide a reasonable estimate to the economic consequences of changing any part of a farming operation with respect to the farming system as a whole. The same process could be followed to assess the social and ecological implications of changing any aspect of a farming operation. Budgeting would have to include such intangibles as amount and quality of time available to spend with family and community activities. Partial budgeting would also be used to assess potential impacts of changes in the overall farming operation on environmental stewardship – soil erosion, water quality, biological diversity, etc. such an approach invariable must consider the family, or the person farming, as a part of the overall farming system. Family labor and management and alternative uses of time, ethical and moral values and the expression of those values through farming, ultimately must be balanced with economics in farming for an overall higher quality of life.

Another principle of sustainable farm economics is “to achieve strength
Economics of Sustainable Farming

through diversity.” Biological diversity and economic diversity are essential in building ecological systems that are durable as well as productive. The focus of industrial systems, however, is on productivity rather than durability.

Increasing specialization has led to loss of biodiversity, and thus, to increasing vulnerability of livestock and crops to insects, parasites, diseases and other pests, and to adverse growing conditions – requiring ever increasing reliance on costly off-farm inputs. Increasing specialization has led to loss of economic diversity, and thus, to increasing vulnerability to depressed market prices or rising input costs of the specific commodities being produced – requiring ever increasing reliance on commercial risk management strategies or contract farming. Farmers almost invariably find they lack the expertise or market discipline needed to use commodity markets risk management tools. Farmers invariably find themselves at a competitive disadvantage to large corporate firms when “negotiating” comprehensive production contracts. Farmers simply have not been able to manage the risks of large-specialized farming operations effectively.

However, production, marketing, and financial risks can be managed by applying the fundamental principles of diversity. In managing biological diversity, some important considerations include selecting a combination of crops and livestock enterprise – spatially, sequentially, and temporally – in order to break pest cycles or manage pest populations, maintain soil health and fertility, and efficiently utilize available resources. By relying on diversity rather than off-farm inputs to maintain productivity, farmers reduce their out-of-pocket, variable costs. However, diverse systems typically require more labor and management – which typically are committed and thus fixed in nature. So farmers may increase their fixed costs relative to variable costs as they substitute labor and management for off-farm inputs.
Even if total costs remain essentially unchanged, however, farmers can significantly reduce their financial risks by relying less on off-farm, purchased inputs and more on on-farm, owned resources. On such farms, most short-term losses due to adverse weather or markets can be absorbed by accepting a smaller return for labor and management during years of adversity. Costs of purchased inputs, on the other hand, must be paid, regardless of whether the farm generates sufficient profits to do so. Thus, high-input, high-variable cost farms are more vulnerable to the risks of economic failure than are low-input, high-fixed cost farms.

In managing economic diversity, the most important considerations are to select combinations of enterprises that will tend to have offsetting patterns of market prices. Commodities with offsetting price patterns will tend to stabilize farm revenues, because profits from one will tend to offset losses from the other. Even commodities that have price patterns that are unrelated, or not correlated, add economic diversity. For example, a farm with four equal-sized enterprises with unrelated price patterns of equal variability will have only one-half as much income variability as a farm of the same size that specializes in only one of the four enterprises. However, diversity is not the same thing as variety. If different enterprises have the same basic production and market patterns, such as corn and soybeans, variety will do relatively little to reduce risks. Sustainable farm economics requires effectively integrated economically diverse farming systems.

Another important fundamental principle of sustainable farm economics is to “give customers full economic value.” Farm profitability cannot be sustained by selling undifferentiated farm commodities, such as corn, hogs, cattle, or wheat, in global markets dominated by large agribusiness corporations. Profits can be sustained only by providing customers with food and fiber products that are different from, and of more value than, the products they find in the supermarkets and department stores. This is perhaps the most difficult aspect of sustainable farm economics, because
it is the biggest stretch from traditional farm management. However, corporatization of agriculture has resulted in an agricultural sector in which the individual farmer will not be able to compete, even if they are competitive in terms of price and quality. The corporations have sufficient power in the marketplace to deny market access to farmers who are not willing to sign comprehensive production contracts and settle for the role of land lord or contract laborer. It’s no longer a matter of efficiency, but rather of market power.

Consumers today only spend about a dime of each dollar they earn for food and the farmer gets to keep less than a penny out of that dime. Eight cents goes for processing, transportation, packaging, advertising, and other marketing services. The other penny goes for purchased inputs. But, food products today must be mass-produced and mass-marketed in order to put them in the supermarket in order to achieve the economies of scale of industrial food production. As a consequence, most foods in the supermarket today are selected far more for their adaptability to machine harvesting, efficient processing, transportability, and shelf-life than for taste, tenderness, or nutrition. In addition, mass-produced foods must be targeted to the “most common” consumer tastes. The economic savings derived from mass-production come from standardization, not from variety. But, we don’t all have the same tastes and preferences, and thus, we value things differently. Sustainable farmers must give more consumers more of the things they value most.

The weaknesses of industrial agriculture provide opportunities for farmers to develop sustainable markets, which may be essential in sustaining the profitability of their farming operations. Farmers who sell direct to customers in local markets have an opportunity to select crop varieties or livestock breeds for superiority in taste, tenderness, healthfulness, and nutrition rather than handling, transportation, and shelf-life attributes. They can sell their products while harvesting products at their peak of quality and market fresh to local customers. Such advantages cannot be
duplicated by industrial production systems, thus giving local farmers a sustainable market advantage.

Equally important, sustainable farmers can market their products based on their commitment to social responsibility and ecological integrity. Many consumers really do care where their food comes from, how farmers treat the land and the animals that provide the food products, and whether or not farmers are committed to making the world a better place. Study after study has shown that many people will pay a premium for food produced in ways that they consider more sustainable. Industrial organizations may put forth claims of sustainability, but the industrial paradigm simply cannot meet the social and ecological standards of sustainability. Sustainable farming will require a different kind of marketing – one that gives their customers more value at a reasonable cost.

Perhaps the greatest challenge for economic sustainability for farmers is also its greatest potential reward. In order to sustain the profitability of farming, farmers must develop meaningful relationships with their customers. In order to sustain relationships between farmers and their customers, they must know and trust each other. They must be committed to working together for their mutual good because they care about each other. They need not limit these relationships to local residents, but they must view their customers as real people, rather than as impersonal markets. A person can have a relationship with another person halfway around the world. But an agribusiness corporation can’t have a relationship with anyone, because a corporation is not a person. Meaningful relationships cannot be mass-produced, so they can’t be industrialized.

But perhaps more important, relationships between farmers and their customers can be one of the most important aspects of finding a more desirable interpersonal quality of life through farming. And by sharing their commitment to stewardship of the natural environment, farmers and their
customers can help each other to lead more purposeful and meaningful lives.

This kind of farm economics is different from the economics I taught to farmers in the 70s and 80s. But, this kind of economics makes a lot more sense. This kind of economics may require more work, and certainly a lot more thinking on the part of farmers, but it is a better way to farm and to live. There is no guarantee that this kind of farm economics will work for any given farmer, or even for farmers in general. But, this kind of economics does provide a lot more hope for the future of farming than does the economics of industrialization.

To quote Vaclav Havel; writer, reformer, and President of the Czech Republic:

“Hope is not the same as joy when things are going well, or willingness to invest in enterprises that are obviously headed for early success, but rather an ability to work for something to succeed.

Hope is definitely not the same thing as optimism. It’s not the conviction that something will turn out well, but the certainty that something makes sense, regardless of how it turns out.

It is this hope, above all, that gives us strength to live and to continually try new things, even in conditions that seem hopeless.

Life is too precious to permit its devaluation by living pointlessly, emptily, without meaning, without love and, finally, without hope."

The farm economics of sustainability is an economics of hope.
Organic Agriculture Faces the Specialization of Production Systems;
Specialized Systems and the Economical Stakes

John Ikerd
University of Missouri


Introduction

Large, specialized food systems will quickly dominate global production and distribution of organic foods, if they are allowed free access to organic markets. During the early 1900s, essentially all food was produced without commercial fertilizers and pesticides, simply because they weren’t available. Some farmers continued to produce by organic means, in defiance of the dominant trend toward reliance on inorganic fertilizers and pesticides, and became the leaders of the modern organic farming movement. But, organic production was of little interest or concern to the large, corporate food organizations until the recent rapid expansion in organic markets. Market expansion rates of 20-25 percent annually have been common during the 1990s, although rates vary among nations. At these rates, the organic market more than doubles in size every three years. Growing markets represent growing opportunities for future corporate profits. Expanding organic markets eventually will cut into profits from non-organic food markets. So the economic stakes for control of organic food production and marketing are large.

The current organic farming movement is as much a philosophy of life as a method of production. Organic farming methods are based on nature’s principles of production – on farming in harmony with nature rather than trying to conquer nature. Diverse farming systems that integrated crops and livestock enterprises are designed to capture solar energy, recycle waste, and regenerate the soil. Organic farmers also believe in living in harmony with other people – in cooperating rather than competing. Healthy food, a healthy environment, caring communities, and a strong society are seen as the natural products of pursuing an organic philosophy.

However, recent trends are transforming organic foods into just another industrialized food system. Pressures to make organics conform to the dominant mass-distribution system for food is forcing organic producers to become larger and more specialized. Demands for consistency and uniformity of product quality and for dependability and timeliness of delivery are forcing producers to standardize, specialize, and centralize control of production and distribution processes. Such operations can reduce costs – but only if they are operated at a large scale. So large-scale, specialized organic production systems are emerging in the U.S. to meet the needs of a large-scale, mass distribution systems for food.

Mass production and distribution of organic foods is a fairly recent phenomena. Prior to 1990 most organic sales in the U.S. were direct transactions between farmers and consumers -- through local farmers’ markets, community supported agriculture (CSA), pick-your-own operations, or farmers’ roadside stands. Few organic retail food stores were in existence at that time, and they generally were small consumer cooperatives that purchased directly from local farmers or marketed local produce on consignment.

Over the past decade, the organic food market has changed dramatically. A New York based firm, Datamonitor, that monitors retail sales estimated that 60 percent of total organic food sales in 1997 was accounted for by specialty retailers such as Whole Foods and Wild Oats (Gilmore, 1998). Specialty retailers are not mainline supermarkets, but they are modern upscale chains of retail outlets that hold little resemblance to traditional organic consumer food cooperatives. Datamonitor estimated that sales of organic foods by conventional
Organic agriculture faces the specialization of production systems; supermarkets grew in excess of 40 percent per year during the 1993-1997 period – doubling their share of the overall organic food and beverage market in the process. There is little doubt that specialty retailers and supermarkets now dominate total organic food sales in the U.S., although no uniform sales data for farmers markets, CSAs, restaurants, etc. are available for comparison.

Supermarkets and specialty chain retailers prefer to deal with suppliers that can provide a variety of high quality products, of consistent grade, uniformly packaged, delivered on a timely basis and at a competitive price. Most organic farms remain relatively small-scale and diversified, even as conventional agricultural producers have become larger and more specialize. But, few of the smaller organic farmers have been willing or able to meet the large retailers’ standards. Thus, the bulk of mass retailers’ purchases are made from a handful of large-scale commercial organic operations. Erick Kindberg, a U.S. expert on organics, estimates that a single organic consortium produces about 30 percent of all U.S. organic produce and 4 other growers supply an additional 40 percent. He estimates that the farmers typically classified as small growers provide only about 5 percent of total organic produce sold by the specialty chains and supermarkets. Anecdotal information indicates that U.S. organic retailers only buy sufficient quantities from local farmers to lend an element of credibility to their claims of selling locally grown foods.

A recent article by Chantal Le Noallec in Le Monde diplomatique, indicates that many of the same trends are underway in Europe (1999). He states, "the organic sector is about to become industrialized, because agribusinesses are beginning to take a big interest in it. Farmland is increasingly being switched to organic, and the organic industry is developing based on mono-cropping. More seriously, a number of companies are pressing for present specifications to be relaxed, under the pretext of speeding up the conversion and making it possible to supply more products at even lower prices."

The oft-stated motives for industrializing the system is to make organic foods more accessible and acceptable to more consumers, to enhance the healthfulness, safety, and quality of food supplies, to expand markets for farmers, and to protect the environment from commercial fertilizers and pesticides. While these motives may seem logical, the consequences may be far different than initial expectations -- for consumers, for farmers, and for the environment.

The Economics of Specialized Systems

The motives for specialization of systems of production and distribution are largely economic in nature. Specialization is a fundamental characteristic of industrialization – the dominant model of economic development over the past two centuries. Adam Smith, the father of contemporary economics, expounded on the potential gains in productivity through division of labor. Division of labor, put simply, means that each laborer specializes in performing a single task, or a limited number of tasks, in the production process rather than attempting to perform the entire process. By performing fewer tasks, each laborer could perform their specific tasks much more efficiently. Thus, several specialized workers, by coordinating their work, could produce far more than could an equal number of workers working independently. At the beginning of the industrial era, in the late 1700s, Smith concluded that specialization, through division of labor, was one of the fundamental sources of differences in wealth among nations.

The same principle, specialization through division of labor, remains a cornerstone of industrialization today. A modern factory assembly line is nothing more than a means of coordinating specialized workers using specialized machines to perform a multitude of different tasks in producing a single product. Dividing the basic factors of production among different sources, with one group providing capital, another group providing labor, another management, and another supplying raw materials, is but another means of achieving economic
Organic agriculture faces the specialization of production systems; efficiency through specialization. The same basic principles are applied in modern, specialized farming operations. Farms are designed to work as factories, with inputs and raw materials coming in and finished products going out, and with farmers performing a prescribed number of routine tasks in sequence to accomplish the transformation. Fields and feed lots are designed to operate as nearly as possible as biological assembly lines. Land, labor, capital, and management may each be supplied from different sources.

Specialization alone is not adequate to capture the full benefits of industrialization. Industrial systems also require standardization. Standardization is necessary so each function in the production process can be specified for purposes of dividing responsibilities -- the output of each stage of production must fit the raw material requirements of the next. When different organizations perform different functions, standardization is required so a given producer can procure and utilize the same raw materials from a number of different sources. Food retailers who demand consistency and uniformity in the items they purchase for resale, are demanding standardization. A supermarket is but the last stage in a highly specialized food production system.

Industrialization also requires centralization of command and control. Specialization results in increased efficiency only if each stage in the production process is coordinated with the others. Coordination is achieved through centralization -- one person telling other people what to do and when, where, and how to do it. If each specialized producer performs their assigned task, but does it independently, the process is not likely to be efficient. Centralized command and control allows each decision maker to control more resources, thus, industrialization is characterized by large-scale operations. Large organizations require large amounts of capital, thus, large publicly-owned corporations have evolved to meet the capital requirements of industrial organizations.

U.S. agriculture has followed the same general path toward industrialization as other industries. The process for agriculture has just proceeded more slowly. Agricultural processes, being fundamentally biological in nature, have been more difficult to standardize and control than were basic mechanical, chemical, and electronic processes. But over time, U.S. agriculture has become increasingly specialized, standardized, and centralized in nature -- first through larger, independently owned farms but more recently through large-scale, corporate organizations.

The trend toward industrialization has been a trend away from organic agricultural production. Low cost, inorganic fertilizers and pesticides have been the primary technological facilitators of agricultural industrialization. Of course, mechanization also facilitated large-scale production. But, commercial fertilizers and pesticides allowed farmers to specialize without sacrificing basic productivity -- to break away from the diversified crop and livestock systems that were used previously to regenerate and recycle nutrients and to control pests. Standardized applications of commercial fertilizers gave farmers far greater control over the production process than had been possible before, and in turn gave farmers economic incentives to abandon organic farming methods.

The large agribusiness corporations became interested in control of agricultural production only after specialized, standardized farming systems were shown to be technically and economically feasible. These large corporations have sufficient capital to bring increasing shares of total agricultural output under increasingly centralized control. The new information and biological technologies promise even greater advantages for specialized, standardized, centrally controlled systems of agriculture production. The system of production that initially chided organic farming as being obsolete now proposes to adopt it.

The Economics of Industrialization
Organic agriculture faces the specialization of production systems; industrialization typically follows a fairly standard process from conception to completion – regardless of whether the process is applied to automobiles, public services, or foods. First, a potential mass market is identified – a sufficient number of customers who might be willing to buy enough of the same basic product to achieve economies of scale in production. Next, standards are established to define a specific end product that might be acceptable to the target market. Standards may be defined internally, through product development by a private firm, or through some public process, establishing grades and minimum requirements, for goods and services in the public realm. Standardized production processes are then put in place to facilitate mass production of the end product, and production is begun. If adequate capital is available, a vigorous advertising campaign may be mounted to help create market demand sufficient to ensure successful initiation of the new enterprise.

If the new enterprise is initially successful, specialized mass production will result in reduced production costs which in turn will allow the fledgling industrial operation to price its products at levels below those of its non-industrial competitors. Lower prices will allow the new firm to increase its market share, which will further reduce its costs of production and enhance its market advantage. The producer of the new product is now in a position to make major investments in non-price competitive strategies to further enhance its market share, increase its size of operation, and reduce costs. The objective is to establish the new industrial product as the "industry standard" with which all others will now be forced to compete, and ultimately, to which others must attempt to conform.

Invariably, the objective is to control an ever increasing share of the target market. Increased market share means greater economies of scale, and more important, more power to control total industry supplies and prices. Often times, the initiator of a new industry does not survive to reap the ultimate benefits of market control. But, the organization which initiated the process has the advantage of a head start on its competition, at the very least, and in many cases, will hold legal patents on processes that are critical to the production process. Some initiators have been unable to compete with new market entrants once the potential for industrialization becomes clear. Other initiators are bought out by competitors who have even more capital and market advantages than the initiator as result of their involvement in other industries.

The initial battles for market share can be brutal – cut-throat price competition may result in large losses for all competitors as the dominant firms compete for market control. By this time, most of the small, independent producers have already been forced out of business as other large corporations have decided to join the competition. However, the brutal competition typically does not last long. Once the number of surviving firms is reduced to a "manageable number," the individual competitors begin to search for legal means by which they can stabilize supplies and prices at levels that will be profitable for all. Beyond this point, competition for market share tends be "quiet competition," through advertising, public relations, etc., designed to compete without destabilizing overall profitability.

**The Industrialization of Organics**

This process of industrialization, with variations, has held true for industries in the U.S. as diverse as automobiles, mail order catalogues, supermarkets, discount retailing, public universities, electronic information processing, poultry production, and hog production. Based on these and other examples, there is logical reason to believe that organic food production is in the early stages of industrialization.

The rapid growth in organic markets in the U.S. during the decade of the 1990s sent the signal to potential industrial suppliers that organic foods might be developed into a mass market. Prior to the 90s, organic foods were considered a niche market composed largely of those who were involved in, or at least sympathized with,
Organic agriculture faces the specialization of production systems; the environmental counterculture movement of the 1960s. Rapid growth in organic markets during the 90s signaled that organic foods were gaining popularity among the general public, and that organic niche markets might be transformed into mass markets.

However, organic foods remained loosely defined, non-standardized products which were ill suited for mass merchandizing. No uniform definition or standards for organic products had been established – uniformity not being a requirement of niche markets. Several different states in the U.S. had established their own organic certification programs. And, different groups of organic farmers had established certification programs to facilitate trade among states and nations. But, the standards of certification organization were significantly different.

The United States Department of Agriculture (USDA) appointed a National Organic Standards Board (NOSB) in 1992, with representatives from various farmer groups and certification organizations, to assist the Secretary of Agriculture in developing national standards for materials to be used in organic production. In June 1994, the board made its recommendations to the Secretary. In February 1997, the USDA released a proposed set of rules that would have established national standards for organic products. After receiving more than a quarter-million public comments, the vast majority of which were negative, the rules were withdrawn for revision and future resubmission.

Most of the controversy surrounding proposed USDA standards centered on questions concerning use of municipal sewage sludge as organic fertilizer, eligibility of genetically modified organisms (GMOs), and use of ionized radiation for sterilization. Humane treatment of livestock and poultry also were controversial issues. Nearly all of the controversy seemed to stem from differences between agri-industry (food retailers, agribusiness firms, commodity organizations) and traditional organic farming organizations. Use of municipal sludge would have facilitated development of large-scale specialized organic production operations in urban fringe areas. GMOs were promoted as alternative organic means of pest control by the large biotech firms, such as Monsanto. Ionized radiation of foods presumably would extend shelf life and facilitate mass distribution through national supermarket chains. Livestock and poultry issues centered around permissibility of practices common in large-scale confinement feeding operations – livestock factories. There is little doubt that existing players in the industrial food system were seeking a set of organic standards that would allow industrialization of the production and distribution of organic foods.

A new set of proposed USDA rules for organics is to be released in the fall of 1999. The volume of negative comments from grass-roots organic farmers likely will force USDA to exclude sewage sludge, GMOs, and ionized radiation from the new proposed standards. There is less certainty that livestock and poultry produced in confinement will be deemed totally unacceptable. Canada is on much the same time table as the U.S. and introduced national standards for organic agriculture in the summer of 1999. The proposed Canadian standards exclude irradiation and GMOs. Presumably, differences between U.S. and Canadian organic standards would need to be resolved under the North American Free Trade Agreement (NAFTA). Regardless, the U.S. certification issue will not be resolved until sometime in 2000, at the earliest.

International standards for organic foods are evolving under the auspices of the United Nations by the Codex Alimentarius Commission - the body responsible for compiling standards, codes of practice, guidelines and recommendations to facilitate international trade. Codex apparently will set standards that will be enforced through the World Trade Organization under the General Agreement on Tariff and Trade. Multi-national agri-businesses, such as Monsanto and Novartis, may have even more influence in the international arena than in their respective home nations. European resistance reduces the likelihood that GMOs will be allowed under international standards, but other production practices needed for large-scale, industrial production are likely to
Organic agriculture faces the specialization of production systems; find their way into international standards – if not immediately, almost certainly over time.

Government standards are promoted by economists as a means of reducing the cost of market transactions between buyers and sellers – thus improving market efficiency. This claim is valid. However, uniform grades and standards reduce transactions' costs far more for the large industrial producer than for the small niche marketer. Because of smaller volume of sales, and typically, geographic proximity, small niche marketers are better able to communicate directly with their customers, and thus, benefit less from being able to use the *market shorthand* of standardized grades. Government standards provide their greatest benefits to large-scale producers with large numbers of geographically dispersed customers supplied through multi-level marketing channels. Thus, establishment of government grades and standards helps create a competitive advantage for large-scale, industrial producers.

Organic production cannot become fully industrialized until there are uniform national and international standards that will accommodate large-scale, specialized, centrally controlled methods of production. Such standards could conceivably evolve in the private sector, as in the case of automobiles, computers, consumer electronics, and other industrial goods and services. But, government sanctioned standards make the process far easier. Once standards are in place, a combination of corporate advertising and government "information" can be focused on convincing consumers that the only true "organic" products are those which carry the appropriate government label.

Some private entrepreneurs have seen potential profitability in mass merchandizing organic foods, with or without organic standards. Owners of specialty organic food stores, Whole Foods and Wild Oats being the most notable, have expanded beyond their traditional niche marketing role to become mass merchandisers of organic foods. They expanded by building new retail facilities and buying existing organic and natural foods stores from others. Today, Whole Foods operates under at least five different names, in addition to its own, and Wild Oats operates markets under at least thirteen different store names. These organic chains are attempting to gain economic efficiencies through large-scale procurement and distribution by establishing their own standards for major suppliers. Whole Foods, Wild Oats, and the national supermarket chains now control nearly all significant mass market outlets for organic foods in the U.S.

With respect to the industrialization process, the organic chains and supermarkets have identified a potential mass market and have achieved some degree of standardization through private buying specifications negotiated with a relatively small number of large-scale suppliers. Significant market consolidation of the specialty chains has been achieved by Whole Food and Wild Oats. The next major step in industrialization may be initiated by the large supermarket chains. Supermarkets have been experimenting with organic merchandizing for some time. *Supermarket News* reports that national chains "Kroger and Safeway are doing the best job with organics, and some of the individual Shop and Stop stores are doing a phenomenal job." (1999, p. 40). If the major supermarkets decide they have a future in organics, the battle will be on for increasing market share.

The national supermarkets could be joined by food discount chains, such as Walmart, in initiating a round of cutthroat price competition -- which to date has not been seen in organic markets. Walmart is notorious for driving out competition by cutting prices. Supermarkets will not mount a major national advertising and promotion campaign for organic foods, until they have a strategy for ensuring that each dollar spent for organic doesn’t mean a dollar less spent for non-organic foods in their stores. Thus, they will attempt first to gain market share from the specialty chains. They may force the specialty chains out of business through price cutting, or may buy them out if pricing them out becomes too expensive.
Organic agriculture faces the specialization of production systems; Under either scenario, price cutting at the retail level will force prices paid to organic producers to the lowest possible levels. Organic producers will be forced to specialize, standardize, and centralize their production systems in order to achieve economies of scale and reduce costs to levels necessary for survival. Many smaller, independent organic producers will be forced out of business by reoccurring production surpluses and chronically depressed prices. Organic consumers may benefit from lower prices, at least initially, but they will no longer have choices among products produced under alternative "organic-like" production methods. Standard organic methods will reflect the least cost means of meeting minimum government standards.

Ultimately, mass markets for organic foods will be controlled by a few large corporate retailers and will be supplied by a few large corporate producers. Supplies will be restricted in order to stabilize prices at levels high enough to yield acceptable returns to corporate investors. Only then will stability and profitability return to organic mass markets. Organics will have become industrialized.

An Alternative Road to the Future

At present, most organic farms are still small, and most organic farmers are still making their living through niche markets. They sell their products direct to their customers, through Community Supported Agriculture associations (CSAs), farmers' markets, roadside stands, etc., relying on their personal reputation rather than organic certification to ensure product integrity. As indicated previously, the specialty chains and supermarkets buy nearly all of their organic produce from a handful of large organic suppliers.

A 1998 survey conducted by the Organic Farming Research Foundation found that 87 percent of U.S. organic farms are single-family operations or family partnerships. More than 60 percent are full-time farming operations, but the average size of an organic farm is only about 140 acres. Only 14 percent of farmers responding to the survey reported annual total sales of more than US$100,000. Thus, organic farming in the U.S., at least in terms of farm numbers, is still dominated by small, family farms. In terms of annual sales, organic farms are not greatly different from U.S. farms in general. However, the proportion of full time organic farmers is far larger for organic farms, and organic farms are less than half as large in acreage as their conventional neighbors.

Small, diversified farms cannot compete economically in a fully industrialized agriculture. The number of farms in the U.S. has dropped dramatically over the past several decades and it’s generally conceded that there will be few independent producers left producing basic agricultural commodities in the U.S. in another ten to twenty years. Corporate control of input and marketing sectors will force farmers to become contract growers within vertically integrated systems that control all aspects of the system from genetics to retailing. Until recently, organics had seemed to be among farmers’ best alternatives to avoid either giving in to corporate control or getting out of farming. Now it appears that organic production may become industrialized almost as quickly as conventional farming.

However, small farmers do not have to become a part of the industrialized food system. Organic farmers, in particular, already have niche markets, which they can quite likely retain and expand, if they continue to capitalize on the value of their uniqueness. They can’t compete by being the lowest cost producers, at least not in terms of dollars and cents, but they can compete in catering to the unique tastes and preferences of consumers.

Current preferences of many organic consumers are not based solely on the restricted list of materials that may be used in organic production. To them, organic is as much a philosophy of life as a physical characteristic of the foods they eat. They want products produced by nature’s principles of production – produced in harmony.
Organic agriculture faces the specialization of production systems; with nature. They believe in diversity as a fundamental principle of nature. They will pay premium prices to support farmers with integrated crops and livestock enterprises that capture solar energy, recycle waste, and regenerate the soil to ensure food and farming opportunities for future generations. They believe in living in harmony with other people – in paying a price for food that will support farm families rather than simply buying whatever is cheapest or most convenient. Healthy food, a healthy natural environment, caring communities, and a strong society are important in their philosophy of life.

Organic farmers can join with other small farmers in developing an alternative food system that can coexist with, and someday displace, the global industrial food system. Independent organic farmers may not be able to compete in producing "certified organic" products and may well lose the battles to keep things such as municipal sewage, irradiated foods, confinement livestock, and even GMOs, from being certified organic. But, they can still compete for profitable, promising niche markets.

The single battle that they can least afford to lose is the one regarding organic food labeling. The initial USDA proposed rules asked for opinions regarding prohibitions of labeling of foods with names that might be confused with organic – such as low-input, antibiotic and hormone free, and sustainable. The intent of such restrictions might be to avoid confusion, but the impact would be to make "organic" the sole domain of industrial producers. If independent organic food producers are to survive and prosper, they must be able to produce, label, and market their products using ecologically sound methods that differ from the standards of industrial organics.

Sustainable agriculture offers the best hope for the future success of independent organic producers. The sustainable agriculture movement reflects a philosophy of life that is quite compatible with the current organic philosophy. In fact, one might logically argue that all sustainable system of agriculture production ultimately must be organic systems -- although all organic systems certainly are not sustainable.

In essence, a sustainable agriculture is one capable of meeting the needs of the present while leaving equal or better opportunities for the future. Consequently, all sustainable systems must be ecologically sound, economically viable, and socially responsible. A system lacking in any one of the three is not sustainable. Organic production methods address the ecological dimension of sustainability. The challenge of economic viability must be met through efficient resource management and effectively marketing to customers who most value ecologically sound and socially responsible production. The final dimension, social responsibility, includes social justice and social equity. Social equity and justice are fundamentally incompatibility with industrialization. Sustainable organic producers will have their greatest economic advantage in marketing to the growing number of socially and ecologically conscious customers.

Sustainability relates to a goal or purpose – not to a specific set of farming methods or practices. Sustainable production methods are individualistic, site specific and dynamic. Sustainability for a given farmer, on a given farm, and at a given time may be different from those of another farmer, on another farm, or at a different point in time. Thus, sustainability cannot be standardized. Sustainable farming systems are inherently diverse because nature is diverse and sustainable farming must be carried out in harmony with nature. Thus, sustainability cannot be specialized. Finally, since sustainability cannot be standardized or specialized, it cannot be centrally controlled, and thus, cannot be industrialized.

Sustainable organic farmers must develop a non-industrial food system that is compatible with the principles of sustainability. This alternative system may continue to rely on direct marketing through current niche marketing methods, or may evolve into a flexible, decentralized, producer/agent/customer network. Regardless of how it evolves, it will not be an industrial system. Sustainable organics may require government protection, at least to allow truthful labeling of products with respect to diverse production methods. Sustainable farmers may also
Organic agriculture faces the specialization of production systems; require protection from predatory pricing tactics of industrial food producers. At the very least sustainable organic producers should demand elimination of current government subsidies for industrialization. Without such actions, a global system of "industrialized organics" likely will emerge – dominated by multinational corporations, motivated solely by profits and growth.

Sustainable organic production will require more intensive management than is required of industrial production. Sustainable producers must put more of themselves into their operation if they expect to prosper with less land and less capital. But first, organic producers must approach the new challenge with a non-industrial mindset. They must realize that industrial organic production is no more sustainable than is chemically dependent conventional production. They must move beyond organic as a means of production to see organic as a philosophy for sustainable living.

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Conventional wisdom in the U.S. seems to be that only the market is capable of doing things right. Anything that interferes with the market; the government, public attitudes, or cultural values, for example; by definition creates economic inefficiency and is bad for society. Few people are aware of the origin of this belief, and even fewer seem willing to challenge it. In fact, the few who dare to question the market’s sanctity are quickly attacked and degraded by people in powerful places with obvious self-interest in perpetuating the belief, including an army of economists.

Current belief in the sanctity of the market can be traced back to statements by Adam Smith, the father of conventional economic theory, in his book, The Wealth of Nations. "It is not from the benevolence of the butcher, the brewer, or the baker, that we expect our dinner, but from their regard to their own interest. We address ourselves, not to their humanity but to their self love, and never talk to them of our necessities but of their advantages" (p. 7). Later, in reference to trade, Smith states, "he intends only his own gain, and he is in this, as in many other cases, led by an invisible hand to promote an end which was no part of his intention." "By pursuing his own interest he frequently promotes that of the society more effectually (sic) than when he intends to promote it" (p. 199). These statements provided the foundation of the contemporary economic wisdom -- that pursuit of short run self-interests is transformed into achievement of the public good, as if by an invisible hand. The greatest societal good results from the greatest individual greed.

But, Adam Smith didn’t say that pursuit of maximum profits and growth by large, corporate organizations would result in the greatest benefit to society as a whole. The economy of Smith’s day was quite different from today. In the late 1700s, most economic enterprises were small, family operations. For such operations, land, labor, capital, and management often resided in essentially the same entity, and farming was still the dominant occupation. Few enterprises were large enough to have any impact on the marketplace as a whole. Most market transactions were direct between buyer and seller -- there were few opportunities for deceptive sales practices. Trade was mostly in basic commodities – every seller’s wheat, bread, or shoes were pretty much the same as those offered for sale by other sellers. Under these conditions, profits were quickly competed away in highly competitive local markets.

There were few corporations in Smith’s time, but he wrote about the dangers of monopolies and excess profits, -- "the price of a monopolist is upon every occasion the highest than can be got (p. 28)." He considered "joint stock companies," corporations, to be inherently irresponsible entities, and could think of only a handful of endeavors where publicly owned corporations could be justified (p. 341). Even those would require close public scrutiny and government control, he warned.

Human populations back then were small enough and technologies were sufficiently benign that people could have little permanent impact on their natural environment – at least not on a global scale. Strong cultural, moral, and social values dictated the norms and standards of "acceptable" individual behavior. Smith could not conceive of a society in which the welfare of the poor and hungry would not matter, or where people in general would behave in unethical or immoral ways. "No society can surely be flourishing and happy, on which the far greater part of the members are poor and miserable" (p 36).
Economics of Enlightened Self-Interest

In the environment within which conventional economics was born, in Smith’s time, pursuit of self-interest might have served the interests of society reasonably well. But, the world has changed over the past 200 years. In fact, none of the important assumptions of truly competitive markets -- the prerequisite for efficient resource allocation by free markets -- are valid in the economy of today.

Today, giant corporations dominate almost every sector of local and global economies. Through mergers, joint ventures, and strategic alliances, corporations have formed "virtual" monopolies – irresponsible entities that maximize profits "upon every occasion." Corporate profits today are far larger than any concept of "normal" profit envisioned in classical economics. Corporations are inherently non-human entities – regardless of what the Supreme Court has said and regardless of the nature of their managers and stockholders. Corporations have no heart, they have no soul.

The basic economic resources of land, labor, capital, and management now reside in separate entities, sometimes divided even among nations. Labor and management are in continual conflict, and most corporate shareholders -- owners of mutual funds and pension funds -- are hardly conscious of how much of what companies they own. Land has become just another marketable commodity to be exploited and used up.

Producers and consumers have become disconnected, geographically and conceptually, as a consequence of industrialization. Consumers no longer have any personal knowledge of where their products come from or of who is involved in their production. They must rely on a complex set of standards, rules, and regulations for product information, and today’s advertising consists of "disinformation" by design. Superficial product differentiation abounds -- through processing, packaging, advertising, and marketing gimmicks -- making price competition impotent if not impossible.

Human activities are no longer ecologically benign -- if they ever really were. The pressures of growing populations and rising per capita consumption are now depleting resources of the land far faster than they can be regenerated by nature. Wastes and contaminants from human activities are being generated at rates far in excess of the capacity of the natural environment to absorb and detoxify them. Fossil fuels, the engine of twentieth-century economic development, are being depleted at rates infinitely faster than they can ever be replenished. Human population pressures are destroying other biological species, upon which the survival of humanity may be ultimately dependent. The human species is now capable of destroying almost everything that makes up the biosphere we call Earth, including humanity itself.

The society of Smith’s day was weak on economics – hunger, disease and early death were common -- but it had a strong cultural and ethical foundation. However, that social and ethical foundation has been seriously eroded over the past two centuries -- as glorification of greed has replaced enlightened self-interest. Civil litigation and criminal prosecution seem to be the only constraints to the unethical and immoral pursuit of profit and growth. Concerns of the affluent for today’s poor seem to be limited to concerns that welfare benefits may be too high or that they will be mugged or robbed if the poor become too desperate. Smith’s defense of the pursuit of self-interest must be reconsidered within the context of today’s society -- a society that is now strong on economics but weak on community and morality.

In addition, contemporary economics is fundamentally incapable of dealing with relationships among people, or between people and their environment. This fact is freely admitted even in basic economics text books. In economics, a market is nothing more than a collection of independent individual consumers. Human institutions such as families, communities, nations and cultures have no economic relevance – other than as collections of individuals. Thus, one gains no economic well being from relationships -- from identifying with or being a part of any particular family, community, nation or culture. Believing, trusting, sharing, caring, and serving are but
empty words to the economist. Economic values relate only to our narrow, short run self interest. Concepts such as faith, hope, and love are ignored -- they are just illusions of the human imagination.

In economics theory, the environment is a passive entity, and thus, has no specific active relationship with people. The environment is always external, or outside, the economic system. The environment may be ignored, treated as an external constraint, or as something that is impacted by economic activity within. But, the environment is always treated as something separate and apart from people and the economy. In economics, we are separated from something that we obviously are a part of. The serenity we feel and beauty we see in nature is assumed to have no impact on our human well being. In economics, the sense of rightness that comes from our attempts to be good stewards of the earth’s resources contributes nothing to our quality of life. It’s economically irrational to want to leave as much and as good as we have today for the benefit of future generations.

Economics assumes that trade always takes place between two people or groups that are equally competent and capable of pursuing their own self-interest. Sometimes this is a valid assumption, but often it is not. Economics ignores the fact that the world is filled with people (and countries) who are inherently unequal in competence and capabilities. It ignores the fact that giant corporations are capable of totally dominating conditions of trade with smaller businesses or individuals. By their very nature, industrial corporations attempt to dominate in their transactions with all, including with the natural environment.

Any trade that is legal is generally accepted as free trade by economists. Economics ignores the fact that the strong may pressure the weak into trading by simply threatening or withholding benefits, or protection from harm, upon which the weak has become dependent. Since the strong are not legally required to provide these benefits, no law is broken.

When trade occurs between the strong and the weak, particularly when motivated by profit as economists assume, the weak are invariably exploited by the strong. As long as the outcomes for strong and weak added together end up in a larger dollar and cent total, economics concludes that there have been gains from trade -- no matter that the weak are now even relatively weaker and more vulnerable and the strong are now even stronger and more dominant. To the economist, justice and equity are just empty words because they have no means to address them.

In summary, contemporary economics is concerned totally and completely with pursuit of short run, self interests. Economics recognizes no unique social value – a community or a society is nothing more than a collection of individuals. Economics recognizes no unique spiritual values – and concern for the environment, at least for its sustainability, is fundamentally spiritual. Economist – and the industrial, corporate interests that now would raise economists to the priesthood – would cast out those of us who still believe that quality of life has social and spiritual dimensions that are just as important as our narrow economic self interests.

Does this kind of economics really make sense as a guiding philosophy for America -- and as a model for the rest of human society? Do we actually believe that the greatest greed results in the greatest good? Or are we a society that is being shamed into doing things that don’t make sense because we don’t want to be publicly degraded and labeled naïve and unrealistic, as being economically illiterate and irrational?

It’s economics that is out of date – not small family businesses, caring communities, loving families, nations with integrity, and cultures with values. We have no ethical or moral obligation to accept economics as the final arbitrator of who gets a job and who doesn’t, who stays in business and who doesn’t, what we do in
communities and what we don’t, where food is produced and where it is not, whether or not we trade, or of anything else. We don’t have to abandon "good" things from the past just because something "more economically efficient" comes along. We don't have to accept "bad" things in the future just because they are "more economically efficient" than some "good" alternative. We can choose what we want to keep from the past and what we want to accept in the future. The market is not God – no matter what the economic priests would lead us to believe. Economics is a creation of people. We simply cannot turn loose the thing we created for our benefit and allow it to exploit the very people it was designed to serve. It just doesn't make any sense.

Common sense demands that we rethink and directly challenge the fundamental principles that underlie conventional economic thinking – line by line, row by row, from the ground up. Any effort to sustain humanity that fails to attack the problem at its root cause ultimately is destined to fail. The root cause of the current crisis in American agriculture is the same as the root cause of ecological degradation and of social and moral decay – a society that blindly accepts the economic bottom line as if it were the word of God.

People will pursue their self-interest – it is an inherent aspect of being human. But, people, by nature, do not pursue only their narrow short-run individual self-interest. It is within the fundamental nature of people also to care about others and accept the responsibilities of humanity. Rethinking does not require that people deny their self-interest. Instead, it will require that we rise above the economics of greed to an economics of enlightenment. The invisible hand can still translate the pursuit of self-interests into the greatest good for society, but only if each person pursues an enlightened self-interest – a self-interest that values relationships and ethics as important dimensions of our individual well being.

Enlightened self-interests includes narrow self-interest (which focuses on individual possessions) but it includes also interests that are shared, in which one has only partial ownership (which focuses on relationships, community, and social values) and interests that are purely altruistic (which focuses on interests that are solely others', which one pursues only out of a sense of stewardship, ethics, or morality). All three – self-interests, shared-interests, and altruistic-interests -- contribute to one's well being or quality of life, but not in the same sense that greed might enhance one’s material success. Each contributes to a more enlightened sense of quality of life – which explicitly recognizes that each individual is but a part of the whole of society, which in turn must conform to some higher order of things or code of natural laws.

The Dalai Lama of Tibet puts it in slightly different terms, "If you think in a deeper way that you are going to be selfish, then be wisely selfish, not narrow-mindedly selfish. From that viewpoint, the key thing is the sense of universal responsibility, that is, the real source of strength, the real source of happiness. From that perspective, if in our generation we exploit every available thing, trees, water, mineral resources, or anything, without bothering about the next generation, about the future, that's our guilt, isn't it? So if we have a genuine sense of universal responsibility as the central motivation and principle, then from that direction our relations with the environment will be well balanced. Similarly with every aspect of relationships: our relations with our neighbors, our family neighbors and country neighbors, will be balanced from that direction" (p. 179)

This enlightened self-interest is a product of balance among narrow self-interests, community or shared-interests, and altruistic or other-interests. Enlightened self-interest means that we cannot simply maximize or minimize any one particular aspect or dimension of our lives. We cannot be driven solely by greed, by altruism, or by concern for community. Instead we must pay conscious attention to whether we are adequately meeting our needs as individuals, as members of some larger community or society, and as moral, ethically responsible humans. Quality of life is a consequence of harmony or balance among the three.

The transformation of human society from one driven by the economics of short-run self interests to one lead by
the economics of enlightenment will not happen overnight, and it may not happen without struggle and strife. But none the less, it must happen. The transformation may happen peacefully or may arise out of the turmoil of an economic collapse. It has already begun, although it may take decades to complete. But, each of us can begin the transformation for ourselves whenever we choose.

We can get off of the treadmill that keeps us running faster and faster as we get farther and farther behind. We can choose at any time to search for balance and harmony in our lives and in our work rather than continue the blind pursuit of our narrow self interest. We can choose a life of quality -- with enough income to sustain us physically, enough friends and neighbors to sustain us socially, following a code of ethics and morality that will sustain us spiritually. We can choose to pursue our enlightened self interest rather than simply give in to our greed. We can set examples and build models that others may choose to follow. We can develop the foundation of reality upon which new theories for an economics of enlightened self interest can be built. We can help guide humanity toward a sustainable future. And, we can do it at anytime we choose.

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The Case for
A Bill of Rights for Sustainability
John E. Ikerd
University of Missouri

In 1776 the United States of America declared their independence from Great Britain, and Adam Smith published his "Inquiry into the Nature and Causes of the Wealth of Nations." The U.S. Constitution was adopted and ratified by the new nation in 1788. Drafters of the constitution included scholars who apparently shared Smith's economic views, regardless of whether they had studied his new book. Smith's concluded that pursuit of individual self-interest would be transformed into outcomes serving the public interest, as if by an "invisible hand." Nothing in the constitution would lead one to believe that promotion of the "General Welfare" would require the public to be protected from the forces of economic self-interest.

The assumptions supporting Adam Smith's "invisible hand" theory of public welfare were probably reasonable for the America of 200 years go. Businesses were mostly small, individual proprietorships, none of which individually could measurably affect prices or quantities in their markets as a whole. Productive resources; land, labor, capital, and management; were embodied in the same economic entities. Consumer tastes and preferences could be taken as given -- as determined by their inherent needs and desires and not subject to question or manipulation by producers. Transactions were mostly face-to-face and personal, between producer and consumer, which left little room for deception or misinformation. The human population was too small to inflict any irreversible damage to the natural environment. And, strong cultural, moral, and social values clearly defined the bounds of "acceptable" behavior. Under these conditions, the "invisible hand" was indeed a protector of the general economic welfare.

However, none of the key assumptions above are true in the American economy of today. One doesn't need to review business statistics to know that large national and multinational corporations dominate today’s markets for nearly all classes of products. Adam Smith gave stern warnings that corporations -- even those of 200 years ago -- represented a grave threat to free market competition. He could not have conceived that a 1924 Supreme Court decision would confer the status of "person" to corporations. Land, labor, capital, and management are now separated among those who own, those who work, those who invest, and those who manage. And, it matters how profit is allocated among them. Today, businesses spend billions of dollars each year attempting to shape consumer tastes and preferences to fit their need – not just to satisfy them. Many vertical layers of markets and middlemen typically separate consumers and producers. Legal deception and seduction of consumers has become "acceptable" business practice.

Today’s human population is clearly capable, and seemingly willing, to inflict irreparable damage to the natural environment in pursuit of its short run self-interest. And a belief that the "greatest greed yields the greatest good" seems to have replaced, or perhaps destroyed, the cultural values of human caring and responsibility. Ironically, belief in Smith’s invisible hand seems to have achieved its greatest acceptance at a time when the assumptions that support it are least valid.

If the U.S. Constitution were to be written today, by true scholars of today, it would have to include Economic and Ecological Bills Rights to complement the political and social Bill or Rights adopted in 1788. Nothing today indicates that the General Welfare can be further promoted without constitutional assurances that the economic and ecological rights of humanity will be protected from the greed-driven machinations of an out-of-control, corporate economy. Lacking constitutional protection for our economic and ecological rights, our social democracy quite simply is not sustainable.
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The Wisdom of Changing the Constitution

The drafters of the constitution meant it to be a living document, capable of changing to meet the changing needs of the time. In the words of Thomas Jefferson, "I am not an advocate for frequent changes in laws and constitutions, but laws and institutions must go hand in hand with the progress of the human mind. As that becomes more developed, more enlightened, as new discoveries are made, new truths discovered and manners and opinions change, with the change of circumstances, institutions must advance also to keep pace with the times. We might as well require a man to wear still the coat which fitted him when a boy as civilized society to remain ever under the regimen of their barbarous ancestors." (Taken from a letter to Samuel Kercheval, July 12, 1816, and inscribed on the walls of the Jefferson Memorial).

Thomas Paine, in his essay, "Rights of Man" stated: "It is perhaps impossible to establish any thing that combines principles with opinions and practice, which the progress of circumstances, through length of years, will not in some measure derange, or render inconsistent; and therefore, to prevent inconveniences accumulating, till they discourage reformations or provoke revolutions, it is best to regulate them as they occur. The rights of man are the rights of all generations of men, and cannot be monopolized by any… The best constitution that could now be devised, consistent with the conditions of the present moment, may be far short of that excellence which a few years may afford."

Thomas Jefferson and Thomas Paine could not have foreseen today's social and ecological consequences of our blind pursuit of materialism and short-run, economic self-interests. Yet, they clearly anticipated that such derangements and inconsistencies would arise, and to limit their accumulation and prevent revolution, civilized society must at times stop and remove the yolk of our barbarous ancestors by amending, or rewriting, the constitution. Payne also pointed out that it is the responsibility of the people, not the government, to write and amend constitutions. "The fact therefore must be, that the individuals themselves, each in his own personal sovereign right, entered into a compact with each other to produce a government: and this is the only mode in which governments have a right to arise, and the only principle on which they have a right to exist. A Constitution is a thing antecedent to government, and a government is only the creature of a constitution. The constitution of a country is not the act of its government, but of the people constituting a government." Thus we, the people, are responsible for recreating our government so it may promote the General Welfare by ensuring a sustainable human society.

Paine also argues that constitutions and governments must be built upon a foundation of the natural rights of man -- from this point on in this paper to be referred to as basic human rights. In his "Rights of Man," He develops a case to support the following conclusions. 1st, Every civil right grows out of a basic human right. 2nd, Civil power, the power of government, is made up of the aggregate of that class of human rights that individuals lack the power to exercise alone, but can exercise collectively through the organization of government. 3rd, Civil power, government power, cannot be allowed to invade basic human rights that could otherwise be exercised by individuals. Constitutions, in fact, must constitute a consensus of the governed regarding the nature of basic human rights, individual rights which can be exercised alone and civil rights requiring protection by government, and rights requiring protection from government. Upon this foundation, the structure and functioning of government, as outlined in the constitution, must be built.

Toward an Economic Democracy

Many interesting similarities exist between progressive thinking during the times of the democratic movement of the late 1700s and the progressive thinking of today. One example is the chaordic organizational model
advocated by Dee Hock (founder and past CEO of Visa Corporation). The model’s foundation of fundamental purpose, guiding principles, and flexible structure bears a striking resemblance to the democratic form of government.

Fritjof Capra’s, in his book "Web of Life," claims that all living organisms are characterized by three interrelated criteria: (1) autopoiesis, or "self-making," patterns of organization, (2) dissipative or continually changing structures, and (3) cognitive processes which continually regenerate the physical structure according to the fixed pattern of organization. In a healthy society, the process of democracy must continually regenerate its economic and civil structure in accordance with the fundamental purpose and principles encoded in its constitution. A healthy democracy is a living democracy. A democracy that has lost its "self-making" ability is already dead.

Zohar and Marshall, in "The Quantum Society," propose a new societal worldview, consistent with new theories of quantum physics, to replace the currently dominant worldview that evolved from the mechanical theories of Newton and Descartes. They state: "Government and public institutions have a spiritual, not just a political, responsibility to make room for dialogue, to encourage it, and to make clear that it is a spiritual process, as the basis for our deeper, shared meaning (our covenant)." Such a dialogue and covenant will be necessary if we are to build a sustainable democracy.

The framers of the U.S constitution created a civil democracy. They did not create an economic and ecological democracy because they saw no need to do so. However, they created a pattern of organization and procedures for structural change clearly intended to support a process of continual renewal. Provisions for constitutional amendments and constitutional conventions send a clear signal to American society to change the constitution as the human mind "becomes more developed, more enlightened, as new discoveries are made, new truths discovered and manners and opinions change, with the change of circumstances."

Nothing in the U.S. Constitution would lead one to believe the framers intended to create a civil democracy in order to protect an economic tyranny. They assumed the economy would be democratic because they could not conceive that it might be otherwise. But it is clear that today’s American economy is not an economic democracy – but instead is economic tyranny. The rein of the economically powerful reign over the economically weak is reminiscent of the rule of Great Britain over the American colonies. An uncontrolled corporate economy is exploiting and degrading both natural and human resources of the nation much as if the corporation were king and the people of all lands were its colonial subjects. (See David Korten’s, "When Corporation Rule the World," for full development of this argument.

Even if the constitution writers of past generations had not intended an economic democracy, it is clear they would not have intended to preclude the current generation from creating one. Their rejection of the rule of monarchy was based on their firm belief that no generation could be forced to sacrifice their rights simply because some previous generation had failed to claim them, or had given them away. In the words of Thomas Paine, "A certain former generation made a will, to take away the rights of the commencing generation, and all future ones, and to convey those rights to a third person, who afterwards comes forward, and tells them that they have no rights, that their rights are already bequeathed to him, and that he will govern in contempt, of them. From such principles, and such ignorance, Good Lord deliver the world!"

There is no fundamental right to continue the economic tyranny, regardless of past court decisions and current economic policies. The people of this generation have every right to do whatever is necessary to claim their right to create within this nation an economic democracy. The people of this generation have a clear civic and moral responsibility to defend this right and to pass it on to the next generation and to all generations to come.
The sustainability of humanity will require nothing less.

**Economic Rights and Responsibilities of Humans**

The Declaration of Independence includes in its opening statement; "We hold these truths to be self-evident, that all men are created equal, that they are endowed by their Creator with certain unalienable Rights, that among these are Life, Liberty, and the Pursuit of Happiness." The U.S. Constitution is built upon this foundation of the most basic of human rights. The Bill of Rights, the first ten amendments, in general, only clarify and elaborate upon these basic rights. The global Human Rights Initiative of Jimmy Carter's administration was a more direct attempt to build consensus for a basic set of Human Rights of all people in all countries.

The current public disenchantment with government may provide a unique opportunity for renewing the consensus building process. A consensus concerning basic Human Rights and Responsibilities could provide the foundation for a revised constitution designed to ensure a economic, ecological, and social democracy.

The preamble to any such rights should continue to be: *We hold these truths to be self-evident that all people are created equal, and they are endowed by their creation with certain unalienable rights, among which are Life, Liberty, and the Pursuit of Happiness.*

We might then more clearly articulate a set of basic human rights, accompanied by their social, ecological and economic implications. In general, social rights represent rights which individuals lack the power to exercise alone but can exercise collectively, and thus, must be protected by government. Economic rights represent those that can be exercised individually and must be protected from government and corporate entities. And ecological rights represent those derived most directly from basic human rights – the ethical and moral rights of future generations. Ecological rights also represent the right of people to live in harmony with other people and with their natural environment.

The list below is provided for illustrative purposes only. Any canonized set of basic human rights, and their accompanying economic, ecological, and social derivatives, would need to result from a national dialogue arriving at a national consensus, and thus, providing the foundation for a sustainable democracy.

**BASIC HUMAN RIGHTS AND RESPONSIBILITIES**

These basic human rights shall not be denied or restrained, unless exercise of rights by one person denies or restrains one or more basic rights of another. Even in those cases, rights cannot be denied or restrained without due process of law -- except in self-defense of one’s rights against the immediate, unlawful threat to those rights by another.

Any society has a responsibility to ensure that these rights are available to all, to the extent that they are available to any within that society. The current generation has a responsibility to ensure these rights for future generations, to the extent that they are available to those of the current generation. These rights may not be bought, sold, or otherwise obtained or given for any reason.

- The Right to Live: Every human being has the basic right to live and to grow -- physically, mentally and spiritually.
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- Social: Right to protection and of self-defense against immediate threat to life or restraint of an opportunity to develop fully from natural birth to death.
- Economic: Right to adequate food, clothing, shelter, education, and health care needed for survival and full physical, mental, and spiritual development.
- Ecological: Rights of future generations to opportunities to protection, growth, and development equal to those of the current generation.

- Right of Individual thought and expression: Every human being has a basic right to think their own thoughts and to express those thoughts to others.
  - Social: Right to protection and of self-defense against the immediate repression of thought and expression including speech, writing, publishing, education, or other means of disseminating information.
  - Economic: The right to obtain accurate, unbiased information and to be protected against attempts by others to manipulate or subversively influence one’s thoughts, expressions, or actions for private gain.
  - Ecological: The right to obtain and distribute all types of information concerning potential threats to the natural environment that could impact the rights of future generations.

- Right of individual action: Every human being has a basic right to independent action and freedom of movement.
  - Social: Right to protection from and self-defense against immediate restraint of action or movement and invasion of privacy of personal actions.
  - Economic: Right to pursue economic opportunities of one’s choosing and be protected against detrimental economic actions of others.
  - Ecological: Responsibility of the current generation to maintain options for actions of future generations equal to or greater than options of the present.

- Rights of Interaction: Every human has the basic right to interact with other human beings.
  - Social: Right to communicate, meet, congregate, marry, have or not have children, organize for social or political purposes, and to formulate and conduct the processes of self-government.
  - Economic: Right to collaborate, organize, and pursue joint economic activities, but only so long as such collaborations contribute to the social and ecological well-being of society.
  - Ecological: Responsibility to pass on to each succeeding generation rights equal to or greater than those of the preceding generation.

Hierarchy of Rights

The most difficulty challenges in implementing a sustainable democracy are likely to arise from the integration of its economic, social, and ecological dimensions. This will require a consistent means of resolving short run conflicts or contradictions. Some issues are clearly economic – the costs and benefits accrue almost exclusively to individuals. Others issues are clearly social – individuals must share in the effort if rewards are to be realized. Ecological issues are fundamentally matters of principle – this generation accepts the responsibility to protect the rights of future generations as a matter of ethical or moral principle. The challenges arise from
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issues that have important economic, social, and ecological dimensions – at the margins or intersections among the three.

Issues of sustainability are not hierarchical, at not least in the conventional sense, but rather is systemic in nature. The economy is a subsystem of society, which in turn is a subsystem of the natural or ecological system. Thus, nature might seem to be dominant over society and society dominant over the economy. However, the economy can either enhance or destroy society, which in turn can enhance or destroy the natural ecosystem. So an interdependent relationship exists among the three – none can survive independent of the other. Of course, nature might well survive the ravages of both economy and society, but it likely would be a nature incapable of sustaining contemporary human society.

The hierarchy of sustainability arises from the source of organizational principles or rules of by which the system as a whole functions. The concept of ecology presumes there are inviolate rules of nature -- a higher order of things within which all else, including human society, ultimately must find harmony. The economy is a creation of society. Thus, society sets the rules by which an economy must function. Thus, there is a natural hierarchy among ecosystems, social systems, and economic systems. Violation of this hierarchy principle is neither impossible nor uncommon, but continual or egregious violations quite simply are not sustainable.

Thus, the natural hierarchy among ecological, social, and economic systems should be reflected in the new bill of rights. The rights of society must first conform with our ethical and moral responsibilities to humanity – not to degrade or destroy those things upon which the future of humanity depends. Only within this context can we meaningfully realize and sustain societal rights – to be a part of a caring, sharing, civil, and productive society. Our economic rights, in turn, can be sustained only within the context of our societal rights. Thus, issues of conflict can be resolved, conceptually, by relying on this natural hierarchy. The challenge of translating the concept into reality may prove far more difficult.

Economics of Sustainability

The economics of sustainability must evolve from the hierarchy of human rights and responsibilities. Theories must be developed which are consistent with the long run sustainability of humanity, not just with short run profit and growth. Current economic theories were developed for a mostly empty, disconnected world, but the world is rapidly becoming full and interconnected. As stated previously, the old assumptions are no longer valid. A new economics, based on new realities, is needed to help ensure the sustainability of human society.

The new economics will require years, if not decades, of intellectual development. However, a few examples of what is needed may demonstrate the general nature of the task.

- Theory of utility and preferences: Conventional preference theory deals only with demand for consumer goods and services. Utility and preference theory needs to be expanded to deal with social and spiritual values as well – the value of belonging, being a useful member of society, and fulfilling one’s responsibilities. Conventional utility theory assumes tastes and preferences are given. One’s tastes, preferences, and sources of satisfaction are inevitably impacted by one’s cultural, social, ecological, and economic environment. Economic theory is needed to guide the process of shaping tastes and preferences so humanity may find harmony, rather than conflict, with the higher ecological and social orders of things.
- Consumer behavior and demand theory: Conventional demand theory deals only with the person as a consumer or a producer of goods and services for consumption. The quality of one’s life may be
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impacted far more by the fundamental nature of one’s work and one’s environment than by the amount of income and level of consumption one is able to support. Dignity of work, equity of opportunity, morality and ethics are important aspects of one’s overall well being – as are beauty and harmony with nature. Consumer behavior and demand theory should become people behavior and quality of life theory. Material goods and services, social relationships, and moral and ethical behavior should be considered as complements, rather than substitutes, in satisfying the physical, mental, and spiritual needs of people.

● Production and resource allocation theory: Production economics assumes that competitive markets provide the model for optimum resource allocation. And deviation from a free market outcome is dealt with as a market failure. Markets are fundamentally incapable of allocating resources so as to ensure long run sustainability. Markets treat technology and resources as substitutes, whereas in the long run they are inherently complements. Treating factors of production as complements, rather than substitutes, and most "consumer" alternatives as complements, rather than substitutes, should lead to some new and interesting economic hypotheses. Current market allocation of land and other natural resource uses causes non-renewable inputs to be used up at a greater than optimal rate. Sound economics must guide the processes of consensus and public choice in developing conditions, if not replacements, for market allocation of natural resources.

● Market organization and theory of the firm: Conventional price theory begins with the perfectly competitive model and compares performance of other market structures to perfectly competitive norms. Consequently, performance is measured almost exclusively in terms of price, output, and innovation. If a single-firm industry generates continuous growth in output at the lowest possible prices through constant innovation, it may be deemed economically efficient, regardless of its impact on the natural or human resource base or other extractions from society needed to maintain its growth. Current domination of the economy by multinational corporations makes a mockery of existing economic theory of the firm. New organizational theory is needed which bases performance on long run sustainability rather than short run exploitation.

● Theory of Distribution: Conventional distribution theory deals primarily with market allocation of returns to factors of production: land, labor, capital, and management. Being the foundation for capitalism, conventional economics implicitly assumes capital is the ultimate limiting, and thus the most valuable, resource. Financial performance of the firm is measured in terms of returns to capital. For example, wages paid to labor and salaries paid to management are viewed as “costs” rather than "returns" to the economic enterprise. Corporations are justified on the grounds of facilitating capital investment and accumulation, with little apparent regard to the resulting distribution of rewards among land, labor, capital, and management. The new distribution theory should deal explicitly with the moral, ethical, and social issues. Distribution theory should not only deal with distribution among factors of production, but also, with distribution of rewards among people – the holders of land, labor, capital and management – while enhancing harmony with nature and spiritual integrity.

● Economic welfare and general equilibrium theory: Conventional economic theory derives the aggregate economy by summing across the individuals and firms that make up the economy. There is no economic sense of possibility of the whole being different from the sum of the parts. Resources are distributed so as to attain the maximum sum of individual consumers’ utility using the minimum sum of individual resource costs. Nothing in conventional economic logic ensures that maximum economic welfare, in fact, will not destroy the interpersonal fabric of a society or destroy the integrity of interdependent resource relationships which sustain natural ecosystems. The new theory of economic sustainability must embrace the concept of a holistic human society and a harmonious relationship of humanity with nature.

Sustainability will require new economic theory, from the ground up, not just a reworking of the old. For example, when one starts from a foundation of basic human rights, it should be obvious that a corporation is not a human, and thus, has no rights. All social, ecological, and economic rights must be derived from basic
The Case for an Economic Bill of Rights

human rights. The hierarchy of basic rights also should make clear there is no right to degrade natural ecosystems, and thus, no such right can be bought or sold in the market place. Market systems must be disciplined to be supportive of the natural environment. Manipulating markets to sustaining nature will be no more successful than manipulating animalistic instincts to achieve a civil, moral society. Both require placing high value on uniquely human traits such as voluntary acceptance of responsibility, caring for and sharing with others, finding harmony with some higher, unseen order of things. Conventional economics treat people as little more than sophisticated animals, driven solely by short run self-interest and greed. Sustainability demands that we exhibit behaviors that are uniquely human – including the ability to anticipate future consequences of actions based on abstract thinking rather than previous experience.

Human progress cannot be measured in dollars and cents. It makes no ethical or moral sense to put prices on natural resources or the lives of people as if they were basic economic commodities. The dignity and integrity of nature and people must be protected from the market, even while markets are utilized to facilitate effective allocation are allowed to price their services – within the framework of a sustainable bill or rights. Natural and human services, once priced, will be treated as commodities rather than the source and essence of life itself. Those who have the most money will get to use the most. Nature and people will be used up and discarded. We must have an economic theory that treats nature as something sacred and people as something special. We must design an economy that supports society and a society that supports nature, if any of the three are to be sustainable over the long run.

References


Toward an Economics of Sustainability

John E. Ikerd
University of Missouri
May, 1997

PREFACE

The question of sustainability has become an important economic, political, and social issue. Major international conferences have been held to discuss the issue of global sustainability. A President’s Council on Sustainable Development was formed to address sustainability questions confronting the United States. After nearly a decade of indecision, the U.S. Department of Agriculture has officially embraced sustainable agriculture as a priority issue for the future. Questions of sustainability has also become commonplace both in professional publications and in the popular media.

Economists have remained one of the most reluctant groups within the scientific community to address the issue of sustainability. Economists tend to treat sustainability as a resource economics issue, a public policy issue, or an economic development issue. The economics of sustainability is treated pretty much as the "economics of externalities", even by most contributors to the new international Journal of Ecological Economics. Even more significant, the issue is largely ignored by most people in the economics profession.

Why are economists reluctant to recognize sustainability as a major public and professional issue? Perhaps because the concept of sustainability is fundamentally incompatible with conventional economic theory. The study of "sustainability" will require a new, more inclusive theory of economics. Daly and Cobb, Capra, Berry, and others have pointed out some of the limits of current economic theory in addressing sustainability issues. Most such critics of economics, however, have suggested changes in public policy as a means of addressing this new class of "market failures". Some have questioned the foundations of economics as a science (McCloskey), but despite claims to the contrary (Daly, Common and Perring); no one has suggested writing a new theory of economics. New theory, rather than new public policy based on old theory, will be needed to guide humanity toward sustainable development. The purpose of this paper is to outline a case for developing such a theory -- an "economics of sustainability."

The concept of sustainability is far broader than conventional economic theory. Daly and Cobb refer to conventional economics as "chrematistics" -- the "manipulation of property and wealth so as to maximize short-term monetary exchange value to the owner". Sustainability is also broader than current ecological or social theory -- it includes "chrematistics". But sustainability is quite consistent with the root-word for economics, "oikonomia" -- "management of the household (community, society, humanity & biosphere) so as to increase its value to all members over the long run" (p. 138). Daly and Cobb propose an "economics of community", which they would achieve through changes in government policies. The proposal put forth in
this paper, instead, is to develop a new theory -- sufficiently broad to encompass "oikonomia", for the purpose of guiding sustainable, long run human progress. New policies could then be built upon this new theoretical foundation.

No attempt is made in this paper to develop the new theory. If such a theory is to be developed it will take scholars (perhaps many scholars), writing books (perhaps many books), over years (perhaps many years). But, a "journey of a thousand miles begins with a single step" -- so states the old proverb. The objective of this paper is to lay the foundation for that "first step".

This is not a scholarly paper, at least in the conventional sense. It does not include an extensive review of literature nor is it heavily referenced. This paper is a product of a long intellectual journey. There was no initial intent to take this trip or to arrive at this destination. Thus, no journal was kept to document either the route taken or the many people who have unknowingly provided guidance along the way. Ultimately, the journey may need to be retraced. But for now, I will simply not claim anything here to be original with me. I quite likely discovered it all in the work of someone else. All I have done is rearranged it. I will cite specific sources in the text -- in cases where I can recall them and find them. I will also provide a reference list at the end with as many sources as I can remember that have added significantly to my thinking. For now, I only hope to provide a compass for more scholarly works that might follow.

Toward an Economics of Sustainability
John E. Ikerd
University of Missouri
January, 1997

The Issue of Sustainability

Sustainability is a long run, people-centered concept. There have been many attempts to define sustainability, but most are rooted in the general concept of intergenerational equity. Sustainable development, as used in this paper, means meeting the needs and wants of people of the current generation while leaving equal or better opportunities for people of generations to follow. What is to be sustained? -- development of resources: natural, human, and economic. What is the purpose of development? -- positive change or human progress, not necessarily growth in numbers or size. Who is to benefit from such development? -- people of the current generation and of generations to follow. For how many generations is development to be sustained? -- for all future generations, forever. Thus, sustainability is about sustaining a desirable quality of life for people, forever.

Some find fault with the anthropocentricity -- human-centeredness -- of this definition. However, if we are not concerned, uniquely, with sustaining progress of the human species, there is no management issue to be addressed. We can simply depopulate or otherwise reduce human claims on resources to a point where the sustainability of other species is no longer in question, or at least is not threatened by humans. However, human nature is not unlike the nature of...
other species, in that we humans have an innate instinct for survival, reproduction, and self-gratification.

We will not reduce our claims on resources for the sole purpose of ensuring the sustainability of other species. But, we will do so if we perceive it to be in "our" best interest. The fact that we are concerned "uniquely" with sustaining the human species does not imply that we are concerned "exclusively" with sustaining the human species. Unlike the economics of "chrematistics" might imply, "our" best interest is not exclusively individualistic in nature. Our interests as members of society and as members of the human species are linked with self-interest through "oikonomia". Thus, "our" interests may well be served best through sharing and stewardship, including preservation of other species, rather than through expressing individual human greed -- through "oikonomia" rather than "chrematistics". However, we have no conceptual road map, or theory, to guide us from "chrematistics" to "oikonomia" in the pursuit of "our" best interest.

The issue of sustainability is rooted in a set of questions: is our economy sustainable, is our society sustainable, is human life on earth sustainable, is the earth sustainable?... if we continue to pursue the goals of conventional economic development. Many have answered these questions -- no! They believe that we are on a road that can lead only to total depletion of the natural resource base and ultimate destruction of the human species. Others answer the question -- yes! They believe the pursuit of short run profits through responding to consumer preferences is the only logical means of optimizing resource allocation, and thus, sustaining human progress.

Sustainability, as a consequence of its long-run nature, will remain a question with no definite answer, a direction without a precise destination, a process without a final product. We can never know with certainty whether any particular approach, method, or activity is sustainable or not sustainable. Just because something has been sustained until now, does not mean it can be sustained forever. Just because something has not been sustained up to now, does not mean that it could not have been sustained, until now and into the future. We cannot prove empirically that anything is or is not sustainable in the long run. The long run is forever.

What we can do is make logical, informed judgments concerning the "likelihood" that something will or will not be sustainable. However, even here, there is no general agreement concerning the logical foundation for making such judgments. The believers in the economics of "chrematistics" see no limits to growth. They believe, implicitly, that human ingenuity is infinitely substitutable for limited natural resources. Thus, production and consumption of economic goods and services can continue to grow indefinitely. If such is the case, there is no legitimate question of sustainability. Human development is sustainable, by assumption.

However, the emergence of sustainability as a major public issue reflects a fundamental challenge to the assumption of unlimited growth. Concerns for sustainability are not rooted in scientific observation, even though the growing abilities of humanity to degrade the natural
resource base and to wipe out large segments of human society clearly are observable. Those
who are concerned about sustainability "believe" we must find better ways of utilizing our
natural and social resource bases in order to sustain human progress on earth. They believe
these resources are finite, and thus, ultimately will limit growth in human consumption. They
reject the belief that science and technology will yield substitutes for depleted resources,
including extinct biotic life forms. They reject the belief that fundamental laws of nature
ultimately can be repealed through human ingenuity.

We must recognize that conflicting "beliefs", not conflicting "facts", are at the root of the
sustainability issue. Conventional economic theory is rooted in the "belief" that there are no
limits to growth. The sustainability issue is rooted in the "belief" that there are limits to growth.
Neither "belief" can be proven to be true or false.

McCloskey calls the Modernistic view that underlies current economic thinking a "revealed, not
a reasoned, religion" (p. 6). It is believed that maximization of profits and consumer satisfaction
in an open-market economy is consistent with maximization of human well being, and that
market failures can be corrected through public policies. The economics of sustainability is
based on a different belief system -- a belief that short-run maximization of profits and individual
consumer satisfaction ultimately will deplete both the natural and social resources upon which
human well being and survival of the species depend.

According to Einstein, problems cannot be solved at the same level of thinking that lead to their
creation. If so, problems arising from "old" economic thinking cannot be solved using "old"
economic thinking. A "new" economics of sustainability cannot be derived from the economics
of the "old" belief system that is at the root of most sustainability issues. It must build from the
ground up, starting with a new belief system.

Inadequacies of the "old" economics

The inadequacies of the "old" economic theory in addressing issues of sustainability have been
fairly well documented by others writing in reference to ecological economics, sustainable
agriculture, and related issues. However, a rehashing of some of the deficits of the old theory,
with some extrapolation and syntheses, may provide a useful preface to developing a
conceptual framework for its proposed replacement.

The "old" economics is an extractive science. The discipline of economics addresses the
allocation of scarce resources among competing ends. It deals with the transformation of basic
resources into consumer goods and services. All the old economics is capable of doing, even
under the ideal assumptions of perfect competition, is to ensure that resources are "used up" in
ways (i.e. allocated to uses) that accurately reflect the tastes and preferences of individuals as
consumers. There is nothing in economics that ensures the regeneration or sustainability of the
stocks of resources, either natural or human, which are required to support production of
consumer goods and services for current and future generations.

The "old" economics is a unidimensional, consumptive science. There is nothing within economic theory that reflects human values in terms other than people as consumers or as producers of goods for consumption. Society, the environment, and even preferences for non-consumption goods are considered as external to the economic decision making process. Economic decisions concern the allocation of resources among consumptive uses. Consumer tastes and preferences, societal restrictions or regulations, and environmental constraints are all taken as given. Generation of human satisfaction through social interactions and through resource stewardship is beyond the scope of the "old" economics.

The "old" economics is a science for managing scarcity. Resources have no "economic" value unless or until they become scarce. Economics provides no guidance in the use of vital resources, such as air and water, until they are degraded in quantity and quality to a point were they become scarce. For example, direct payments for water are mostly payments for the convenience of having water when and where we want it. Historically, economics allocated the use of convenience but not use of the water. Drinking water was free to be wasted -- it had no economic value -- until it was polluted and thus became scarce.

The "old" economics is a reductionist science. It assumes a world of separability. Economic theory does not exist in the absence of the term "ceteris paribus" -- other things held constant. The most fundamental "law" of economics, diminishing marginal returns, is meaningless without the assumption of "ceteris paribus." Economics is fundamentally incapable of addressing issues of interconnectedness in a "holistic" world. In a world made up of "wholes" rather than "pieces", we cannot do one thing without affecting something else. There is no "ceteris paribus". We must learn to manage the whole rather than tinker with its parts. Perhaps the most naive "ceteris paribus" assumption in the whole of economics is: that one may manage those things called "economic" without simultaneously and unavoidably impacting those things called "social" and "spiritual" as well.

Finally, the "old" economics paradigm is based on times past, which are reflective neither of the present nor of the likely future. Adam Smith’s economic paradigm of the "invisible hand" probably was a fairly accurate representation of how the world worked 200 years ago, and perhaps was not too bad a model until a few decades ago (see Brewster). Most economic enterprises were small, family operations. Land, labor, capital, and management all resided in essentially the same entity. Few enterprises were large enough to have any impact on the marketplace as a whole. Price signals were clear because connections between producer and consumer were simple and often personal. Human populations were small enough and technologies were such that it seemed as if people could have little permanent impact on their natural environment. Strong cultural, moral, and social values dictated norms and standards of "acceptable" individual behavior. Under these conditions, the "invisible hand" may well have guided the pursuit of individual self-interest to the benefit of society, at least for the current generation.
But the paradigm of 200 years ago holds little resemblance to the world of today. Today, most sectors of the U.S. economy, for example, are dominated by large corporate enterprises. Corporations are not only non-family but are non-human entities, regardless of the nature of their stockholders. The resources of land, labor, capital, and management are now separate, not just among households and organizations but, in many cases, among nations. No longer can one assume that people in their roles as laborers or managers will be accurately rewarded in relation to their contribution to the productivity of land and capital. Corporate profits are far larger than any concept of "normal" profit envisioned in classical economics. For example, a 1995 congressional study of the U.S. breakfast cereal industry reported corporate profits ranging from 24 to 43 percent annual returns on equity for the four largest corporations. While such profits may or may not be "sinful", they most certainly distort the allocation of resource use so as to cripple, if not amputate, Smith’s "invisible hand".

Producers and consumers have become disconnected, geographically and conceptually, as a consequence of specialization, mechanization, and development of complex systems of mass production and distribution. Consumers no longer have any personal knowledge of where their products come from or of who is involved in their production. They must rely on a complex set of standards, rules, and regulations to ensure that performance of a good or service will be consistent with some minimum expectations formed at the time of purchase. Today’s advertising consists of "disinformation" by design. Most people involved in current production processes, including dispassionate stockholders, have little individual control over the ability of final products to meet consumers’ expectations nor are they committed to the long term success of the economic enterprises in which they invest. They expect to shift their investments and employment with shifts in a company’s ability to generate profits and growth.

Actions of people in pursuit of self-interests are no longer ecologically benign -- if they ever were. The pressures of growing populations and rising per capita consumption are now depleting resources of the land far faster than they can be regenerated by nature. Wastes and contaminants from human activities are being generated at rates far in excess of the sink capacity of the natural environment to absorb and detoxify them. The thin layer of topsoil that supports production of food and fiber has been eroded away far faster than it has been, or ever could have been, regenerated by nature. Attempts are rarely made to recreate old forest ecosystems, but instead to maximize short run economic value of fiber production in places where old growth forests once stood.

Fossil fuels, the engine of twentieth-century economic development, are being depleted at rates infinitely faster than they can ever be replenished. Environmental pollution, a direct consequence of "economic development", is degrading the long run productivity of land, water, and air resources. Human population pressures are destroying other biological species, upon which the survival of humanity may be ultimately dependent. The current rate of species extinction is unprecedented -- except possibly during geologic events now characterized as global disasters. The human species is now capable of destroying almost everything that makes
up the biosphere we call Earth, including humanity itself.

Cultural, moral, and social values now seem to present few constraints to decisions of self-interest. Free market societies appear to have become convinced the "invisible hand" is quite capable to turning the "greatest individual greed into the greatest societal good." Government intervention is expected to correct any market failures through laws and regulation. So any action that is legal and profitable is considered to be "good" for society. Cases of differences in opinion with respect to legality are settled in the courts. People appear to feel no moral responsibility to pursue the common good beyond obeying laws and responding to markets. Confidence in the "old" economics seems to be peaking, just as it is losing any relevance to reality. One reason the "old" economics "worked" was that it was not trusted. Decisions were constrained by social norms and ethical values. Eroding social norms and values have been correlated with a growing belief in the "goodness of greed" -- perhaps reflecting more than mere coincidence.

Economics of Sustainability

So where do we begin to develop the "new" economics?

Axioms. All theory is based on axioms. Webster defines an axiom as "a maxim widely accepted on its intrinsic merit, or a statement accepted as true as the basis for argument or inference". The following are proposed axioms for a new theory of economic sustainability.

- To sustain a desirable quality of life is the basic purpose of all human endeavors.
- A dynamic balance among inseparable ecological, social, and economics dimensions of quality of life is necessary for its sustainability.
- Energy, the essence of all biological life, is finite in quantity and availability.
- The capacity of the natural environment to absorb and detoxify waste is limited.
- Solar energy and human life are linked through non-human, biological processes.
- Nature and humanity are linked through spiritual, as well as, physical bonds.
- Humans are a social species, and thus, are inherently interdependent.
- The purpose of an economy is to facilitate mutually beneficial relationships among people and between people and their natural environment.
- People of any future generation have a basic right to opportunities for a quality of life equal to or better than those of any current generation.

Paradigms. Theory, according to Webster, refers to "a body of theorems presenting a concise, systematic view of a subject". So defined, a theory should include a body of theorems which constitute a paradigm, a mental model or mind set, that can be used to guide actions or decisions. According to Joel Barker, a paradigm should do three things: (1) establish boundaries, (2) establish goals, and (3) establish rules.
The "old" theory of economics describes a paradigm for economic decision making. First, the old boundaries separate the decision-maker from society and the natural environment. The decision-maker is impacted by and has impacts upon society and the environment, but these things are clearly "outside" of the boundaries of decision making. Otherwise why would economists refer to social and environmental impacts as "externalities?"

Second, the goal of the "old" economic paradigm is to maximize consumer utility or usefulness from scarce resources. The production objectives assumed to lead to this goal are maximum profit and growth. Profits and growth are considered to be a reflection of success. Losses and decline are considered to be failures.

Third, the rules of the "old" economic game are defined by constraints to maximization. Anything that is possible and legal is OK -- and should be pursued if it maximizes profits and growth. It is assumed that consumer utility or satisfaction is maximized also through this process of constrained profit maximization.

The "new" economics of sustainability represents a different paradigm. It has different boundaries, different goals, and different rules.

First, society and the natural environment are "inside", rather than "outside" the boundaries of the sustainability paradigm. Social and environmental strategies are just as important as economic strategies in ensuring long run sustainability. Thus, society and the environment must be considered a part of, rather than apart from, the whole that is to be managed.

Second, the goal of sustainability is to ensure opportunity for a desirable "quality of life" for those of the current generation and of all generations to follow. Quality of life has inseparable ecological, social, and economic dimension. Thus, the three are but different dimensions of a single holistic goal (see Savory). Over the long run, systems cannot be ecologically sound unless they are also economically viable and socially responsible. They cannot be economically viable unless they are also ecologically sound and socially responsible. They cannot be socially responsible unless they are also economically viable and ecologically sound. All are necessary and none, alone or in pairs, is sufficient to ensure sustainability. All three are essential dimensions of the goal of sustainability.

Finally, the rules of the sustainability paradigm are the laws of nature, including human nature. A desirable quality of life cannot be sustained if the laws of nature are violated. Thus, the laws of nature, including human nature, define the constraints within which sustainability must be achieved. The fact that something is possible and legal does not imply it is right. The new paradigm includes inviolate, "true north" principles of physical, social, and spiritual relationships upon which a sustainable human society must be based.

An obvious question at this point might be: Why develop a new theory of "economics" rather
than a generic theory of "sustainability?" The answer: a theory for "management" or "human decision making" for sustainability is an "economic" theory of sustainability. The fundamental purpose of an economy is to facilitate interactions among people and between people and their natural environment. Whenever people move beyond isolation and self-sufficiency, they become involved in the "economy." Under the "old" economics, non-transactional interactions among people and between people and their natural environment were deemed non-economic. But, when economics is expanded to mean "oikonomia" (management of the household, community, society, humanity, and biosphere so as to increase its value to all members over the long run), it must include "all" interactions within society and between society and the environment.

Models. "Old" economic models are based on principles of Newtonian physics (see Capra). They are mechanical models expressed in mathematical symbols or graphics. The underlying assumption is that economic phenomena can be expressed by precise relationships, as in the relationships among different parts of a machine. Even stochastic models are based on assumption that "precise" relationships exists. Probabilities are assigned to the likelihood that we have or have not been able to define that precise relationship through our scientific observation.

"New" models of economic sustainability must be built upon a different set of principles. For example, economic, ecological, and social dimensions are inseparable dimensions of the same whole or the same organism. This axiom, among others, precludes the mechanical separation of sustainability into component parts. In addition, when sociological and ecological processes become central to economics, the proposition that economics can be reduced to a series of equations and graphs becomes indefensible. Societies and ecosystems are living organisms, not machines. Consideration of the spiritual goes even beyond the living. A strong case can be made for using Quantum rather than Newtonian models for living systems (Capra). The "newer" theories of Quantum physics seem much more appropriate for modeling the "new" economics.

Does it really matter whether or not we use biological rather than mechanical models in matters related to sustainability? Some common sense illustrations of fundamental differences between mechanical and biological systems seem to indicate that it does matter. First, if a critical part breaks on a machine, -- say a piston goes out in a gasoline engine -- the engine stops. But you can replace the piston and start the machine again. It runs as good as before. If a critical "part" breaks in a living organism, -- say a heart stops beating -- the organism dies. You can put a live heart in a dead carcass, but it won’t come back to life. It is dead, forever. If a living organism gets sick, however, and you correct the basic problem, the organism will heal itself. It will become well again on its own. If a critical part is wearing out on a machine, it doesn’t fix itself, even if you fix the problem that is causing the wear. Eventually, you have to fix it. Finally, living organisms are self-regenerating. Given an opportunity, they reproduce by nature on their own. Machines are fundamentally incapable of reproducing themselves.

These analogies might seem trivial at first, but they all relate directly to the fundamental issues.
of sustainability. A mechanical world is not sustainable; a biological world just might be. Thus, logic would seem to dictate that the new economics of sustainability be developed using biological or organismic models rather than mechanical models.

The theories of quantum physics relate specifically to the nature of phenomena at the atomistic level. However, if quantum theories are valid, all phenomena at all levels of organization are interconnected, and thus, all things true at the atomistic level are true of all higher and lower levels of organization. Some important characteristics of Quantum-based models include the following:

- Objects do not have properties independent of their environment. Relationships or interconnectedness determines reality. Thus, everything is site and situation specific -- some interconnections are just weaker than others are.
- All phenomena are dynamic. It is impossible to isolate cause and effect, even in cases of obvious correlation. Variables are neither independent nor dependent, but are interdependent. Intervention, rather than initiation, is the engine of change.
- We cannot observe anything without changing what we observe. "Facts" are a function of human consciousness. Our assumptions about the nature of phenomena actually shape the phenomena we observe.
- Sustainable systems trend toward dynamic equilibrium, continuous oscillation between polar opposites, not toward some steady state. Dynamic balance is the essence of quantum equilibrium.
- Phenomena are "chaotic" and subject to sudden "quantum" changes. But there is order within the chaos.

For things "obviously mechanical", interconnections are weak, dynamics are indiscernible, and order dominates chaos. For such phenomena, mechanical models work well. However, for things "obviously biological", interconnections are strong, dynamics are undeniable, and chaos often seems dominant over order. Economic systems would seem to fall far closer to the biological or organismic end of the continuum. Mechanical economic models may have been marginally acceptable for short-run profit driven decisions. However, long run sustainability issues seem to demand an organismic approach to economics.

Based on the axioms and principles above, an organismic model of the economic sustainability paradigms is presented as a starting point for developing new economic theory (Figure 1). The primary purpose is to illustrate what a biological model of economic sustainability might look like and how it might differ from the "old" mechanical model of economics.

First, focus on the elements of the systems model within the "old boundaries" of economics. The SEE-QOL circle represents "consumers" and the PFH-ECAP box represents "producers" in traditional economic terms. Note the typical flow of goods and services from producers to consumers and the flow of inputs (labor, management) and investments (land, capital) in the opposite direction. The "delay" or break between "investment" and the resulting flow of goods.
Society and the environment affect consumers both directly and indirectly through the economy. But only the indirect impact (through ECAP) is part of the "old" economics. The extractive impacts of the production on social capital (SOC-CAP) and ecological capital (ECOL-CAP) and the direct impacts of society and the environment on consumers are all "externalities" -- are outside the old economic boundaries.

The environment and society become part of the "old" economy, only at the point were ecological capital is converted to physical capital (P), social capital is converted to human capital (H), and the two are combined with financial capital (F) to produce economic capital (ECAP). The purpose in accumulating economic capital (ECAP) is to enhance the extraction process, not to rebuild long run social or ecological capital stocks. The rebuilding and depletion of long-run ecological and social capital stocks is external to the "old" economic system.

The SEE-QOL circle represents "people" rather than "consumers" in the "new" economic model. SEE-QOL is used to signify that quality of life has economic, ecological, and social dimensions, whereas the terms consumer and producer relate only to the economic dimension of people. Note also ecological and economic investments go from "people", rather than the producers, to rebuild ecological and social capital. Social and ecological investments are not a part of the "old" economics, but are critical aspects of the economics of sustainability.

Social and ecological capital stocks are included within the "new" economic boundaries because they must be managed to ensure sustainability. Thus, the extraction of economic capital from ecological and social capital also takes place within the new boundaries. Economic capital is extracted from ecological and social capital anytime physical and human resources are combined with financial capital and converted into an economic good or service.

Figure 1. Economics of Sustainability Paradigm
SEE-QOL: Social, Economic, Ecological: Quality of Life
PFH-ECAP: Physical, Financial, Human: Economic Capital
SOC-CAP: Social Capital
ECOL-CAP: Ecological Capital

There are no flows directly from the economy to either ecological or social capital. Direct economic investments in human capital and environmental protection are internal investments.
made only to enhance the extractive process. One might argue that producers in the old economic model actually do invest in ecological and social capital. For example, many corporations invest voluntarily in environmental protection and community betterment projects. However, such investments must have a quantifiable, expected payoff to be a rational economic investment under the old assumptions of rational economic decision making. In addition, the expected payoff must exceed the expected investment -- appropriately discounted for risk and time preferences. The sum of expected extractions must exceed total investments. Intentional net addition stocks of ecological and social capital are not "economically rational". Thus, any actual net additions to social or ecological stocks are coincidental rather than intentional.

Investments in economic and social capital in the new model are motivated by incentives other than individual self-interest. A positive net QOL payoff is expected, but the "direct" payoff from their investment may well accrue primarily to other people at various times in the future. The new economics assumes people realize that current social and ecological benefits result from "collective" investments made by "communities" of people both of current and of past generations. Thus, we feel a "need" to invest for the benefit of others of current and future generations. The direct benefits of such investments are reflected in our ecological, spiritual and social quality of life rather than in economic returns.

Ecological and social investments fit a "chaotic" model of decision making. General "patterns" of investment-reward cycles are clear and definite, but linkages between individual investments and individual returns are chaotic, unpredictable, and thus not subject to rational "economic" decision making. Spiritual and social investments are based on a collective faith and confidence that those who do the "right thing" will somehow be rewarded at some time-- not on calculated, discounted net cost-benefit ratios. The faith and confidence in the "rightness" of the decision generates its own reward.

One of the most important differences between the "old" and "new" economics is not readily apparent in the flow diagram. In the "new" economics, it is impossible to isolate cause and effect. Price is neither a function of quantity, nor quantity a function of price. Both are interdependent with feedback loops in both directions. This new assumption seems far more consistent with the logic of supply and demand. The practice of defining quantity as a function of price gained acceptance only because it made no less sense than defining price as a function of quantity. We felt we had to do one or the other. "New" economic models are dynamic. Cochrane's "technology treadmill" seems far more consistent with Senge's approach to dynamic systems modeling than with the comparative static models of economics. "New" economic models are interconnected through time and across space. Cycles in prices of commodities and in general economic activity seem far more consistent with an organismic, rather than mechanistic, model of economic activity.

The delays in flows between "people" and stocks of social and ecological capital (in both directions) imply unpredictable linkages -- ranging from short term to multi-generational. Many of the benefits currently derived from social and ecological capital come from investments made
decades, centuries, or eons in the past. Current investments in ecological or social capital likewise may occur at distant times in the future. But, if investments consistently fall short of withdrawal, social and ecological stocks will most certainly be depleted over time. People make such investments as sustainers of humanity, not as short-run maximizers of individual self-interest. The old economic processes of discounting future costs and benefits and calculating net present values are simply irrelevant in making such investments. Under the old economics, decisions made solely to sustain humanity are considered to be irrational.

Ecological and social capital stocks are replenished by natural self-regenerating processes as economic extraction and direct flows of benefits to people deplete them. The natural biological process of resource regeneration -- the continual conversion of energy to matter and matter to energy replenishes ecological capital. In addition, solar energy, the only "outside" source of energy continually adds to stocks of ecological capital. Social capital stocks are regenerated through culture, the natural human tendency to pass on knowledge and wisdom from one generation to the next. The natural regeneration processes, however, are outside the "new" boundaries as well as the "old". The laws of nature are "outside" of the realm of human control or management. These laws are the rules under which new economic system must be sustained.

Sustainability requires that the stocks of ecological and social capital be maintained. Thus, the total of direct and indirect extraction cannot be sustained at levels in excess of levels of regeneration. The balance of intentional extraction minus intentional regeneration - those flows within the "new" economic boundaries - cannot be sustained at levels that exceed the rate of natural regeneration. In the past, when people were geographically separated into more or less isolated societies and when total human impacts on the ecosystem were small, there was little cause to be concerned about global resource depletion. If one society fell into social depravity and destroyed its local resource base, it would decline and die out. Each society would be succeeded by another, which had built and maintained its ecological and social capital.

Economics did not make people self-destructive, but it gave them added incentives and better means of pursuing this aspect of their basic nature. Consequently, today there is now growing evidence of global ecological and social capital stocks being depleted at rates far in excess of natural regeneration rates. A dynamic systems model that recognizes interconnectedness might be used to confirm that the current market dominated economy is locked in a self-generating cycle of accelerated destruction. The "old" economy neither recognizes nor rewards the ecological and social contributions to quality of life. Thus, there is no logical economic reason to intentionally maintain or rebuild stocks of social and ecological capital -- only to convert them to economic capital.

Without reinvestment, the flow of direct benefits to people from society and the environment decline. Consequently, quality of life declines, even as economic returns increase. Increasing economic returns may further distort the SEE balance necessary for a desirable QOL. Declining QOL, in turn, may lead to increases in economic extraction from ecological and social capital.
stocks. People have been led to believe the solution to declining quality of life is greater short-run economic benefits. They don’t realize they need to restore the balance. Thus, most feel they cannot afford to make uncertain, long-term social and ecological investments. But, the more they extract from social and ecological stocks to generate current income, the faster will be the decline in QOL. Declining QOL, in this case, is a consequence of a self-generating deterioration of the SEE balance, rather than a deficit of economic returns.

Even if one argues that the current balance of extraction and regeneration is sustainable, there is little doubt that humanity has the ultimate ability to place demands of the ecological and social capital stocks far beyond their natural regeneration capacity. Thus, it would seem obvious that decisions regarding the balance of intentional extraction and investment must become part of the managerial process if humanity is to be sustained over time.

Ultimately, the rate of "net" ecological resource depletion must be balanced with the inflow of solar energy from the sun. According to the second law of thermodynamics, some amount of energy availability is irretrievably lost with each conversion of energy to matter and matter to energy. Sustainability ultimately requires the loss of energy availability to be no more than the net inflow of energy from the sun. Other biological species represent critical linkages between solar energy and human life. Other species may also be critical to human cultural and spiritual well being. Thus, biological diversity is essential to sustainability.

A simplified model of a sustainable economic system is shown in figure 2. This model shows the interaction of cycles of human needs, production, and maintenance of resource stocks required to sustain production and meet the needs of people. Stocks are referred to as resources rather than capital. The new paradigm represents a conscious attempt to move away from the convention of converting everything into "economic" terms, such as human capital and natural capital, instead using the more neutral term, resources.

Production capacity is interrelated with stocks of economic, social, and ecological resources and available technologies for resource use and regeneration. Investments in technology can enhance, but not replace, the ability of resources to support production and meet the needs of people. In this model, production includes all those things that contribute to quality of life -- economic, social, and ecological. The production process includes recycling and regeneration of resources as well as conversion of resources to direct human use. Wastes are directed to "sinks" for absorption, detoxification, regeneration and ultimate reentry into the productive resource base. But sink capacity, and thus, rate of regeneration, is limited. Delays in various cycles imply the existence of "chaotic" interconnections – the basic organization is stable but precise cause and effect relationships are chaotic.

A sustainable dynamic balance requires that the inflow of solar energy must match the outflow of "entropy" -- the rate at which energy loses its availability. Needs are identified as individual, shared, and spiritual in nature. This designation assumes that "old" economic needs were primarily individual -- the pursuit of self-interest. Shared needs are those needs that are not
unique to any individual but must be realized collectively with some larger community of interest. Spiritual needs are the needs to fulfill one's responsibilities to humanity. These needs correspond to the economic, social, and ecological dimensions of quality of life in figure 1. Human progress is identified as an essential dynamic characteristic of human quality of life.

Figure 2. Sustainable Economic System

<table>
<thead>
<tr>
<th>NEEDS</th>
<th>RESOURCES</th>
<th>ALLOCATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Individual</td>
<td>Economic</td>
<td>Market/private</td>
</tr>
<tr>
<td>Shared</td>
<td>Social</td>
<td>Collective/public</td>
</tr>
<tr>
<td>Spiritual</td>
<td>Ecological</td>
<td>Ethics/rules</td>
</tr>
</tbody>
</table>
Some may question the relationship between ecology and spirituality. However, investments in ecological capital may be correctly identified as stewardship. Benefits of true stewardship do not accrue to the steward, either in total or in part (Beverley and Ott). They accrue to someone else - possibly some unknown entity(s) in some future generation in which the steward may not even have a direct descendant. Such investments are not made unless one feels some "spiritual" responsibility for the future of humanity. Spiritual satisfaction may be associated with one’s religion, but it need not be. It is simply the satisfaction that comes from fulfilling the responsibilities that one "believes" are inherent aspects of being a worthy human being. Those without spirituality will see no logic in making long-run ecological investments.

To be sustainable, entropy cannot exceed the inflow of solar energy over the long run. No one has any concept of how life might be sustained on earth without the inflow of solar energy and receptive mineral and biological systems to capture and transform it into human useful form. In addition, the presence or absence of solar energy is of little human consequence if there is no context of society to give meaning to human life. The economics of sustainability must provide guidance for the holistic management of the ecological, social, and economic resources upon which long run sustainability of humanity depends.

The resource allocation process is identified only in generic terms in figure 2. Economic resources are allocated through private markets to satisfy self-interest and meet individual needs. Social resources are allocated by collective actions producing public goods and services to meet shared or community needs. Ecological resources are allocated by ethics and values, which guide voluntary acts of stewardship, as well as rules and regulations designed to ensure universal compliance. The current amalgamation of laws, which have been designed to produce public goods and services and to enforce ethics and values, will be delineated to link appropriate ends and means. A primary difference from conventional economic thinking is that private markets are not used to allocate social or ecological resources to meet needs that are fundamentally communal or spiritual in nature. Buying and selling rights to pollute makes no more sense than buying and selling one’s right to think, speak, or to move about.

The task ahead is to develop a coherent set of behavioral theorems by which to guide sustainable resource management. One may be tempted to conclude that no such set of theorems can work because human greed cannot be accepted as the primary motivating force for human behavior, that economic needs must take precedent over ecological and social needs, particularly at subsistence levels, and that human wants are insatiable. But these, and other such "truths", are nothing more than "beliefs" of the past that are subject to challenge in the future.

Greed is a powerful human tendency, but no more so than the tendency toward violence as a means of self-fulfillment. Civilized society has rejected violence as a means by which one person may gain an advantage over another -- although we occasionally resort to violence when our efforts to behave as civilized beings fail. Greed just might be relegated to the role of
violence -- once we abandon the old economic notion of the greatest greed leading to greatest
good. In the quantum world, we can’t measure anything without changing it. We may well have
encouraged greed by measuring its consequences and praising its products.

The old theory of hierarchy of needs may be irrelevant in issues of sustainability. The choice of
survival and security over satisfaction may well be short-run phenomena. A baby without love
may have no more chance of surviving to adulthood than does a baby without milk. In fact a
baby with enough love may be far more likely to get enough milk than is a baby with enough
milk to get enough love. Many thoughtful people accept known risks to their personal security in
purposeful pursuit of a higher quality of life through uncertain interactions with other people and
with the forces of nature. Quality of life may well rank higher than does quantity of life.

Finally, it wouldn’t matter that human wants are insatiable if we realized that quality of life is the
product of a healthy balance among its economic, ecological, and social dimensions. Balance
need not imply equality. A dynamic balance may imply greater or lesser emphasis on particular
dimensions at different points in time -- as in the case of other living, growing organisms.
However, balance implies limits with respect to inequities and some sort of averaging out over
time. Problems arise when we get "too far" out of balance or stay out of balance for "too long".
When we are preoccupied with fulfilling any one -- the individual, collective, or spiritual needs of
life -- we tend to lose sight of the need for balance.

We need to stop periodically to reassess and restore the balance needed to sustain a desirable
quality of life. And, the pursuit of balance tends to be self-limiting. Restoring balance allows one
to answer the question: "How much is enough?" When an increased emphasis on one
dimension of one’s life -- individual, collective, or spiritual -- causes a decline in overall quality of
life, "what was-- was enough". The process of maintaining dynamic balance in our own lives will
ensure there is enough left to provide equal opportunities for those of generations to follow.

Conclusion

This paper is but a first small step on, at best, a long and difficult journey. A chapter could be
written about nearly every paragraph in this text. Volumes could be written without covering all
the pros and cons of the issues that have been raised. A whole new set of theorems must be
developed to support a new economics of sustainability. That process was not even begun in
this paper. Some of the propositions put forth undoubtedly will prove unsound. Others may be
under or over-stated. Many potentially important and relevant issues have not even been
raised. The whole process may prove fruitless and a total waste of time. Or it could be a first
step to a "whole new world" of economics.

Should we be so bold and egotistical as to think we might develop a whole new theory of
economics? Perhaps not. Perhaps, we will simply make "fools of ourselves" in the process of
trying. But Susan B. Anthony once said: "Caution, careful people, always casting about to
preserve their reputation and social standing, never can bring about reform. Those who are really in earnest must be willing to be anything or nothing in the world’s estimation”. I also like the words of Margaret Mead who said: "Never doubt that a small group of thoughtful, committed citizens can change the world. Indeed it’s the only thing that ever has."

It is time for a group of committed, thoughtful people, even if our number is small, to risk being anything or nothing in an attempt to "change the world".

AFTERWARD

Initial reviewers of this paper provided several editorial corrections and comments – which have been incorporated into the manuscript. But the reviewers also raised some substantive conceptual issues. Very brief responses to these substantive issues have been added to the text of the paper. However, those responses were kept short to maintain some sense of balance among the many topics covered in the paper in total. More complete responses to the issues raised by reviewers are included in this afterward. Most of these issues were raised by more than one reviewer, indicating a need for elaboration. The intention is to incorporate the more detailed explanations into the text of a longer version of the manuscript at some later date.

Can life possibly be sustained on forever? The stated goal of sustainability is to sustain a desirable quality of human life on earth "forever". Granted, with our limited knowledge, we cannot conceive of being able to sustain life on earth without a continuing inflow of solar energy. Thus, solar-based systems of production represent the current limit to our thinking with respect to means of ensuring sustainability. Perhaps the post-solar phase of human "life" will be spiritual rather than physical in nature. If so, this might explain why spirituality is coming into discussions of physical sustainability – to prepare humanity for post-solar sustainability. Lacking any logical endpoint, the "goal" remains: to sustain a desirable quality of human life on earth "forever".

Will ascribing spiritual motivations to ecological concerns turn a lot of people off – particularly scientists? It probably will. However, the concept seems to ring true to a lot of thoughtful, well-educated people. And, what other explanation is there? There are obvious self-interests and community interests in dealing with environmental externalities which affect the environment today. However, there are no self-interests or community-interests – at least none in which one can share -- in decisions affecting the well being of people three to five hundred years in the future. The motivation here is simply to "do the right thing". Interestingly, doing the right thing for future generations would lead to "economic" misallocation of resources among alternative uses and utilization of resources at less than "economic" optimum rates. Spirituality misguides the "invisible hand".

Some will be concerned that linking spirituality with nature conflicts with organized religions, most of which link man directly to God. However, spirituality is a broad umbrella capable of embracing a wide range of worldviews. The point is not whether one’s reverence for nature comes from a belief in God or one’s belief in God arises from one’s reverence for nature. The point is; concern for intergenerational equity – a cornerstone of sustainability – arises from a belief in things spiritual – fulfilling responsibilities for which there is no earthly reward.

A similar concern relates to whether non-human species should exist only because they are of some value to humans or because they have as much right as do humans to exist. The contention here is that economics of sustainability relates to maintaining a desirable quality of "human" life. But, the quality of human life is inseparable from that of non-human species. In addition, the relationship between humans and other species certainly is not limited to "utilitarian" or "conventional economic" relationships. When spiritual and social values are brought into economics, relationships between humans and other species become much more inclusive.

One can logically "believe" that species with no current or conceivable future "utilitarian" purpose for humans should be protected – simply because it is "the right thing for people to do". Humans may benefit from preserving other species simply because they believe protecting other species is an essential human responsibility. Also, one can be committed to following community standards for human treatment of animals, even though they seem unnecessary or unreasonable to the individual. The feelings of people concerning treatment of animals can provide sufficient motivation for concern about feelings of animals. Enlightened anthropocentricity embraces ecocentricity. The point is; economic decisions are made by humans to benefit humans. Humanity simply should not be expected to commit "intentional" acts against itself.

Why does the paper virtually ignore the issues of macroeconomic and public policy? Macroeconomics and public policy will be important dimensions of the new economics of sustainability. But they will have to be rethought and rebuilt from the ground up -- on a new theoretical foundation of economic sustainability. For example, public policies should not be used to alter market values, through taxes or subsidies, to encourage more sustainable utilization or regeneration of social or ecological resources. We don’t allow people to buy others’ rights to vote nor do we sell "rights" to kill someone. Thus, we shouldn’t design public policy which will allow anyone to buy peoples’ "rights" to equal opportunity, nor should we sell "rights" to exploit resources needed to sustain future generations.

Decisions that are social or collective in nature should be made by means appropriate for public choice, such as voting. Those things spiritual in nature should be dealt with by means appropriate to ensure fundamental rights for all, such as constitutional guarantees. Economically efficient outcomes do not ensure socially responsible or ecologically sound outcomes. Each traditional policy issue needs to be rethought. Is it economic, social, or
ecological? And, it should be dealt with accordingly.

Likewise, macroeconomic policy will need to be totally redirected from the "objective" of maintaining maximum economic growth to the "purpose" of sustaining long run quality of life. Any approach that assigns pseudo-economic values to social and ecological products or resources, and then proceeds to maximize "economic" growth, will be inadequate, if not self-defeating. The imputation of economic values may slow overall rates of resource depletion, or encourage regeneration, but allocation of those resources among competing uses will reflect economic motives, rather than social or ecological motives. Once resources are assigned economic values, they will be treated as if they are economic in nature – which they are not.

The new macroeconomics must be multidimensional in nature – with economic, ecological, and social dimensions. It must deal with balance among, as well as attainment of, things economic, social, and ecological. Thus, the new macroeconomics must be holistic, not just aggregate, in nature. It must promote the sustainability of communities, nations, and the world; as wholes, not just maximize sums of individual self-interests. It must be rebuilt upon a foundation of the new economics of sustainability.

Doesn’t the old economic concept of utility include social, ecological, and spiritual values, as well as economic values? Yes, the economic concept of utility does include everything that affects the ability of a good or service to satisfy the consumer. Economists lump all "non-economic" things together and call them "tastes and preferences". However, economic theory is based on the assumption that tastes and preferences are given or are fixed – in spite of billions of dollars spent each year on persuasive advertising designed specifically to alter tastes and preferences. Changes in prices of goods and services, incomes, wages, and other economic variables cause people, as consumers or producers, to move to higher or lower levels of overall utility or satisfaction. However, any change in utility results from changing the economic variables -- not from changes in the underlying social, ecological, or spiritual values bundled into tastes and preferences. As an analogy, lower prices or higher incomes allow consumers to climb higher up the side of a hill called "utility". But, the hill – a mound of social, spiritual, and ecological stones – remains unchanged.

A better analogy for the economics of sustainability is to compare living with purpose to flying a plane. The old economics gives the pilot control of the throttle – a very important element of control. The throttle – like prices and income – allows the pilot to make the plane speed up or slow down. But on the old economic plane, the flaps and ailerons – like tastes and preferences -- are assumed to be in fixed positions. For any logical fixed position of flaps and ailerons the pilot can make the plane rise or fall by increasing or decreasing the speed of the plane. But, it is difficult to change directions without using the ailerons to tilt the wings and bank the plane into a turn. It is difficult also to take off or land the plane without using the flaps which allow the plane to fly at slower speeds without falling or fly at higher speeds without rising once the plane is in flight. It is not impossible to fly without flaps and ailerons nor is it impossible to fly higher and higher. But you just can’t necessarily get where you want to go, and there is no way to come
A new economics of sustainability would give the pilot flaps and ailerons, in addition to a throttle. It would help people make decisions designed to improve their social and ecological well being as well as their economic attainment. It would help people understand, and find ways to cope with, the pervasive efforts of advertisers to shape tastes and preferences in ways that serve the needs of the promoter but not necessarily the best interests of consumers. Ideally, the new economics should help people balance the economic, social, and ecological dimensions of their lives for an "on-time take-off, a smooth flight through life’s stormy skies, and to a safe landing at their ultimate destination".

Do we need a "new economics of sustainability", or do we just need to quite misusing or fix up the old economics? The old economics would still be a part of the new economics of sustainability. It would be used to guide decisions that are "economic" in the traditional sense – dealing with issues that are clearly self-interest in nature. But, conventional economics should not be "misapplied" by using it to deal with social and ecological issues – which clearly go beyond narrow self-interest.

Even when used appropriately, conventional economics will need to be "fixed". A very valuable function of "free market" economics is "short run" allocation of "private" resources among competing "private" ends. No other mechanism has been found that comes close to matching the economics of self-interest in carrying out this critical role. However, conventional economics cannot perform this function efficiently unless conditions prevail that are at least somewhat analogous to those of perfect competition. No one seller or buyer can be allowed to dominate a market. Buyers and sellers must actively compete, rather than collude. Adequate, accurate information must be readily available to ensure that realizations are in line with expectations. Resources should be used to "satisfy" the wants and needs of consumers, and not to "create" wants and needs so as to increase profits of sellers. The old economics needs to be fixed. But a system built on a foundation of self-interest cannot be "fixed" to make it fit a multi-dimensional, holistic world.

We need a new economics of sustainability because the old economics is fundamentally incapable of addressing the social and ecological issues of sustainability. The old economics is like an old house that has been fixed up over and over with new paint, new siding, new roofs, added rooms, and added stories; but still has the same support structure and foundation. Now, the old beams are rotting and the foundation is crumbling. There is no way to fix it without tearing it down and starting over from the foundation up. This necessity should not be viewed as any discredit to those who have spent careers painting, roofing, and remodeling the old house. They have made due with what they had to work on -- there seemed to be no logical alternative. We all hate to see the old building come down. But, nothing lasts forever. It simply is time to rebuild.

The rebuilding process should begin with a "scholars’ retreat". A small group of people will need
to spend a period time, away from distractions, focused on the purpose of sharing insights and ideas, discussing and reflecting perceptions, refining concepts in this paper and in related works, and moving toward the development of a new theory of economic sustainability.

The group should include scholars with a common grounding in economics, thus facilitating communication, but with a diversity of interests, backgrounds, and perspectives. The group should include scholars who share a commitment to changing old economic paradigms, but whose minds are open to exploring a full range of new paradigms as replacements for the old. This group of scholars will lay the foundation for a new "economics of sustainability".

The tangible product of this retreat might be a book, a series of papers, or both. The retreat may lead to a conference, a series of conferences, a new association, all or none of these. But most importantly, this retreat could plant the seeds that eventually would grow into a new theory of economics. Whether a new "Wealth of Nations" emanates directly from this retreat or is some distant derivative, is not the most important question. What’s important is for the world to realize that the "sustainability" of the wealth of nations depends on an economic paradigm different from the one proposed by Adam Smith. The future of humanity depends upon our ultimately developing a new "economics of sustainability".

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Sustaining the Profitability of Agriculture

John E. Ikerd
University of Missouri

Sustaining Profitability

Over most of the past century, profits from farming have gone primarily to those who found ways to reduce costs first and expand production the fastest. However, each new round of cost cutting technology has resulted in increased production and lower prices, erasing initial profitability. Late adopters have been motivated by survival rather than profitability and chronically declining prices have forced the laggards out of business. A relentless, never-ending search for new sources of profits has been a necessity of survival.

This paper deals with profits from farming, not profits from the whole of agriculture from input suppliers to retailers. However, American farmers have utilized the same basic model as American industry, including agribusiness, in their pursuit of profits. That model is commonly referred to as the industrial model. The fundamental characteristics of the industrial model are simplification, specialization, routinization, and mechanization. Profits through industrialization are associated with such economic concepts as division of labor, opportunity cost, comparative advantage, and economies of scale.

Adam Smith’s Wealth of Nations, the foundation for modern economic theory, was published in the early stages of the industrial revolution. Its ultimate wide acceptance among economists was no coincidence. The economic world view of Adam Smith fit perfectly with the world view of the industrialists. The promise of greater profits provides a powerful motivation for change. The idea that an "invisible hand" would automatically transform individual greed into public good freed decision makers to pursue their narrow self interests, confident they were serving broader public interests as well. Each person could be rewarded most and contribute most by exploiting their individual comparative advantage, whether on farms, assembly lines, or boards of directors. Mechanization removed the drudgery of the most routine tasks by eliminating the economic opportunity for people to pursue such work.

Industrialization of agriculture has consistently lagged behind industrialization in most other sectors, but the process accelerated dramatically in the early 1900s. At that time the potential societal gains from continuing the industrial revolution in the larger society were undeniable. We were still an agrarian society. More than half of the people of this country were either farmers or lived in rural communities, and it took about half of our total resources -- money, time, and effort -- just to feed and cloth ourselves. If we as a nation were to realize the emerging opportunities of the industrial revolution -- to become the modern society we know today -- we had to accomplish two things. First, we had to free people from the task of farming to go to work in factories and offices of the emerging industrial economy. Second, we had to free up income and other resources spent on food and clothing so people could buy the things these new industries
were going to produce. In short, American agriculture had to become more efficient. We had to make it possible for fewer farmers to feed more people better at a lower real cost.

Industrialization allowed agriculture to fulfill its public mandate. Through specialization, mechanization, simplification, and routinization nature was bent to serve the needs of humanity. Farmers gradually harnessed the vagaries of nature and transformed their farms into factories without roofs. Fields and feed lots became biological assembly lines with inputs coming in one side and commodities coming out the other. Economies of large-scale, specialized production were achieved as the principles, strategies, and technologies of industrialization were applied to farming. Publicly funded research and education developed many of those new industrial technologies and strategies and transferred them from the experiment station to the farm.

Through industrialization, American agriculture became the most efficient agriculture in the world, at least in terms of the dollar and cent costs of production. This in turn made it possible for this nation to build the strongest economy in world. The agricultural sector takes just pride in its past successes. But the objectives of industrialization have been achieved. The things that industrialization could do for America have already been done.

Today, less than two percent of the people in this country today are farmers. Today, as a nation, we spend only about ten percent, or a dime out of each dollar, of our disposable income for farm produced food. Equally important, the farmer gets only a single penny out of that dime, while nine cents goes to the marketing and input firms. We now pay more for packaging and advertising that we pay the farmer to produce the food. Future societal gains from the further industrialization of agriculture must be squeezed from the farmer's penny. Food would cost only ten percent less on average if the farmer got nothing. It simply doesn't make much difference to society any more whether there are more or fewer farmers or whether farmers are more or less efficient.

Future profits of farmers must also be squeezed from the "farmer's penny," if they continue to use the industrial model. And, the more they squeeze out, the less there is left to squeeze. Thus, farm profits simply cannot be "sustained" through continued industrialization of agriculture. In fact, farming cannot be sustained if we continue to industrialize agriculture. Stewart Smith points out that if past trends were to continue until the year 2020, there would be no farming sector remaining in agriculture (Smith, 1993). The farming sector would be totally absorbed into the input and marketing sectors.

American farmers must shift to a model or paradigm other than industrialization if there is to be any hope of sustaining profits from farming in the future. Agricultural economists must adopt a model or paradigm other than the traditional economic model if we are to be of any use to farmers in making this transition. The profit maximization model has succeeded in virtually eliminating the potential for future profits from continued use of that model by farmers.
The great transformation

There is hope for sustainable farm profits. Continued industrialization is not inevitable. Peter Drucker, a time-honored consultant of twentieth century industrial managers, believes we are in the middle of a great transformation from an industrial to a post-industrial society. In his book: The Post-Capitalist Society, he states: "Every few hundred years in Western history there occurs a sharp transformation. Within a few short decades, society rearranges itself -- its worldview; its basic values; its social and political structure; its arts; its key institutions. Fifty years later, there is a new world.... We are currently living through just such a transformation." (1994 p. 1). Drucker contends the current transformation began in the early 1970s.

A potential new paradigm for farming profitably in the post-industrial century is emerging from the search for a more sustainable agriculture. Sustainable agriculture has no universally accepted definition. However, one thing is becoming increasingly clear. Agricultural sustainability will require changes far more significant than simply fine tuning the environmental and social constraints of the profit maximizing model of economic efficiency. History will quite likely reveal the most significant aspect of the sustainable agriculture movement to be the emergence of a new mental model, mind set, or paradigm for decision making.

This new sustainable agriculture paradigm demands that we economists rethink some of the fundamental assumptions of our discipline. For example, the assumptions that all rational decision makers maximize profits and thereby promote the public good are obsolete if not outright erroneous. Such assumptions form the foundation for traditional economic analysis of agriculture, whether related to farms, markets, or public policy. The sustainable paradigm is about "balancing" rather than "maximizing." Utility, in terms of quality of life, is viewed as a product of healthy relationships, not just something achieved through acquiring more things.

The fundamental question of economics is the same for the new paradigm as for the old. How can people, individually and collectively, best allocate scarce resources to meet competing ends? The competing ends are the same: alternative sources of satisfaction, utility, or quality of life. It's the conceptual leap from utility to profitability that causes problems. The fundamental economic law of diminishing marginal returns -- in consumption and production -- are unchallenged. However, the nature of causality between price and quantity and the feasibility of "holding other things constant" are questioned. In short, the new economic paradigm for sustainability is being build upon the same conceptual ground as the old paradigm of economic efficiency. But the foundation of our old economic paradigm is crumbling. Remodeling is not the answer. Sustainability dictates that we rebuild from the ground up.

Evidence of emergence of a new paradigm abound in economic sectors outside agriculture. While agricultural economists debate the characteristics of future stages of industrialization, much of the rest of society is already moving into a new post-industrial era of human social and economic evolution. This post-industrial era in not just an extension of industrial age thinking with new biological and information technologies. It is not about producing more things more
efficiently. It is about producing different things, in different ways, for different reasons.

The industrial model of specialization, mechanization, simplification, and routinization seemed appropriate for meeting the needs of its time. Adam Smith's "invisible hand" seemed to guide market economies toward ever greater economic efficiency during the industrial era. However, the industrial era is giving way to a new era of human progress. The profit maximizing model for economic efficiency likewise must give way to a new paradigm -- a paradigm adequate to meet human needs during the post-industrial century.

The industrial model made it possible for societies to rise above subsistence living. It removed much of the drudgery from work and made possible increased leisure time for pursuit of entertainment. But, industrialization appears fundamentally incapable of sustaining human progress. The economic benefits of industrialization have declined as its ecological and social costs have risen. The goal of sustainability reflects a new world view of sustainable human progress. Sustainable agriculture is just one little piece of something far greater that is literally transforming human civilization.

Agricultural economists have much to offer during this great transformation. The fundamental question is whether we help develop a new economic paradigm capable of meeting the challenge agricultural sustainability or continue to drift toward increasing irrelevance as we tinker with ideas whose time have past.

The end of the industrial era

No trend goes on forever. A couple of scientists recently proposed to the world scientific community a list of their "Top 20 Great Ideas of Science." Some of the ideas on their top 20 list were the first and second laws of thermodynamics and the universal laws of motion. But, also on that list was the proposition that "Everything on earth operates in cycles," physical, biological, economic, and social (Science, p.1309). If this proposition is valid, the industrial era will end. The question is not whether but when.

Paradigms, such as industrialization, become dominant because they are found to be capable of exploiting new opportunities or solving problems that previous paradigms could not solve. The industrial era was fostered by a host of interrelated and complex developments, but among the most important was accessibility to large supplies of fossil fuels. However, those fossil energy supplies are being rapidly depleted by an expanding global economy. In addition, industrialization has generated a whole new set of unanticipated environmental and social costs.

Industrial systems historically have degraded their environment and depleted their natural resource base. For example, industrialization has transformed an agriculture created for the purpose of converting solar energy to human-useful form, into an agriculture that uses more non
renewable fossil energy than it captures in solar energy from the sun. In addition, commercial fertilizers and pesticides, essential elements in a specialized, industrialized agriculture, have become a primary focus of concerns for environmental pollution.

Industrial systems also degrade the human resource base. Henry Ford is quoted as once saying the biggest problem in running a factory is that you have to hire whole people when all you need is two hands. Factory farms transform independent decision makers, into farm workers, people who know how to follow instructions or directions, but not necessarily how to think. Dee Hock -- founder, president, and former CEO of VISA -- states it very bluntly: "Newtonian, mechanistic, command and control pyramids of power were an anachronism of the Industrial age. They were not only increasingly archaic and irrelevant, they were a public menace" (Hock, p.10).

Industrial agriculture, like industry in general, is management extensive rather than management intensive. It allows fewer farmers to farm more land and produce more livestock by using more capital equipment, hiring more laborers, and purchasing more off-farm inputs. The new agricultural mega-farms and feed lots are no less mechanical and hierarchical in organization than are those deemed by Dee Hock to be anachronistic, archaic, irrelevant, public menaces.

The focus of industrialization is on production rather than people. As farms have grown larger and more specialized, agriculturally dependent rural communities have withered and died. Larger farms meant fewer farms and fewer farm families to support local schools, churches and public institutions, and retail businesses. In addition, larger farms tend to bypass local communities in purchasing production inputs and in marketing their products. The fundamental purpose of agricultural industrialization was to make it possible for fewer people to produce more. It takes productive people, not just production, to sustain local communities.

The industrialization of agriculture made sense as long as displaced farmers could find more productive employment in the larger economy. However, the days of good paying factory jobs are gone. American industries are reducing employment at all levels. Robots and computers are replacing people and eventually will do anything and everything that can be done without thinking. American industry simply doesn't need any more displaced farmers.

The growing environmental and social costs of industrialization may have more than offset its declining benefits as far back as two to three decades (Drucker, Hoval). Great transformations take time. But there is growing evidence that the industrial era is drawing to a close.

The post-industrial era

Alvin Toffler -- a futurist quoted by people with views so different as Speaker, Newt Gingrich and President Bill Clinton -- points out that many forecasters simply present unrelated trends, as if they would continue indefinitely, without providing any insight regarding how the trends are
interconnected or the forces likely to reverse them. The professional and popular agricultural press is filled with such forecasts for the future industrialization of agriculture.

Toffler contends that the forces of industrialization have run their course and are now reversing, that the industrial models of economic progress are becoming increasingly obsolete, and that old notions of efficiency and productivity are no longer valid. He contends that mass production is no longer a symbol of "modern" business operation. The new "modern" model is to produce customized goods and services aimed at niche markets, to constantly innovate, to focus on value-added products and specialized production. Toffler contends that mass production of basic commodities were the trends of the past, not the trends of the future.

Some contend that large industries will simply tailor specialized products for niche markets and continue the industrial trend. But the primary advantages of industrialization comes from being able to produce large quantities of the same basic things rather than from producing small quantities of lots of different things. Large firms realize that the profitable markets of the future are in the niches, but most also realize that as they target these markets, they become increasingly vulnerable to competition from small firms and independent producers. Thus, we see large industrial firms begin to decentralize, downsize, outsource, and otherwise begin to dismantle themselves to forestall their eventual competitive destruction by more flexible, innovative, creative, dynamic, smaller competitors.

Toffler goes on to state in his book _Powershifts_: "the most important economic development of our lifetime has been the rise of a new system of creating wealth, based not on muscle, but on the mind" (Toffler, p. 9). He contends that "the conventional factors of production -- land, labor, raw materials, and capital -- become less important as knowledge is substituted for them" (Toffler, p. 238). "Because it reduces the need for raw material, labor, time, space, and capital, knowledge becomes the central resource of the advanced economy (Toffler, p. 91). Toffler also states that separate and sequential systems that characterize industrial production are being replaced with synthesis and simultaneous systems of production. Synergism is replacing specialization as the primary source of new productivity.

Dee Hock states that "The most abundant, least expensive, most under-utilized, and frequently abused resource in the world was human ingenuity: the source of that abuse was the archaic, Industrial Age institutions and management practices they spawned" (Hock, p.10). He believes the era of knowledge and information-based human progress will be fundamentally incompatible with the industrial model or organization.

Drucker, in his book _The New Realities_, talks of the "Post Business Society." He states, and I quote: "the biggest shift -- bigger by far than the changes in politics, government or economics -- is the shift to the knowledge society. The social center of gravity has shifted to the knowledge worker. All developed countries are becoming post-business, knowledge societies. Looked at one way, this is the logical result of a long evolution in which we moved from working by the sweat of our brow and by muscle to industrial work and finally to knowledge work" (1989, p.

He calls routine service workers the old foot soldiers of American capitalism in high-volume enterprises. These workers typically work for large industrial organizations and live primarily by the sweat of their brow, or their ability to follow directions and carry out orders, rather than by using their minds. In-person service, like production service, entails simple and repetitive tasks. The primary difference is these services must be provided person-to-person.

Symbolic-analysts are the "mind workers" in Reich's classification scheme. They include all the problem-solvers, problem-identifiers, and strategic-brokers. He points out that symbolic analysts often work alone or in small teams, which are connected only informally and flexibly with larger organizations. Like Toffler and Drucker, Reich believes that future human progress will result from symbolic-analysis, from mind work, rather than routine production or in-person services.

Drucker points out an important, fundamental difference between knowledge work and industrial work. Industrial work is fundamentally a mechanical process whereas the basic principle of knowledge work is biological. He relates this difference to determining the "right size" of organization required to perform a given task: "Greater performance in a mechanical system is obtained by scaling up. Greater power means greater output: bigger is better. But this does not hold for biological systems. There, size follows function. It would surely be counterproductive for a cockroach to be big, and equally counterproductive for the elephant to be small. As biologists are fond of saying, 'The rat knows everything it needs to know to be a successful rat.' Whether the rat is more intelligent than the human being is a stupid question; in what it takes to be a successful rat, the rat is way ahead of any other animal, including human beings" (Drucker, 1989, p. 259).

He concludes that differences in organizing principles may be critically important in determining the future size and ownership structure of economic enterprises. Other things equal, the smallest effective size is best for enterprises based on information and knowledge work. "'Bigger' will be 'better' only if the task cannot be done otherwise" (Drucker, 1989, p. 260).

But if all this is true, why are we currently seeing rapid industrialization in some sectors of the agricultural economy, specifically in hog and dairy production? In Joel Barker's book: *Paradigms*, he points out that new paradigms tend to emerge while, in the minds of most people, the old paradigm is doing quite well. Typically, "a new paradigm appears sooner than it is needed" and "sooner than it is wanted." Consequently the logical and rational response to a new paradigm is rejection (Barker, p. 47). New paradigms emerge when it becomes apparent to some people, not necessarily many, that the old paradigm is incapable of solving some
significant problems of society. Aging paradigms may also be applied in situations where they are ill suited, creating major new problems while contributing little in terms of new solutions.

American agriculture provides a prime example of over-application of the industrial paradigm. The early gains of appropriate specialization in agriculture lifted people out of subsistence living and made the American industrial revolution possible. But the potential societal benefits from agricultural industrialization were probably largely realized by the late 1960s. More recent "advances" in agricultural technologies may well have done more damage to the ecological and social resource base of rural areas than any societal benefit created by more "efficient" food production.

Industrialization of agriculture probably lagged behind the rest of the economy because its biological systems were the most difficult to industrialize. Agriculture by nature doesn't fit industrialization, it had to be forced to conform. Consequently, the benefits were less and the problems were greater. It is becoming fully industrialized last, and likely will remain industrialized for a shorter period of time.

**Sustainable agriculture: the new paradigm**

Joel Barker, in his book *Paradigms*, defines a paradigm as a set of rules that do two things: (1) defines standards of success and (2) establishes or defines boundaries and defined rules for behavior within the boundaries. He uses the game of tennis as an analogy to illustrate these concepts. Tennis courts are standard in size and out-of-bounds are clearly marked. The ball must hit within these bounds to "stay in play." The ball must be struck with a tennis racket, not the hand or anything else, and the ball is allowed to bounce only once before it is returned over the net. Success is achieved by consistently returning the ball over the net while making it difficult for your opponent to do likewise.

In the sustainable agriculture paradigm, a sustainable human society is the standard of success. A sustainable agriculture must be capable of maintaining its value to human society forever, or at least for as long as the sun continues to shine. One cannot prove empirically that one system of agriculture is sustainable and another is not. It would take forever to collect the necessary data. Thus, the science of sustainability must be build upon logic. Logic, and common sense, leads to the conclusion that to sustain human life on earth agriculture must be ecologically sound, economically viable, and socially responsible.

Any system that degrades or depletes the productivity of its resource base will eventually lose its ability to produce, and thus, is not sustainable. Likewise, any system that pollutes or poisons its environment in the process of producing will eventually lose its net value to society and likewise is not sustainable.

Economic viability is necessary to maintain control over resource use, regardless of the
A system that lacks economic viability eventually must sacrifice control over its resources to some economically viable alternative. In common sense terms, if farmers cannot stay in business, their farming systems are not sustainable. However, economic viability and profitability are not synonymous. Economic profits imply that returns exceed opportunity costs -- that resources are put to their "highest" economic use (Levins, 1996). Economic viability requires that only returns to resources are sufficient to maintain control over their use in an ever-changing, dynamic environment.

A sustainable agriculture must also be socially responsible. The fundamental purpose of agriculture is to provide for the basic needs of people. Thus, an agriculture that fails to provide an adequate supply of safe and healthful food and fiber and a reasonable cost is not sustainable. However, people also must be provided opportunities to participate as productive members of society. We must produce something to earn money to buy the things we want and need, but we should also have an opportunity to realize satisfaction from the productive employment of our abilities. Quality of life is as much a function of working and contributing as it is of loafing and consuming. Employment in any given sector of an economy need not be proportional to its production. But displaced farmers with no alternative employment are no less a cost to society than is an aquifer polluted by agrochemical or a sediment-clogged stream. A socially responsible agriculture must do its part to provide opportunities for people to contribute as well as consume.

Finally, sustainable systems must be ecologically sound, economically viable, and socially responsible. All three are necessary and no one or two of the three is sufficient. A system that lacks ecologically soundness cannot sustain its productivity over time, no matter how profitable or socially supportive it may seem in the short run. A system that is not economically viable will not be employed, no matter how ecologically sound or socially responsible it may seem. And a system that is not deemed to be socially responsible will be discarded or destroyed by the society it must support, no matter how profitably or environmentally friendly it might otherwise seem to be.

These are the standards of success. The sustainability game is like old-fashioned pinball. The only thing we win is the privilege of playing another round. We can judge how well we are playing the game, but success is a process rather than an outcome -- a direction rather than a destination.

The traditional paradigm of economics is fundamentally incapable of addressing the issue of agricultural sustainability. The standards for success are different. The boundaries and different. The rules of behavior within those bounds are different. Different standards, different bounds, and different behaviors imply different paradigms.

Traditional economic models are based on the assumed goal of profit maximization. The environment and society are external to the decision unit. The sustainable agriculture model treats ecological soundness, economic viability, and social responsibility as three inseparable
dimensions of the single goal of objective of long run sustainability. All three are "inside" rather than "outside" the bounds. The bounds of sustainability are the laws of nature, including human nature.

Sustainability is a function of balance as much as level. This concept becomes apparent if one assumes a theoretical long run, dynamic global equilibrium situation. Ultimately, global quality and quality of human life must be balanced with global resources, and global economic activity. Any attempt to increase one without enhancing the other two will create an unstable and less sustainable situation. When the three are out of balance, enhancing the performance of one relative to the others may increase sustainability. But when the three are in balance, one cannot increase without decreasing the others. Increasing one but not the others makes the system unstable and less sustainable.

Traditional economic models clearly consider the natural environment and larger society to be "external," or out of bounds. Externalities are internalized by demands of society -- imposed by decree -- not by choice of the decision maker. Success in the traditional economic model is measured in terms of profits and growth. Within the limits allowed by nature and society, the economically rational decision maker may take a wide range of actions. Almost anything that is possible and legal is encouraged if it leads to profits and growth.

The rules of behavior are different for the sustainable paradigm. Sustainability requires thoughtful, purposeful human intervention in the development process. The earth cannot sustain the level of population and per capita consumption that might result from the thoughtless pursuit of narrow self-interests. The natural ecosystem must be "managed," not simply treated as a mine or a sink, in order to sustain its productivity. Sustainability requires that we make decisions collectively for the collective good of society as a whole. Dignity of work may affect our quality of life as much or more than how much "stuff" we are able to buy and the leisure time we have to use it. Quality of life is the product of how we relate to each other -- economically, politically, and socially within and between generations. The quality of human life cannot be sustained without caring and sharing in addition to working and making "stuff."

Willard Cochrane, a pillar of the agricultural economics profession, states that "we must replace the philosophy of extreme individualism with a philosophy of community responsibility," if we are to reverse the current slide toward economic collapse and social chaos. By community responsibility "we mean the willingness of each individual to consider the needs of all other members of the community; we mean the willingness of each individual to support the actions designed to meet the needs of all other members of the community; we mean that individual members must recognize Mother Earth as an integral part of the community and to respect her nurturing role in it; we mean that each and every child must be taught in the home, the church and the school what his or her rights in the community are and what his or her responsibilities to the community are; we mean, finally, that the Golden Rule must be our guide to human conduct in the community" (Cochrane, p. 36).
The challenge to agricultural economists

Barker points out that successful old paradigms often collect a host of avid, but unwitting, advocates. Advocates of traditional economic thinking tend to spontaneously apply their paradigms to any issue that arises. We fall back on the paradigms we were taught as if they were based on irrefutable truths of the universe. However, Donald McCloskey, in an article "The Rhetoric of Economics," argues convincingly that the official methodology of economics is modernism. He further contends that "Modernism is influential in economics, but not because its premises have examined carefully and found good. It is a revealed, not a reasoned, religion" (1984). The post-modern era is begging for a post-modern paradigm of economics.

The traditional economic model of functional separation, profit maximization, and economic efficiency is consistent with the principles of Newtonian physics (see Capra, 1982). The community, farm, and farmer are modeled as a machine with many complex and interrelated, but separable parts. If a part breaks, you have to fix it or replace it, but the machine can be made to function again. The direction of cause and effect are definite, if not readily discernible. The objective is to achieve maximum output relative to input through purposeful tinkering with causes and effects.

The sustainability model is much more consistent with the principles of quantum physics. The community, farm, and farmer are modeled as living biological organisms, each a whole in itself, but also made of a complexity of inseparable wholes" (Savory, Kirschenmann). If a critical part "breaks" the organism gets sick or dies. If it gets sick, it may heal itself if the illness is corrected in time. If it dies, it cannot be revived and made to function again. The nature of cause and effect is never completely definable. Everything is connected to everything else. Cause and effect are circular rather than one way. Purposeful change requires thoughtful intervention rather than tinkering. The objective is to sustain the health and productivity of the system over time. Continual change, regeneration, is a fundamental part of that process.

In biological models, individual elements must conform to their ecological niche. Big farms will be sustainable only if their "niche" is equally large. It is readily apparent that many of today's large farms are degrading both the natural and human resource base as they have expanded beyond their ecological and societal niches. It will take "mind work," not physical or economic muscle, for farmers of the future to find a niche where they can carry out their function by means that are ecologically sound, economically viable, and socially responsible. The vast majority of those niches will likely be smaller than today's large, "industrial-sized" farm.

The sustainable agriculture paradigm is consistent with the visions of Toffler, Drucker, Reich and others of a post-industrial era of human progress. Sustainable agriculture is management intensive, rather than management extensive. Sustainable systems must be individualistic, site-specific, and dynamic. Thus, sustainable farming is inherently information, knowledge, and management intensive.
The future will require not only more thinking, but will require new ways of thinking as well. In the Post Capitalistic Society Peter Drucker states: "In the knowledge society into which we are moving, individuals are central. Knowledge is not impersonal, like money. Knowledge does not reside in a book, a databank, a software program; they contain only information. Knowledge is always embodied in a person, carried by a person; created, augmented, or improved by a person; applied by a person; taught by a person, and passed on by a person. The shift to the knowledge society therefore puts the person in the center."

Productive people are clearly the key to sustaining human progress during the post-industrial era. The ability of farmers to think for themselves, to shape their own destinies -- not just apply technologies and strategies developed by others -- will be the key to sustaining agricultural profitability. Agricultural economists are social scientists -- people scientists -- thus, we clearly have a potentially important role to play in developing the new post-industrial paradigm for farming. As social scientists we at least should be willing to question whether we have a responsibility to the people who farm and live in rural communities as well as to the consumers of food and fiber. The post-industrial paradigm of sustainable agriculture will continue to evolve over decades, if not centuries, into the future. The fundamental question is whether agricultural economists will help develop a paradigm capable of sustaining farm profitability, or instead will become irrelevant as our logical role is assumed by others who are less bound to paradigms of the past.

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* John Ikerd is extension professor of Agricultural Economics, University of Missouri, Columbia, MO. This paper was presented at the Extension Pre-conference: "The Economist’s Role in the Agricultural Sustainability Paradigm," San Antonio, TX, July 27, 1996.

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The Role of Marketing in Sustainable Agriculture

John E. Ikerd *
University of Missouri

The term sustainable agriculture has been defined in many ways (Allen, et al., Lockeretz, Smit and Smithers). However, most definitions seem to agree in defining sustainability as a characteristic of performance of agricultural systems as a whole rather than attempting to define sustainable agricultural practices, methods, or enterprises. In general, it can be argued, a sustainable agriculture must be ecologically sound, economically viable, and socially responsible (Ikerd, 1994).

Past emphasis on the economic dimension of sustainable agriculture has focused on reducing costs by reducing purchased inputs. Economic comparisons of conventional and sustainable farming systems, for example, have assumed that farmers will continue to produce the same basic commodities for sale in highly competitive national and international agricultural markets. Yields and costs per unit of production are compared for conventional and alternative systems (Ikerd, Monson and Van Dyne, 1992; Repetto and Faeth, 1990; Pimentel, et. al., 1991). Any differences in commodity prices among alternative scenarios are attributed to differences in production levels and market supplies (Knutson, et al., 1990). For example, organic price premiums are either ignored or treated as transitory advantages that will be eliminated by competition (Dobbs, Leddy, and Smolik, 1988; Dobbs and Cole, 1992). However, enhancing market value may be even more important than reducing costs in making ecologically sound systems of farming both economically viable and socially responsible.

A recent comprehensive grassroots assessment of research and educational priorities identified "lack of marketing alternatives" as the key constraint to more sustainable agricultural systems in the southern United States (Worstell, 1995). Marketing has been identified consistently as a priority issue in calls for research and education proposals by Sustainable Agriculture Research and Education (SARE) programs in all regions of the country. However, relatively little useful marketing information has been developed or provided to farmers to assist in their quest for sustainability. Much of the marketing information that has been provided has focused almost exclusively on value-added and niche marketing as strategies to increase profits rather than enhance the overall sustainability of food systems (DeLind, 1994). Relatively little attention has been given to marketing as a means of enhancing overall agricultural sustainability.

The Industrialization of Agricultural Markets

Questions of sustainability arise primarily in relation to the consequence of industrialization. An understanding of this linkage between sustainability and industrialization is critical in planning for a sustainable future, regardless of whether the specific subject is marketing, production, or public policy. U.S. agriculture was industrialized to support industrialization of the economy in general. At the turn of the century, America was an agrarian society. Most of our total resources were spent on the necessary tasks of feeding and clothing ourselves. People had to be freed from producing food and fiber to provide workers for the factories and offices of a growing industrial society. The costs of food and fiber had to
decline if consumers were to have discretionary income to buy the things that the factories and offices would produce. Agricultural industrialization was a logical means for meeting both objectives.

U.S. agriculture was mechanized, specialized, routinized, and otherwise industrialized making it possible for fewer people to feed more people better for less money. Industrialization began in earnest when tractors replaced horses as sources of power on U.S. farms. The agricultural sector has been among the last to become fully industrialized, but the driving force of change has long been to make farms perform as factories without roofs with fields and feed lots operating as much as possible like factory assembly lines.

The industrial approach to marketing is mass marketing to support mass production. Factories must turn out large quantities of identical, or quite similar, units to achieve the economies of scale associated with assembly-line production. Automobile manufacturing is a prime example of industrial production, and the black Model T Ford is still the "classic" industrial product. Today, automobiles come in a variety of sizes, shapes, colors, and extras, but they are still, with few exceptions, basic commodities produced for mass markets. Millions of dollars are spent on advertising to ensure that masses of consumers will be willing to drive automobiles that can be mass produced by industrial methods. Farms, like factories, produce large quantities of basic commodities -- corn, wheat, soybeans, hogs, cattle -- for mass markets. Agriculture is promoted among consumers as a supplier of low-cost, basic food stuffs to feed the hungry masses.

Industrial strategies of the past century were highly successful in reducing the claim of food and fiber production on the nation's human resources. For example, the 1895 Yearbook of Agriculture indicated that 42 percent of people in the U.S. were employed on farms in 1890 (USDA, 1895). This compares to less than 2 percent of the total U.S. population living on farms a century later. In addition, those living on farms today earn more than half of their income from non-farm sources (USDA, 1990). U.S. consumers now spend just over 11 percent of their income on food, and farmers get only about 22 cents out of each dollar spent for food (Dunham, 1993). About half of the farmer's share goes to pay for purchased inputs, leaving the farmer little more than a dime out of each dollar spent for food.

Paradigms, such as industrialization, become dominant because they are found to be capable of solving problems that previous paradigms could not solve (Baker, 1992). The industrial era, in general, was fostered by a host of interrelated and complex developments, including access to large supplies of affordable fossil fuels. The industrialization of agriculture was made possible by these same developments, but was driven by the nation's necessity for fewer farmers to feed more people at a lower cost. The industrial paradigm succeeded. Food is cheap in the United States, and the farmer's share of food costs is even cheaper. Farmers and other rural people have been freed from the subsistence living that characterized earlier times. The problems agriculture was industrialized to solve have been solved. If farmers took nothing for their part in food production, average cost of food would only be about ten percent less. And, there aren't many farmers left to move off the farms, if there was anywhere else for them to go.
The initial logic for industrializing agriculture is no longer valid. In addition, the industrialization of agriculture has generated a whole new set of growing economic, environmental, and social concerns that may already outweigh its declining benefits. A growing number of people are looking to a fundamentally different paradigm as they search for answers to the economic, ecologic, and social questions arising from industrial methods of farming. These people need a new paradigm for the creation of economic value, a paradigm that includes marketing as well as production.

The Business of Paradigms

Joel Barker, in his book *Paradigms*, defines a paradigm as a set of rules that do two things: (1) establishes or defines boundaries and (2) sets standards for success and behavior within the boundaries. He uses the game of tennis as an analogy to illustrate these concepts. Tennis courts are standard in size and out-of-bounds are clearly marked. The ball must hit within these bounds to "stay in play." The ball must be struck with a tennis racket, not a baseball bat or anything else, and the ball is allowed to bounce only once before it is returned over the net.

Paradigms may be simple, as in the case of games, or extremely complex, as in the case of a model for economic development. However, the industrial model has some clearly defined boundaries. The natural environment, including the natural resource base, is considered to be "external," or out of bounds, by industrial managers. Society likewise is considered to be an "external" factor which constrains or sets bounds on what industrial firms can do. Success for an industrial firm is measured in terms of profits and growth. Within the limits allowed by nature and society, industrial firms may take a wide range of actions to maximize short run profits and long run growth. Almost anything that is possible and legal is encouraged if it leads to profits and growth.

Profits and growth are seen as a natural consequence of reducing costs and expanding market share. Industrial firms must be cognizant of consumer preferences, but they search for large groups of consumers who are willing, or can be persuaded, to buy the same basic item. Industrial firms need new mass markets to keep their production cost low and their profits up as they continually strive to expand the scale of their operation.

The new paradigm emerging under the sustainable agriculture umbrella may not be fully understood for some time to come. However, this post-industrial approach to farming is fundamentally different from the industrial paradigm in several ways. The new paradigm for agriculture clearly considers ecologic and social impacts to be "within" rather than "outside" of its boundaries. Ecological soundness and social responsibility are seen as positive goals rather than negative constraints. The new constraints or boundaries are the laws of nature, including human nature.

The new paradigm considers economic, ecologic, and social dimensions of sustainability to be inseparable. Fields, farms, communities, and societies are considered to be wholes that are made up of smaller wholes and make up still larger wholes. Thus, the approach to farm decision-making and management must be "holistic." The challenge is to comprehend the complexities of wholes rather than
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Success in the new paradigm is measured against the goal of sustainability rather than profits and growth.

Progress is seen as a consequence of serving the needs and wants of people by means that are ecologically sound and economically viable. Site-specificity is generally accepted as a prerequisite for sustainable farming. Farming systems must be matched with their natural resource base. Sustainable farming systems also must be individualistic. Management and labor requirements must match the talents, abilities, and aspirations of individual farmers. It seems logical that sustainable systems also need to be market specific. Unique sets of production resources, both natural and human, need to be matched with unique groups of consumers -- unique markets -- if systems are to be sustainable.

The new sustainable model implies greater reliance on human resources, in terms of the quality and quantity of labor and management, and relatively less reliance on land and capital. Industrial systems are management extensive, requiring fewer managers per acre or per dollar of capital investment, and little if any management input from hired workers. Sustainability systems, on the other hand, are more management extensive, employing more managers per acre or per dollar of capital investment, and more management participation from hired workers. Thus, successful farming with the new sustainable paradigm would require more farm operators, more productive farm workers, and more farm families than does an industrial system of farming.

Smaller, more diversified farms would become the norm under the sustainable paradigm. However, smaller, diversified farms will be commercially competitive with larger specialized farms only if human resources can be substituted economically for other on-farm resources and commercial inputs. By implication, farmers who succeed with the new paradigm must be more productive as "people." They cannot expect to earn a larger return for their management and labor, thereby reducing their reliance on land and capital, unless they possess unique skills and abilities. Production skills will be critical to overall ecological and economic viability. However, marketing skills may be even more important than production skills in maintaining the economic viability of smaller, diversified farms in the future. The successful employment of people in production and marketing will be critical in maintaining a socially responsible agriculture.

Much of the past emphasis in sustainable agriculture has been on reducing reliance on purchases inputs. However, as indicated previously, input purchases account for about a dime of each dollar consumers spend on food while marketing services account for eighty cents. It seems logical that farmers have more to gain, at least economically, by attempting to capture part of the eighty cents spent for marketing services rather than focus on the dime spent for inputs. However, even greater opportunities may be found in strategies which enhance the final value of products rather than reduce costs of inputs or marketing services. Smaller farmers may face even greater difficulties competing with industrial firms as providers of marketing services than they have competing as producers. The key to success in marketing products from smaller, diversified farms may be the same as for overall sustainability -- a new paradigm.

The Fundamentals of Marketing
New paradigms do not create new facts but instead provide new frameworks or filters for translating facts into knowledge. Likewise, the fundamentals of economic value are not new, but new opportunities and strategies for creating value through marketing arise from the sustainability paradigm. Effective marketing begins with a basic understanding of the fundamental realities of markets, regardless of one's paradigms.

Marketing, in agriculture, includes all the various activities involved in the transformation of commodities sold by farmers into food and fiber products purchased by consumers. The most obvious aspect of this transformation is a change in physical appearance or form. Form changing activities for agricultural commodities range from washing and grading apples to processing wheat into Wheaties. Another important marketing function is transportation. Agricultural commodities must somehow get from the farms where they are grown to the retail outlets where they are bought, in some cases moving across a country or halfway around the world. Time is another important aspect of marketing. Many agricultural commodities must be harvested at a specific time, but can be stored for later use and in some cases be consumed year-round. Finally, in a specialized economy, most consumers are not producers. Marketing involves the transfer of ownership or possession from those individuals who produce, ultimately, to those individuals who consume the food or utilize the fiber.

Market transformations change the value of commodities by changing their form, place, time, and ownership as they move through the marketing system. Each of these functions creates value but also adds an associated cost. Profits result whenever the value added by marketing functions such as processing, transportation, storage, or brokerage, is greater than the costs of performing those functions. These basic principles of marketing may seem simplistic; however, they are the fundamental concepts upon which vertical expansion of farming into marketing must be built.

Marketing, to most farmers, means commodity marketing. They produce commodities such as corn, wheat, hogs, or cattle. One farmer's No. 2 grade yellow corn is pretty much like any other farmer's No. 2 yellow corn. One cattle feeder's 1100 lb. U.S.D.A choice steers are a lot like steers of a similar weight and grade from any other feedlot. Thus, the commodities one farmer has to offer for sale are freely interchangeable with commodities offered for sale by many other farmers, oftentimes including farmers on another continent. Commodity markets tend to be highly competitive because there are many buyers and sellers of the same basic commodity. Price differences among different market locations rarely exceed transportation costs and price changes over time tend to reflect seasonal or cyclical cost differences.

Commodity marketing decisions are primarily limited to decisions of timing. Farmers can forward price their commodities through private contracts or futures markets, attempting to get a price higher than market price at time of delivery. Or they can store commodities for later sale, hoping that market prices will rise more than their costs of storage. In either case, farmers are matching wits with speculators who make their living buying, pricing, storing, or selling commodities. Most conventional farmers are not particularly good speculators. They make a living by keeping their costs competitive and, thus, being able to stay in business at competitive market prices.
Product marketing is different from commodity marketing. Commodities are alike, but products are different. In marketing jargon, products have distinct quality characteristics and, thus, distinct market values. These differences may be tangible in nature (as in nutrient values of foods) or intangible (as in consumer acceptance created by brand advertising). Differentiation creates a more or less unique market for a product, taking it out of direct competition with other products. The greater the differentiation, the greater the potential for profits. Products that have few good substitutes may command a substantial price premium over less acceptable alternatives. However, consumers will not pay much more for a product that has many good substitutes than they will pay for the substitutes.

Products may be differentiated by anything that affects value. Processing, for example, changes the form of raw commodities. Some processing activities, cattle slaughter for example, result in a different form of generic commodity, such as choice beef. In other cases, however, processors are able to transform commodities into distinct products such as wines from grapes. A supermarket may stock wines from a number of different wineries because the wines are perceived to be different by a sufficient number of wine drinkers to create profitable markets. Processing is only one means of changing the form of a commodity. Fruits sorted for uniformity of size and color, for example, may sell for a premium over the same fruit sold unsorted.

Products may also be differentiated with respect to time. In mid-winter, local greenhouse tomatoes in the Midwest may command a substantial premium over tomatoes from California or Mexico. However, tomatoes from those same greenhouses may have no advantage over local vine-ripe tomatoes in mid-summer. Winter price premiums reflect the lack of good substitutes at that particular time. Vine-ripe tomatoes out-of-season are a differentiated product, but in-season tomatoes are a commodity. An ability to provide products on time, continuously over time, may also differentiate one farmer's products from the others.

Location is another factor which differentiates the value of products. Farmers near population centers have a distinct advantage in most direct marketing strategies. Pick-your-own fruit, vegetable, or berry farms, for example, must be located within reasonable driving distance of a significant population center. Farmer's markets are also logical market outlets for producers of fresh produce from a fairly limited geographic area. Product handling and transportation technologies, however, have reduced the significance of location, either as an advantage or as an obstacle in marketing.

Market advantages associated with individual ownership or possession are perhaps less obvious and less well understood than those associated with form, time, and place. However, values associated with individuality may be far more important than any other in developing sustainable agricultural systems. Different individuals, or groups of individuals, value the same products differently. In other words, the same form or physical quality of product may be valued differently by two different groups of people at any given time and place. Thus, individual farmers can command higher market prices simply by offering their products to the individuals or groups who value them most. Products that are carefully tailored or targeted to meet the specific needs of narrowly segmented markets may command a significant price premium over mass-produced commodities that meet the same generic need. Matching
products to the tastes and preferences of specific consumer groups is the essence of successful niche marketing.

Marketing in the Niches

A niche is analogous to a corner, nook, crack, or cranny. A niche represents something that is seen as being different, uncommon, or exceptional. A niche is small only because it is defined in comparison to something larger. A crack in a sidewalk, a niche in one thing, may be far bigger than a grain of sand, the whole of something else. The essence of a niche is its uniqueness relative to its physical surroundings or conceptual context. Thus, a niche market may be defined as a market that is different from the predominant market for the same basic commodity or generic class of products.

Market niches may be identified in terms of form, time, place, or individuality. For example, the market for blue corn may be considered a niche market. The market for local-fresh produce in season may be a niche market. Or Saint Louis, Mo might be a niche market for certain ethnic foods. However, market niches are associated, most fundamentally, with specific individuals or groups of consumers. The people who prefer blue corn chips make up a niche in the corn chip market only because most people prefer chips from white or yellow corn. The people willingly pay more for local-fresh produce in season represent a niche in the fresh produce market, not the particular time of year. And the ethnic communities of people in Saint Louis, not their geographic location, make up niches in the mass consumer market of the Saint Louis region. Niche marketing is about identifying and serving individuals or identifiable groups who have unique tastes and preferences for products that are different from those of the larger populations of which they are part. Niches are often "described" using differences in form, place, or time of delivery. But, market niches are "defined" by differences in tastes and preferences among people.

Industrialization creates market niches. This assertion is based on the premise that people differ in their tastes and preferences. If this is true, we still have different underlying tastes and preferences, even though we have been bribed and persuaded to buy the same basic things to accommodate the needs of an industrial economy. We have been bribed by the lower prices and persuaded by advertising and promotion. By accepting pretty much the same things as other people, not only because we can be "in style," but we can be "in style" at a lower price. Enough people were willing to accept a black Model T Ford to allow ordinary people to ride in style. But, that did not mean that everyone "preferred" a black Model T. Those who were not totally satisfied represented market niches for other car makers. Some niches grew into mass markets, but others did not. For many people, managing a riding stable may still be more rewarding, personally and financially, than managing an automobile dealership.

The industrialization of agriculture quite likely has created a multitude of niches in markets that are largely undiscovered. Food consumers have been bribed and persuaded into buying mass produced foods through lower prices, advertising, and other forms of promotion. Mass manufacturing and distribution systems employed in food marketing have limited consumer choices to those items that can compete for scarce space in shelves of modern supermarkets. For example, consumers have no choice other than U.S.D.A. choice grade beef, or a single similar quality store brand, in most supermarket meat cases.
Fruits and vegetables, while abundant in variety, are generally available from only one or two suppliers and one or two qualities of each item offered for sale. Canned and frozen foods may offer several labels, but with very similar products inside the can or box. The variety of different items offered by supermarkets is enormous, but efficiency dictates that substantive choices within generic food groups remain very limited. The emergence of fast food restaurants, likewise, has transformed table-ready beef, chicken and potatoes into a dozen or so manufactured, industrial commodities that can be mass produced for mass consumption. People who are satisfied with products that fit industrial systems of mass production realize a bargain. They get what they want at a lower price. Those who are not satisfied, but just go along, represent potentially profitable niche markets.

Markets for value-added agricultural products are often confused with niche markets. However, most value-added items in supermarkets are more characteristic of mass production than are the basic commodities from which they are made. The markets for services that result in convenience and easy preparation are far larger and more generic that are the markets for beef or broccoli. Those services are mass produced in large, specialized processing firms and are promoted through multimillion dollar advertising budgets. It might be more logical for an individual farmer to compete with IBP in processing beef than to compete with Banquet Foods in producing TV dinners. Many other value-added activities are equally price competitive. Farmers who attempt to add value through processing, transportation, or storage must be willing and able to perform those functions better or at a lower costs than can existing marketing firms, if they expect to make a profit. Even if such farmers are successful, they are not engaging in niche marketing. Instead, they have become successful players in the mass marketing game.

Markets of the Future

The conventional wisdom among those in the agricultural establishment is that trends toward industrial production for mass markets are trends of future for American agriculture. Agriculture is becoming just another industrial sector of our industrial economy. But the world is continually changing. A growing number of people who make their living forecasting the future, the futurist, see a new, post-industrial era where there is room for more than one model or paradigm for economic and human progress (Toffler, 1990; Drucker, 1989; Naisbitt and Aburdene, 1990; Reich, 1992, to name a few).

Noted futurist Alvin Toffler, in his book Powershift, points out that many forecasters simply present unrelated trends, as if they would continue indefinitely, without providing any insight regarding how the trends are interconnected or the forces likely to reverse them. He contends the forces of industrialization have pretty well run their course and already show signs of reversing. He labels the industrial models of economic progress as becoming increasingly obsolete. He claims that old notions of efficiency and productivity are no longer valid. Mass production is no longer a symbol of "modern" business operation. The new "modern" model is to produce customized goods and services aimed at niche markets, to constantly innovate, to focus on value-added products and tailored production.

He goes on to state "the most important economic development of our lifetime has been the rise of a new system of creating wealth, based no longer on muscle but on the mind" (Toffler, p. 9). He contends that
"the conventional factors of production -- land, labor, raw materials, and capital -- become less important as knowledge is substituted for them" (Toffler, p. 238). "Because it reduces the need for raw material, labor, time, space, and capital, knowledge becomes the central resource of the advanced economy (Toffler, p. 91).

Toffler also provides some insights into the nature of knowledge-based production. He states that separate and sequential systems of production are being replaced with synthesis and simultaneous systems of production. Synergism is replacing specialization as a source of production efficiency. Tailoring products to desires of specific customers is replacing low price as the source of value. Simultaneity, synthesis, synergism, tailored production -- this is the "mind work" of the future.

Peter Drucker, a noted business consultant and author, talks of the "Post Business Society" in his book, The New Realities. He states "the biggest shift -- bigger by far than the changes in politics, government or economics -- is the shift to the knowledge society. The social center of gravity has shifted to the knowledge worker. All developed countries are becoming post-business, knowledge societies. Looked at one way, this is the logical result of a long evolution in which we moved from working by the sweat of our brow and by muscle to industrial work and finally to knowledge work" (Drucker, 1989, p. 173).

Drucker contends that there is an important, fundamental difference between knowledge work and industrial work. Industrial work is fundamentally a mechanical process, whereas the basic principle of knowledge work is biological. He relates this difference to determining the "right size" of organization required to perform a given task. "Greater performance in a mechanical system is obtained by scaling up. Greater power means greater output: bigger is better. But this does not hold for biological systems. There, size follows function. It would surely be counterproductive for a cockroach to be big, and equally counterproductive for the elephant to be small. As biologists are fond of saying, "The rat knows everything it needs to know to be a successful rat." Whether the rat is more intelligent than the human being is a stupid question; in what it takes to be a successful rat, the rat is way ahead of any other animal, including human beings" (Drucker, 1989, p. 259).

Differences in organizing principles may be critically important in determining the future size and ownership structure of economic enterprises, including farms. Other things equal, the smallest effective size is best for enterprises based on information and knowledge work. "'Bigger' will be 'better' only if the task cannot be done otherwise" (Drucker, 1989 p. 260).

Some see the future knowledge society as one where large industrial firms will continue to dominate. However, Drucker points out that "in the knowledge society into which we are moving, individuals are central. Knowledge is not impersonal, like money. Knowledge does not reside in a book, a data bank, a software program; they contain only information. Knowledge is always embodied in a person; carried by a person; created, augmented, or improved by a person; used or misused by a person. The shift to the knowledge society therefore puts the person in the center" (Drucker, 1993, p. 210). Henry Ford is quoted as saying that his biggest problem was that he had to hire "whole people" when all he needed was their "two hands." Knowledge work and industrial work are fundamentally incompatible.
The significance of the above quotes is not that they reflect some inherent truth, but rather their consistency with the paradigm of sustainable agriculture. A sustainable agriculture will require site-specific, individualistic, dynamic, management-intensive, knowledge-base systems of production and distribution. Sustainability will require a matching of size and function reflected in a variety of sizes and types of agricultural enterprises to sustain a productive natural resource base, a healthy economy, and a progressive human society. The emerging paradigm for a sustainable agriculture is fundamentally consistent with the emerging post-industrial paradigm for human progress.

Niche Marketing for Sustainability

The key to successful niche marketing is to find a market that is: (a) sufficiently different from its mass market context to allow a significant premium in price (or a significantly lower cost), (b) large enough to be served profitably, but (c) too small to accommodate methods of mass production and distribution. Industrial suppliers attempt to fill market niches by providing as wide a variety of products and services as they can economically provide. However, much of their differentiation is in packaging, convenience, and other largely superficial differences in the same basic products. The primary advantage of being big arises from the ability to specialize, mechanize, routinize, and realize the economies of scale of "mass" production methods. Whenever industrial suppliers attempt to target niche markets, their production methods must become more like those of small suppliers, and consequently they become more vulnerable to small-firm competition. The smaller the market niche, the greater the competitive advantage for a similarly small supplier.

The basic market assumption of the industrial paradigm is "the consumer is always right." The industrial economy is "consumer driven" in that successful producers must fulfill the needs and wants of consumers. In reality, consumers are considered to be right only if their choices accommodate the needs of the industrial economy. If consumers cannot be bribed, persuaded, or coerced to conform to the requirements of mass production, they are ignored by industrial suppliers. These ignored consumers represent potentially profitable niche markets.

The basic market assumption of the sustainable paradigm is "the needs and wants of both consumers and producers must accommodate long run ecologic, economic, and social sustainability." Niche marketing motivated solely, or mostly, by the desire to increase profits may contribute no more to long run sustainability that does any other form of market segmentation or product differentiation (DeLind, 1994). The role of niche marketing in sustainability is to enhance the economic viability of systems that are ecologically sound and socially responsible and otherwise likely to be sustainable.

Sustainable niche marketing requires a matching of resource management, production, marketing, and consumption in ways that sustain the whole vertical system. No one element of that vertical system is considered supreme, neither consumer nor producer. People must protect and sustain the resource base, but the resource base must support and sustain human society. The economic system must provide the incentives and means for sustaining both resources and people. The diversity in size and type of economic enterprises must match the diversity within the natural resource base and diversity within
human society.

If the road to agricultural sustainability leads toward larger numbers of smaller, more diversified farms, then niche marketing represents an opportunity for smaller, diversified farms to expand vertically and to compete commercially with larger, specialized agricultural enterprises. Sustainable niche markets that grow into mass markets will remain sustainable only if the production systems that support them remain sustainable. However in the post industrial era of human progress, niche markets may well become the norm rather than exception. The natural resource base is inherently diverse as are the abilities and aspirations of producers and the tastes and preferences of consumers. A similarly diverse collection of diverse small farms and matching niche markets might logically characterize an agriculture capable of meeting the needs and wants of people by means that are sustainable. Niche marketing may well be a critical key to long run agricultural sustainability.

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The Corporatization of America

John Ikerd
Professor Emeritus
University of Missouri


We Americans are a fiercely independent people. Right? We truly value our freedoms – our freedom of speech, freedom of religion, freedom of privacy, and the freedom to use our personal property as we see fit. We are fiercely independent about personal things. We don’t want the government or anyone else imposing restrictions upon our freedoms. However, in matters that relate to our public life – our role in the economy, in politics, in society in general – we seem more than willing to depend on others.

We let someone else decide what’s “in” and what’s “out” – in clothes, cars, hairstyles, soft drinks, etc. We are more than willing to follow the trendsetters. We let someone else decide who gets to run for office and gets elected to office – at local, state, and national levels. We don’t have time to waste on politics – although we can find time to complain about the stupid decisions that politicians make and the taxes we have to pay to support them. We let someone else decide what kind of society we are going to have – which types of behavior are socially acceptable and which are not, what’s moral and ethical and what’s not. We leave that sort of thing to theologians, the philosophers – we just aren’t interested in such esoteric matters.

While boldly claiming our independence, we depend on others to shape the economic, social, and ethical environment in which we live our lives.
A Dependent Society
We most certainly are not independent economically. We have to buy nearly everything we need from someone else, and we have to work for someone else to get the money to buy those things. In economic terms, we are “specialists” – we do one thing for a living and depend on other “specialists” to provide the things we can’t provide for ourselves. In addition, most of us work for some “corporate” business organization that makes all of the major workplace decisions for us. For the most part, at work, we do what we are told to do. We have no true economic independence. We do what we have to do to keep our jobs and to survive.

We are not independent politically. We don’t educate ourselves on the issues; we don’t participate in the process of getting people and issues on the ballots, so we don’t even have a chance to vote for the things we want. If we participate at all, we depend on political parties, political action committees, and other special interest groups, to define the issues and to articulate our political positions for us. When we take the time to vote, we don’t vote as “independents.” We vote for one of the two major parties, or we vote for some “independent” third party, instead of voting as individuals.

When we do exert our independence, we tend to be exploitative. We compete; we feel we must win. We must beat someone else or profit from someone else; we must use someone else for our own benefit. Without someone else to beat, we have no way to win, no way to succeed. And, others have no way to win or succeed without beating us. In reality, we are hopelessly dependent on a system that demands that we be either victor or victim, and thus, encourages us to exploit each other.

Through our lives of dependence, we have become only parts of people. We have let big parts of ourselves become little parts of thousands of others, and most important, we have become little parts of non-human
corporate organizations and systems over which we have no influence or control. We cannot be independent because we are no longer whole people; we have lost control of our individual lives. The problem most certainly is not that we have too many relationships with other people. The problem is that these relationships are “dependent” rather than “interdependent” in nature.

Steven Covey, in his book, Seven Habits of Highly Effective People, writes about dependence, independence, and interdependence. Independence may be defined as the ability to survive and thrive on one’s own resources – without significant relationships. Interdependence is defined as “relationships of choice” rather than necessity – relationships between independent people who choose to form relationships that make both lives better. Dependence is defined as “relationships of necessity” rather than choice – relationships among people who can’t survive without each other. A person in a dependent relationship needs to take more from the relationship than they can possibly give to it. Dependent relationships are parasitical – they are inherently exploitative and can be mutually destructive.

In America, too many of our relationships have become dependent and exploitative. Through our dependence, we not only are exploiting each other, but we are also exploiting the natural environment. We are sucking the life from each other and from the whole of creation. We are destroying the very things upon which our own quality of life and the long run survival of humanity depend. In spite of our boast of being fiercely independent, we have become totally dependent on a system of economics, politics, and ethics that quite simply is not sustainable.

The good news is that we can break free from these destructively dependent relationships. However, independence is not the answer. We must move beyond independence to build interdependent relationships of choice – relationships that are mutually supportive rather than mutually
exploitative. But first, we will have to become whole again. We will have to replace the broken and missing parts of ourselves and of society, but it won’t be nearly as difficult as building a new society from scratch. We don’t have to become “totally” independent in order to choose interdependence, but we must stop exploiting each other. We can’t become totally independent of our natural environment, but we must stop exploiting it. We need to become sufficiently independent to break free from our unnecessary dependencies. We must be sufficiently secure within ourselves to refuse to participate in relationships that force us to exploit or to be exploited.

From Capitalism to Corporatism
To break from the grasp of destructive dependence, we need to understand the nature of the force that holds us. Our dependence is a reflection of the society in which we live. Over the past several decades, America has evolved from a capitalist to a corporatist economy and from a democratic to a corporatist society – we have traded democratic capitalism for corporatism. And in the process, we Americans have lost our independence.

Corporatism is defined by Webster as “the organization of a society into industrial and professional corporations serving as organs of political representation and exercising some control over persons and activities within their jurisdiction.” Corporatism means that we participate in society as members of groups, which not only represent us but also exert control over us. Corporatism means that we participate in the economy, not as individuals but as members of organizations – as workers, owners, or managers of corporations. Corporatism means that we participate in the political process, not as individuals but as members of organizations – as members of labor unions, corporate business organizations, political action committees, or other special interest groups. Corporatism means that we let someone else make our economic and political decisions for us.
Corporatism is a natural consequence of the process of industrialization. The processes of specialization, standardization, and centralization characterize the industrial paradigm. Specialization, with each person or unit performing fewer functions, allows each function or step of a production process to be performed more efficiently – i.e. division of labor. Standardization allows the various specialized functions to be controlled and integrated into an efficient overall production process – i.e. assembly line production. Specialization and standardization allow, in turn, efficient centralization of management and consolidation of control – i.e. economies of scale.

Economies of scale allow fewer firms or business organizations to grow larger and thus to gain greater control over the total output of an industry. As business firms become fewer and larger, they acquire increasing market power – the ability to reduce wages and buying prices and increase selling prices – leading to further economies of “size,” still greater market power, and chronically declining competitiveness of markets. Labor unions and other special interests groups emerge to counteract the power of large industries to exploit their workers, civil society, and the natural environment.

An industrial organizational structure has evolved to facilitate specialization, standardization, and centralization of control. Organizations are separated into specialized units – divisions, sections, departments, etc. – so as to facilitate gains from specialization. The function of each unit then must be specified and standardized so that all units work together effectively to achieve the overall purpose of the organization.

This same organizational structure has characterized private for-profit corporations, special interest groups, and government organizations – all specialize, standardize, and centralize to achieve efficiency. Each
organization, and each division, department, and workgroup within the organization, performs a specialized, standardized, function. Control of the organization can then be centralized, allowing a few key decision makers to make decisions which exert control over the people within the organization while claiming to represent them to the outside world. The corporation speaks for its stockholders and employees, the labor union speaks for its members, and Political Action Committees speak for their contributors. People participate in society “through” these various types of corporate organizations – not directly, as independent individuals.

The Corporatization of Agriculture
During my professional career, I have lived through the industrialization and corporatization of agriculture. The motives invariably were economic. Farmers saw the opportunity to profit from adopting new agricultural technologies – new machines, fertilizers, pesticides, or business management strategies. Each new technology promised lower costs, and thus, greater profits. However, these new technologies inevitable allowed farmers to specialize, to standardize and mechanize, and to produce more than before – to farm more land, produce more per acre, to manage more workers, or use more capital. So as more farmers individually adopted these new technologies, their collective production, which made up total market supply, began to increase. As supplies increased, market prices fell.

The promise of profits disappeared, but not the need to adopt. Profits went primarily to the “innovators” – those willing and able to take the risks of adopting unproven technologies. The “early adopters” followed the innovators. They realized some profits but less than the innovators as prices continued to fall. The laggards eventually are forced to adopt, not to make profits, but in order to survive, as prices drop below their old, higher costs of production. Those who attempted to adopt too late, or were unable to adopt, were forced out of business by falling prices as production continued to increase.
The failure of some was necessary so that others might acquire more land so that they could reap the full benefit of the economies of scale offered by the new industrial technologies. As the farms became fewer, the surviving farms became larger. The same amount of land was still farmed as before, but now by larger, more industrialized farming operations.

Why should people in general be interested in what I have seen happen to farmers? Because, this same thing has happened to nearly every other segment of the American economy. This is the same process by which the crafts-people of the past were replaced by factories, by which “mom and pop” grocery stores were replaced by supermarkets, and by which the small dry goods and hardware stores were replaced by the giant discount stores.

This also is the process that ultimately brings an economy under corporate control – by which a country moves from capitalism to corporatism. Incorporation allows still further specialization – allowing the ownership of an organization to be separated from its management and labor. Public stock offerings allows people with large amounts of capital to own companies that they do not manage or work for, and allows others to work for and manage companies that they do not own. The overriding motive for public investment and ownership is to realize profits and growth in value. Thus, corporate ownership frequently removes all social and ethical constraints to a company’s pursuit of ever-greater profits and growth. Anything that is legal is considered allowable, and if profitable deemed desirable, regardless of its social or ethical implications.

The corporatization of agriculture did not become apparent until the 1990s, but it should have been anticipated from the earlier industrialization of other sectors of the economy. As consolidation led to larger and larger business organizations, it became more and more difficult to amass sufficient quantities of capital to fully realize the potential
The Corporatization of America

The economics of scale. Thus, surviving businesses were forced to incorporate in order to accumulate sufficient capital to adopt the latest industrial technologies.

At first corporations tended to be family corporations – a means of making capital accumulated during one generation available to the next generation within the same family. Eventually, however, corporations tend to go public to raise still more capital. At this point in the consolidation process, existing publicly held corporations in other sectors of the economy become attracted to the newly emerging corporate sector. Old corporations acquire or merge with the new corporations. As these enterprises become still larger, it becomes quite difficult, if not impossible, for the remaining individually owned business to survive. The sector then is in the final stages of corporatization. And as the corporations grow larger, fewer firms will control an increasing share of total output, and markets become less competitive. Beyond some point, the market will no longer be competitive – at least not in an economic sense necessary for competitive capitalism.

The giant supermarket chains – Kroger, Safeway, Albertsons – have replaced the corner grocery store by this same process. The giant department stores chains – Sears, J.C. Penny, Macys – have replaced the locally owned dry-goods and house-wares stores by this process. The giant building supply chains – Lowes, Home Depot, and Builders Square – have replaced local hardware and lumberyards by this same process. And now, still larger corporations, such as Walmart, are using this same process to replace the supermarket, department store, and building supply chains.

This is the process by which capitalism has been replaced by corporatism. The process is defended using the theoretical principles of competitive capitalism – if it is a result of “free market” competition then it must be good for society. However, there is no theoretical economic
foundation to support the prevailing belief that a corporatist economy is capable of meeting the overall needs of society. Corporatism is not capitalism. Corporations are designed to amass capital – to generate profits and to grow. Corporations facilitate industrialization, and thus, facilitate production of ever increasing quantities of *cheap stuff*. Beyond this, there is no reason to believe that corporations will serve the needs of society. There is no reason to believe that corporations are capable of doing anything other than this any more efficiently or effectively than can individuals. In fact, there is reason to believe that corporations inevitably lead to the destruction of relationships and degradation of resources upon which human society ultimately must depend.

**Why Corporatism Isn’t Working**  
Capitalism is based on private ownership of property by “individuals.” But, most “private property” in the U.S. today is owned by corporations, not by individuals. Capitalism depends on social values and morals of the people to constrain their pursuit of individual self-interest. Corporations have no morals. The only things a corporation values are profit and growth. People have hopes and dreams for the future. People have hearts and souls as well as minds. Corporations have neither. In order for capitalism to work for the good of society, for the good of people, individual people must make the economic decisions, not corporations.

Capitalism is based on competition. But, Adam Smith’s *invisible hand* of competition has been mangled in the machinery of industrial corporatism, and is no longer capable of transforming self-interest into societal good. We no longer have competitive markets, at least not in the economic sense needed to eliminate excessive profits and pass cost savings on to consumers. It’s no longer easy to get into or out of businesses, as is needed to accommodate ever-changing consumer tastes and preferences. We don’t have accurate information concerning the actual qualities of the things that we buy, but get disinformation by design, in the form of persuasive advertising. Superficial differentiation of products
abound, but there is no real variety and thus very limited consumer choice in the marketplace. Consumer sovereignty is a thing of the past – as advertisers now “shape” consumer demand rather than respond to it.

None of the necessary conditions for competitive capitalism exists in today’s economy. The American economy is moving away from market coordination toward a corporate version of “central planning.” The problems of the centrally planned economies of Eastern Europe were not merely a lack of sophistication in management and planning. Central planning, by government or corporation, is a fundamentally “wrong-headed” way to try to coordinate an economy.

Capitalism is based on the principle of minimum government involvement in the economy, but the government and the economy have become inseparable. The government’s primary economic function under capitalism is to maintain competition. Instead, the top priority of the government has become to promote economic growth. Corporate interests permeate every aspect of government – from the making of laws to the delivery of basic public services. It’s virtually impossible to run successfully for any major office without corporate financial backing. High level corporate and government officials swap positions regularly as they move freely through “revolving doors” between big industry and big government. The corporations have gained so much influence in government that not only does government fail to ensure competition; government has become a tool for corporate exploitation of both people and resources.

Our economy is no longer capitalistic and our government is no longer democratic. We are in the midst of a great social experiment – an experiment being carried out by non-human entities that we have created and let loose to plunder the earth. A society cannot survive in the absence of effective societal restraints to moderate the pursuit of short-run, self-interests. It will exploit and eventually destroy the very things
that it must have to survive – productive human and natural resources. In America, we have removed all social and moral restraints to our selfishness. We have sacrificed our independence on an altar of “free markets.” We, the people, are the only means left by which we can end this experiment before it is too late.

**Revolution**

Our common sense tells us that it’s time to re-declare our independence. It’s time for a new American Revolution. Our common sense tells us that what society needs most is not more “cheap stuff.” We already have more *stuff* than we need. What we really need now is a greater ability to get along with other people – within families, among friends, within communities, within nations, and among people of all nations of the world. What we need now is to learn to build positive, interdependent relationships. We need to learn to build each other up rather than tear each other down. We need to take care of the earth rather than destroy it.

We need to revolt against economic and political oppression because we need to help build a better world for the future of humanity. A world with far fewer wars, that would be a better world. A world with less crime – fewer prisons, fewer policemen, fewer judges, that would be a better world. A world with less conflict – fewer confrontations, fewer lawyers and economists, fewer broken families and bankruptcies, that would be a better world. All of these things are possible, but only if we break free of our destructive patterns of economic and political dependence, competition, and exploitation, and start building new patterns of truly, interdependent relationships.

Our common sense tells us that we need to learn to lead lives of purpose and meaning. Purpose and meaning can only come from some higher level of understanding – some higher order of which we are but a part. We cannot gain purpose and meaning from our relationships with other people or things – no matter how strong or positive they may be. We are
at the same level of organization as all of the tangible things we can see and feel; we are all part of the same whole. The meaning of our lives is not derived from our relationships with each other, but instead from the relationship of us all with the larger whole of things.

We need to learn to rely on the spiritual dimension of our being for insight into the unique purpose and meaning of our lives. Through this spiritual dimension, we are rewarded when we practice stewardship – when we take care of the other living things of the earth and take care of the earth itself. Through spirituality, we are rewarded for treating those of future generations, as we would like to be treated by them, if we were of the future and they were of the present. A world in which people respect and take care of other living things – accepting that plants and animals provide food for people as people give live and sustenance to them – that would be a better world. A world in which people care for, nurture, and restore the environment, for the benefit of themselves as well as for those of the future – that would be a better world.

The new American Revolution must begin in the hearts and souls of the people. We need to begin by declaring our independence from the various corporate organizations that control us while claiming to represent us. Independence doesn’t require that we quit our “corporate” jobs. But, we must find the courage to refuse to do anything that exploits other people or exploits our natural environment, and we must work to wrest the corporate conscience from the grasp of the greedy. We may well need to look for another job, if we can’t regain our independence in the one we now have. We should not allow a corporation to represent us that that does not respect our independence.

Independence doesn’t require that we drop out of every advocacy organization to which we now pay dues. But we must find the courage and the time to oppose those organizations when we do not agree with their positions on issues, and to take an active role in shaping their
policies. We cannot blindly accept the position of any special interest group as if it were our own. We may well need to drop out of organizations that are not responsive to independent members who choose to speak for themselves.

As we reclaim our personal independence, we can begin to build interdependent relationships with other like-minded people. Relationships are important – a fundamental part of being human. But, our relationships need to be empowering, not weakening or depleting. As we change ourselves, we can begin to build relationships that will change our little piece of the world.

As we regain our personal independence, we can begin to form interdependent organizations to remove our dependence on corporate organizations of all types. We can create our own jobs – by joining with family members and other like-minded people to pursue ventures that are economically viable, ecologically sound, and socially responsible. We don’t have to become self-sufficient. But, we can develop enterprises that allow us to sell and buy from people with whom we have meaningful relationships – people that we care about and who care about us. We can create relationship markets. We don’t have to be driven to get the highest price when we sell or the lowest price when buy. We can insist that our trades be beneficial to both us and to those with whom we trade.

These types of opportunities already exist in agriculture – through farmers markets, community-supported agriculture groups (CSAs), community food circles, and other forms of direct marketing between farmers and their customers. These are relationship markets, where the quality of the relationships – among people and between people and the land – are at least as important as the quality of the products. A group of dedicated “agrarian revolutionaries” is recreating the global food system, “locally” – one farm and one community at a time by reconnecting people with each other and with the land.
I am sure that similar movements are underway elsewhere, and can be initiated in any area where they are not already developing. All it takes is a few people who realize that change is necessary, and who can find the courage to help bring it about. Similar changes can transform our non-profit organizations and special interest groups as well. We no longer need large organizations to speak for us in the political arena. We can form far smaller groups of like-minded people. These smaller groups can form alliances with other groups on specific issues on which they agree without being tied together on issues where they do not. In these days of e-mail and the Internet, such networks of political relationships can be flexible and dynamic – interdependent rather than dependent.

As we regain independence in the workplace and in politics, we can begin to reclaim our economy and reclaim our democracy. We can wrest the political process from corporations of all types. We can force corporations to serve the public interest – we have the constitutional right to demand it. We can restore harmony and balance among the economic, social, and moral dimensions of our individual and collective social lives. We can stop the exploitation of people and of nature in America and start building a sustainable society.

We Can Do It!
America today is not unlike America of the early 1900s. John D. Rockefeller formed the first “US trust” in 1882. He persuaded stockholders in some forty different corporations to exchange their stock for shares in The Standard Oil Company of Ohio. This allowed Rockefeller to consolidate management and centralize decision making across a large segment of the entire petroleum industry under one board of directors, which he chaired. Rockefeller exerted market power over the petroleum industry, manipulating supplies and influencing prices and profits, in ways that totally contradicted the conditions of competitive capitalism. American industrialists ever since that time have attempted
In 1893, American Sugar Refining Company and the United States Rubber Company had joined Standard Oil in the merger game. A second flurry of mergers, beginning in the early 1900s, lead to the formation of such well-known companies as United States Steel, Du Pont, American Can, and International Harvester. Soon large corporations not only controlled the American economy but also reached deeply into the American political process as well. Politicians and elections were routinely, often openly, “bought and sold” through bribes, lobbying, and corporate financing of campaigns. In many respects, the economic and political situation was not unlike that of today.

But in the early 1900s, the people rebelled. They demanded political and economic reform. Reform didn’t come easy, but the people found the courage to challenge the political machines. They sent a lot of new faces to Washington to represent them. At the urging of the new President, Teddy Roosevelt, the new Congress passed a number of new laws designed to help strengthen and enforce the antitrust laws already on the books.

During Roosevelt’s two administrations, the Justice Department brought more than 40 suits against the corporate trusts and won several important judgments. One judgment resulted in the split up of the Standard Oil Company Trust. The “Progressive Era” in American politics continued through the Woodrow Wilson administration. Civil Service eventually replaced political patronage, crippling the powerful “political machines” and primary elections were instituted to select candidates for offices instead of corporate deals in smoke-filled rooms.

The Progressives were the initial advocates of such radical ideas as election of Senators by popular vote, prohibition of child labor, women’s
suffrage, Social Security, collective bargaining by labor, full constitutional rights for minorities, and federal curbs on monopolies. Now, once again, the country is ready for some new radical ideas.

Today, the concentration of corporate industry is far greater, and consequently, markets are far less competitive than in the early 1900s. Today's corporations are multinational – exceeding the span of control of any single nation, and often exceeding the size of most national economics. Widespread corporate alliances and joint ventures add still further to the span of control of the corporate giants. However, corporations are not more powerful than the people. People have created corporations – both business and political – and people can control corporations. We have the power, if we can find the courage.

The new progressive area must begin with us, the people. As we change ourselves, we can begin to influence others. As we influence others, we can begin to change the world around us – at least our little piece of it. As each of us changes our little piece of the world, little by little the whole of the world begins to change. This is the pattern of all great social and political movements of the past.

We shouldn't wait for some great charismatic leader to arise. We need to lead this movement ourselves – the leadership must come from the people. Certainly, we need to network with others and build strong relationships, both as individuals and as groups. But we need to build interdependent relationships, not simply exchange one kind of dependency for another. We need to create a new form of democratic capitalism, based not on the independence of the past or the dependence of the present, but instead on interdependence – relationships of choice rather than necessity.

Idealistic? No. Realistic! That’s the way the world changes for the better, little by little – one person at a time. Change happens, but it’s change in
people that makes lasting change in society. And, people change one at a time. In the words of Margaret Mead, the renowned cultural anthropologist, “Never doubt that a small group of thoughtful, committed citizens can change the world. Indeed, it’s the only thing that ever has.” We have the power to change the world, if we can find the courage to use it.
Expansion of large-scale, industrial hog operations during the decade of the 1990s has fundamentally transformed the basic nature of the hog-pork sector of the US agricultural economy. Large-scale corporately-owned hog operations have gained a position of dominate market power and seem destined eventually to make it impossible for independent hog farmers to compete using conventional methods of production and marketing. It is no longer a question of whether independent hog farmers can stay competitive in terms of costs of production. The greatest threat to hog farmers today is loss of access to markets, as the giant agribusiness corporations move toward complete vertical integration of the hog-pork industry.

The agricultural establishment – including most major farm organizations, the USDA, and Land Grant Universities – seem willing to accept corporatization of the hog-pork sector as an inevitable consequence of “free market” economics. Virtually all of the positive claims put forth by the advocates of large-scale confinement feeding operations are economic in nature. Advocates of industrial hog production claim that consumer will benefit from higher quality pork and lower prices, family farmers will be able to remain competitive through contract hog production, and rural communities will benefit from increased local economic activity. Thus, society in general will benefit from the economic industrialization of US hog production – so claim the advocates.

There are elements of truth in each of these claims. On balance, however,
Economic Fallacies of Industrial Hog Production

the claims are more fallacy than fact.

Fallacy: Consumers' demands are driving the trend toward large-scale corporate hog production.

Advocates claim that consumers are concerned primarily about food costs and quality, and that smaller, family farming operations simply can’t provide consumers with the consistent quality of pork they demand at as low a cost as can the large-scale, corporate integrated system. They may admit that some family hog farms are as efficient as the hog factories, but claim that corporate operations are more efficient than the “average” family hog farm. They claim that consumers today are demanding leaner pork, which requires different genetics, and that consumers don’t want the variability of quality that is inevitable when hogs of various breeds are produced under a variety of production systems, and the resulting pork products are intermingled in the marketing system. Advocates claim that consumers are driving the current trend toward factory systems of hog production, because consumers will benefit in the marketplace. However, there are better means of giving consumers consistency, without sacrificing variety. The meager average cost advantage for corporate operations may well be more than offset by larger corporate profits, resulting in higher rather than lower consumer prices from industrial pork production.

Fact: Corporate profits are the motivation for industrial hog production. Corporate hog producers are concerned about consumers only as a market for their products – profits come before preferences of consumers.
First, from the standpoint of food costs, consumers have little if anything to gain from lower cost production at the farm level. Hog producers have received only about 25 cents of each dollar consumers have spent for pork in recent years. And, it takes a little over two pounds of live hog to make one pound of pork at retail. So if production costs for live hogs were two cents per pound less that would amount to four cents per retail pound, but would still only result in a savings of one cent per pound of pork at retail. It’s unlikely that any cost efficiency advantage for the larger operations would be greater than two cents per pound or two dollars per hundredweight of hogs sold. So the most consumers could possibly save would be in the range of a penny on the dollar – hardly enough to justify changing a whole sector of the farm economy. And as indicated before, there are other ways of achieving more efficient hog production without putting family hog farmers out of business.

On the question of quality, consumers want “consistent” quality but they do not necessarily want the “same” quality. They want to know when they buy the center cut pork chop today that it will be pretty much the same as the center cut pork chop they bought last week – they want to know what they are getting for their money. But all consumers don’t want the “same” quality – people have different tastes and preferences. Some want their pork chops to be larger and other smaller, some want theirs to be leaner and others well-marbled, some want theirs darker in color and others lighter, some like their chops firm and others want theirs to be more moist, and some don’t want pork from a factory farm while others don’t care. It’s a fundamental principle of economics that we don’t all value the same things equally – “quality” means different things to different people.

The large-scale factory operations are going to give all consumers the same thing, whether they want it or not. All pork will be from the same
basic genetic stock, feed the same feed in the same kind of climate controlled facilities, using the same drugs and hormones, resulting in animals that are all the same age, weight, and size. Some consumers may be well pleased, but others will not. Those who are not will no longer have a choice. However, the same level of consistency can be achieved when consumers buy direct from the same producer, or a small group of producers, time after time, without eliminating the opportunity for each consumer to choose the type of pork they prefer. They simply buy from a producer that supplies the type of pork they prefer.

Once the large corporations gain control of the pork industry, it is far more likely that the retail pork price will be higher, rather than lower. Once competition has been weakened, or destroyed, there will be no incentive to pass any savings in production costs on to consumers. Corporations are getting into the hog business because they expect to make money. Their goal is to eliminate competition, not to encourage it. Higher profit margins will have to come from somewhere. Consumers may find corporate profits are coming mostly, if not entirely, from higher retail pork prices. Large-scale corporate hog production will benefit the corporation – not the consumer.

**Fallacy: Contract hog production is the only means by which family hog farmers can gain the access to the capital, management, technology, and markets they will need to survive.**

The advocates claim that family farmers have no future in hog production unless they engage in comprehensive production contracts with
agribusiness corporations. They claim that economies of size in hog production are such that hog operations will have to be far larger than a feasible-sized family hog operation in order to be cost competitive. By contracting with large-scale corporate hog operations, family farmers can realize the benefit of an optimum scale hog operation, in terms of financing, technology, and market access, while maintaining a “family-sized” production operation. Thus, contracting allows “family hog farmers” to continue producing hogs for a living. However, contract production is not the only means by which independent hog producers compete successfully. In fact, farmers will discover that they have sacrificed their status as independent hog producers when they sign a comprehensive production contract.

Fact: Family hog farmers can survive and prosper by taking advantage of their unique assets – their willingness to work, their commitment to farming, and their skills in animal husbandry and business management.

Management is more important than the size of the operation in determining the economic efficiency of a hog operation. Actually farm records collected by various state universities have consistently indicated that 20-40 percent of family hog farms are as cost efficient as are the large-scale, corporate hog operations. So even with current production methods, a well-managed family hog operation can compete with the large-scale corporate hog operations. Most existing family hog farmers who sign corporate contracts do so because they are afraid of losing access to competitive markets, not because they can’t compete on cost of production.
Common sense tells us that hog farmers who sign comprehensive production contracts are not going to get much benefit out of their contract operations. The four basic factors of production are land, labor, capital, and management. Each of these factors earns an economic return: land earns rent, labor earns wages, capital earns interest, and management earns a salary. Profit is a reward for taking the risk of committing land, labor, capital, and management to an enterprise without knowing whether the return will be positive or negative.

In an industrial hog operation, land doesn’t contribute much to total returns. They can put a lot of hogs in a small space. In a typical contract operation, the facilities are generally new, built to contract specifications, and most of the money is borrowed. The contractor either provides the money for the loan or assists the producer in securing a loan. The contract producer provides nearly all of the on-site labor in a contract operation. However, these hog operations are highly mechanized, and all production procedures are highly standardized – feeding, medication, climate control, etc. The contractor provides all of the production technology. The on-site labor is basically the work of a janitor or building supervisor. So the contract producer can’t expect to earn much more than minimum wage for his or her labor.

All of the significant management decisions, such as selection of facilities design, genetic stock, health program, breeding dates, when to place on feed, feeding system, when to price, when to deliver, these decisions are all made by the contractor – not the producer. There is no reason for the producer to expect to earn a return to management or salary. In addition, the contractor takes most of the production and market risks, so there is
little opportunity for the producer to earn a profit over and above the value of their contract labor. They may earn a decent return on their capital investment, if they are able to keep a favorable contract for the useful life of their buildings and equipment, but by the time everything is paid for, it will likely be worn out.

In summary, the contract producer doesn’t really contribute much to a contract hog operation, and thus, can’t expect to get much back in return. The contractor provides the capital, the technology, the management, the market, and takes most of the risks. So, the contractor is going to make the money – not the producer.

If family hog operations are to survive and prosper in the future, it will be with systems that require high levels of skill in animal husbandry and all aspects of production management. Successful family hog operations also are going to have to break away from the highly integrated production and marketing systems – independent producers are quickly losing access to traditional markets. Family hog farmers of the future must have their own direct “linkage” with their customers – either individually or through joint ventures with other independent producers. Many producers are already developing such systems. They may produce hogs on pasture, as does Greg Gunthrop in Illinois, or in deep-bedded dry-waste systems, including hoop houses, as does Tom Franzen in Iowa. They may sell direct to their customers through personal contacts, farmers markets, or cooperative ventures – such as Patchwork Family Farms in Columbia, MO – or through farmers’ agents – such as Niman Ranch, a national supplier of upscale restaurants out of San Francisco.

The bottom line is that contract production is not a sensible alternative for the future of family hog farms. Instead, it means that farmers will become contract laborers, janitor or building supervisors, on their own farms. There are better alternatives for the future of family hog farms, but they
will require a different kind of management. Contract hog operations benefit the contractor, not the family hog farmer.

**Fallacy: Rural communities in agricultural areas will benefit from large-scale corporate hog operations.**

The advocates claim that large-scale corporate hog operations are a logical economic development strategy for rural communities in agricultural areas. These operations will help keep local families employed on their farms and, if enough operations become large enough, they will create badly needed local jobs in pork slaughter and processing and in supplying feed and other services. Corporate hog production can also add significantly to the local tax base, particularly if feed and meat processing facilities are located in the area. Many rural agricultural communities are losing both population and tax base. They need people to support local retail businesses, local schools, and local churches, and they need local tax dollars to support local government and other social services. Many rural communities have a history of relying on agriculture and the local people are accustomed to working in agricultural operations. Corporations are looking for a hospitable place to locate their facilities. So corporate agriculture would seem to be a natural fit – a win-win situation for both rural communities and corporate agriculture. However, rural communities have better alternatives for economic development. Industrial hog production destroys the most valuable resources rural communities have for building a sustainable future.

**Fact: Rural people must learn to rely on their own resources – their land, local investment, and local people – to sustain their communities over the
The corporations who are investing in large-scale hog production are not in the business of community development. They are looking for someplace where they can do business as profitably as possible. They are looking for a cheap source of labor and somewhere to get rid of a huge quantity of smelly waste with the least hassle from local residents. They are looking for people who are desperate to stay on the farm – to be their contract producers. They are looking for people who are desperate for work of any kind – to work in feed mills and slaughter plants. However, they expect to bring in workers from other countries for the most intolerable jobs, regardless of where they locate. And they are looking for local town officials who want to bring jobs to their community now, regardless of the long run consequences.

Hog production and processing are dirty businesses – they are inherently threatening to the natural environment. The basic problem in large-scale hog production is concentration – putting too many hogs in one place. When hogs are dispersed across the land, their waste is likewise dispersed and diluted. Hogs on pastures, or even small confinement operations on diversified farms, do not represent a significant environmental or health risk. Their waste goes back to the fields where the feed grains were grown to be recycled for future production. But when tens and hundreds of thousands are concentrated in one place, the waste has to be collected, processed, and carefully distributed to prevent serious environmental and health problems. More waste is concentrated in a given geographic area than nature can assimilate. Any disruption in the waste treatment process means potential serious contamination of surface or ground water and potentially serious risks to human health.
The corporate operations defend themselves against environmental accusations by promising to build and maintain the most effective waste disposable systems technically possible. However, such promises have been followed by a persistent pattern of repeated environmental catastrophes in states such as North Carolina, Missouri, and Iowa, where many of the largest corporate operations are located.

In addition, concentration of too many hogs in one place results in noxious odors that can sometimes be smelled for miles around. A growing body of scientific literature has documented that odor problems are more than just a nuisance to those living nearby. Hog odors also reduce surrounding property values, and most important, odors can represent serious health risks for people living within miles of some of these large hog factories. Some counties have passed local health ordinances to protect their people from exposure to large-scale confinement animal feeding operations.

The negative environmental impacts of large hog operations also tend to degrade the quality of civic life in the local communities. The people who are downwind or downstream from these large-scale operations tend to be determinedly opposed to the corporate operations while those who work for the operations are thankful for their jobs. Consequently, these operations pit neighbor against neighbor, and in many cases have split communities apart, making it difficult for the community to come together around any common cause.
So large-scale corporate hog operations destroy the very resources that rural communities must depend on for their long run viability and prosperity. They trade potentially productive, entrepreneurial opportunities on independent farming operations for low-skilled, low-paying jobs, which tend to contribute relatively little to the local community or the local economy. They often bring in workers from outside the community who have no commitment to the local community and may well add more to the cost of social services than corporations add to the local tax base. They risk degrading the natural environment by polluting streams and groundwater and filling the air with noxious odors. And, they can tear the social fabric of a community apart.

When the corporations find some other place where people will work even harder for less money, and who care even less about their natural environment, the corporations will move on, leaving the communities with the mess to clean up. The most valuable assets that most rural communities have to ensure their long run survival and prosperity are open spaces, a clean environment, and a strong sense of community. Some communities have sacrificed all of these things for a few low-paying jobs in corporate hog factories. This just doesn’t make common sense. The corporations benefit from large-scale hog production, not the local community.

**Fallacy: Large-scale corporate hog operations will benefit society in general.**

Advocates claim that the trend toward large-scale corporate hog operations is simply a consequence of the free market. It’s simply a matter of economics. Corporate hog operations are more cost efficient than family hog farms, if only by a couple of cents per pound. In highly competitive export markets, a couple of cents per pound can be critical to being competitive. Society overall will benefit from having the most efficient production possible – those who are less efficient, the family hog
farmers, will simply have to find something else to do.

The advocates claim that consumers will have a choice concerning whether lower retail prices are more important than having variety in the supermarket. It’s simply a matter of free market economics. Retail poultry prices dropped and poultry consumption increased as the poultry production moved from family operations to industrial production systems. Consumers chose low prices over variety, so they must be better off. Now, they will have a similar choice with pork.

Rural communities are simply choosing the best economic alternatives available. Right now, their options may not be too good, but society in general benefits when natural and human resources are put to their highest and best use, no matter how meager the economic benefits may be. It’s simply a matter of economic reality.

However, our “free market” economy no longer ensures that individual economic decisions, based on short-run self interests, will best serve the long-run interests of society in general. People must make thoughtful, purposeful decisions to take care of each other and to take care of the natural environment if we are to build a sustainable economy and society.

Fact: Corporate greed is not magically transformed into societal good, no matter what economists might lead us to believe.

None of the necessary economic assumptions underlying the proposition that the pursuit of corporate profit will serve the public good hold in the economy of today. The concept of an “invisible hand” that transforms greed into good was developed some 200 years ago by a British economist by the name of Adam Smith, based on observations of the world of the late 1700s. The capitalistic transformation of self-interests into
societal interests requires that markets be economically competitive. Competition, in economics, means that markets must have so many buyers and sellers that no one buyer or seller can influence overall supplies or prices. Competition means that it has to be easy to get into profitably businesses and easy to get out of unprofitable ones. Competition requires that consumers have perfect information concerning quality attributes of products, and that there be no superficial product differentiation. Competition also requires that consumer tastes and preferences be taken as given – that the consumer is sovereign.

None of these necessary assumptions hold in the corporately dominated economy of today. The corporations are huge and the number of sellers of practically everything, including pork, is small and declining every day. It is not easy to get into or out of these large corporate operations – the investments are huge, everything is patented, and liquidation of a large, specialized operation is virtually impossible. Consumers do not have perfect information – billions of dollars are spend on advertising to promote superficial differentiation and disinformation. The “consumer is no longer king,” or queen – not since advertising firms started hiring psychologists to “create” consumer “wants and needs” that did not previously exist.

The “stuff” being produced today may well be produced at a lower cost than would be possible if the same “stuff” was produced by smaller firms in a competitive industry. However, there is absolutely no assurance that the “stuff” being produced today would be produced at all, that this same “stuff” would be chosen by consumers, in a truly competitive market place. The large corporations today don’t serve consumers. Consumers serve the corporations.

In fact, we no longer have a capitalistic economy in the United States. The foundation for any capitalistic economy must be individuals making their
own independent decisions, in an environment where they are not bribed, coerced or persuaded to make short run decisions that may not be in their own long run best interests. Today, we have a corporatist economy rather than a capitalistic economy. We have separated decision making from ownership and from responsibility. A corporatist economy may be capable of achieving greater economics of scale than would a capitalistic economy. But, there is absolutely nothing in economic theory to ensure that society will realize maximum benefits from a corporatist economy – in terms of prices paid by consumers, choices available to consumers, salaries or wages paid to workers, or opportunities for people to make a decent living. A corporatist economy will ensure maximum returns to corporate investors – even at the expense of society in general.

The fact of the matter is that the big corporations will benefit from industrial hog production – not consumers, not farmers, not rural communities, and not society in general, but the corporations. Corporations are neither “bad nor good,” at least in the sense that people are “bad or good.” Corporations have no heart and they have no souls. Neither do they have friends, communities, or citizenship. All they are designed to do, and thus, all they are capable of doing, is making profits and growing. The people who work for corporations may be good people, but they may feel that they have no choice but to help the corporation make profits and grow – even at the expense of other people. It simply doesn’t make any sense to turn our economy and our society over to a bunch of non-human beings.

**Sustainable agriculture: A better alternative.**

Regardless of the nature of our economy, there are better alternatives than industrial hog production. Independently-owned, modest-sized, family-operated hog farms can still be commercially competitive with industrial operations if farmers are willing to rethink what hog farming is all about. Independent hog farmers can no longer compete with the giant
corporations in using industrial technologies to produce basic commodities for mass marketing and distribution systems, but there are other alternatives. A new paradigm for farming arising under the conceptual umbrella of sustainable agriculture balances the need for economic viability with ecological integrity and social responsibility to meet the needs of the present without compromising opportunities for the future. Independent farmers have a comparative advantage in sustainable production, because industrial hog operations, quite simply, are not sustainable.

In sustainable farming, production costs are minimized through more intensive management of on-farm resources within more diversified, individualized farming systems. Pasture-based and deep-bedded systems for hogs are but two examples. These smaller scale, less confining, solid waste systems minimize risks to the natural environment and maintain a humane living environment for both hogs and people around them. In sustainable farming, product value is maximized by giving specific consumers the products that they prefer and by establishing more direct relationships between producers and customers – as with Patchwork Family Farm and Niman Ranch. Sustainable systems treat customers as people rather than as markets.

Greater reliance on intensive management and direct marketing creates more quality employment opportunities in rural areas by enhancing the productivity of people rather than replacing people with capital investments and large-scale, mass-production technologies. Larger numbers of successful farming families contribute far more than just more jobs and income to the communities in which they live. People are more effective, efficient, and successful because they use their unique abilities and pursue their own dreams rather than carry out someone else’s orders. The empowerment of people to be productive is the foundation upon which the new paradigm of sustainable agriculture must be built.
The claims that industrial hog production will benefit consumers, farmers, rural communities and society are false. The fact is that consumers, farmers, communities, and society will all benefit as we move beyond the current preoccupation with short-run, economic self-interest and begin to support and promote systems that will be economically viable over the long run, because they are also ecologically sound and socially responsible. The interests of people will be better served as we begin to support and promote a more sustainable agriculture.
At the turn of the 20th century, America was still an agrarian nation. In 1900, over 40 percent of the people in the United States were still farmers and well over half still lived in rural areas. At the turn of the 21st century, a hundred years later, less than 2 percent of Americans called themselves farmers and only around 25 percent lived outside of major metropolitan areas. The number of farms in the US peaked out at around 6.6 million farms in the 1930s and has since dropped to less that 2 million. Even those families who live on farms today earn around 90 percent of their household income from sources other than farming. During the 20th century, America was transformed from an agricultural to an industrial nation.

Some scholars associate the word “industrialization” with the transformation of an economy from agriculture to manufacturing as the primary source of productivity. However, such a transformation is but a consequence of applying an industrial model or paradigm in the development of a nation’s resources. The fundamental characteristics of the industrial paradigm are specialization, standardization, and centralization of control. And the application of this paradigm leads some people to specialize in food and fiber production, “freeing” others to manufacture the things associated with an industrial economy.

In earlier times, specialization was referred to as “division of labor.” Early industrialists observed that if a group of laborers, who were each producing an item (i.e. transforming raw materials into finished products), would instead each specialized in performing only one or two functions in
the production process, they could perform each task more efficiently. By specializing and working together, so that all functions were performed but by different people, the group of laborers could greatly increase their collective productivity. But to facilitate such specialization, each function in the production process had to be standardized so that each specialized step in the process would fit together with the others. Specialization and standardization then allowed production processes to be routinized, and some mechanized, which greatly simplified the production management process. This allowed control of production to be centralized or consolidated, with fewer people making decisions but with each manager controlling the use of more land, labor, and capital. Today, we commonly refer to the economic gains from industrialization as economies of scale.

The transformation of American agriculture has followed the classic industrialization process. Once diversified farming operations gradually become more specialized – first specializing in livestock or crops, then specializing in particular crops or species of livestock, and finally into specific phases of production for a specific crop or species of livestock. For example, today we have separated beef production into cow-calf, stocker cattle, and cattle feeder operations, which are separate from feed grain, soybean, and hay production, and from grain handlers, livestock truckers, etc. all of which are parts of beef cattle production. We have separated the functions that once were performed on a single diversified farm into a number of specialized, standardized processes that are performed by separate enterprises all across the country. And in the process, we have made it not only possible but also more economically efficient to consolidate the decisions that bring all of these specialized functions together under the control of far fewer decision makers who manage far larger business enterprises.

Industrialization also results in separation and specialization with respect to the basic economic resources – land, labor, capital, and management. Some own land, others work, others provide capital, and others manage.
As agricultural operations have grown larger, they have required larger amounts of capital. First, family farms were incorporated so they could keep their capital intact as farms were transferred from one generation to the next. But eventually, the most economic size of an operation exceeds the financial capabilities of most family corporations. Publicly held corporations are able to assemble capital from many sources, providing almost unlimited ability to finance any economically successful operation. Thus, it is inevitable that an industrial agriculture ultimately will come under the control of publicly owned corporations. So today, American agriculture is in the final stage of industrialization – the corporatization of command and control.

In agriculture today, some are landowners, some are agricultural workers, some own stock in agricultural corporations, and others are managers of agribusiness enterprises, but there are relatively few real “farmers” left in America. Corporations are replacing farmers as the decision makers in more and more agricultural operations. The complete corporatization of agriculture – the final stage of industrialization – would mean the end of farming in America.

So what difference does it make whether farmers or corporations control American Agriculture? What’s the difference between farming and corporate agriculture? First, there is no useful “formal” definition of farming. The common sense representation of farming in America is the traditional “family farm.” However, there is no general agreement, even with regard to what constitutes a “family farm.” The most common definition of a family farm is one for which members of the same immediate family own the land, do most of the labor, and make all of the important management decisions. This definition would exclude many, probably most, farms today -- by one criterion or another. It most certainly would exclude corporate, contract production, where the “farmer” contributes very little, other than some low-skilled labor, with the corporation making virtually all of the important management decisions.
Some would exclude from the definition of “farms” in general those operations which report less that $50,000, or even $100,000 in annual sales. Anything smaller is not a real farm, they say, but a “hobby farm” or a “residence farm.” If we exclude these small farms from our definition of family farms, then there are virtually no family farms left in America. Nearly all larger farms either rely on rented land or hired labor, or are contract operations.

True family farming, however, can’t be defined in terms of dollars of sales or percentages of land, labor, capital, or management provided by a family. A true family farm is a farm where the farm and the family are inseparable parts of the same whole. If a farm is run as a separate business enterprise that simply earns income for the family, it is not a family farm. If the organization and management of the farm doesn’t reflect the preferences, abilities, and aspiration of all members of the family, it is not a family farm. If a farm is not managed in such as way as to reflect the concern of the family for their neighbors and the commitment of the family to the community, it is not a family farm. Finally, if the operation of the farm doesn’t reflect the ethical and moral value of the family, it is not a family farm. On the other hand, if the farm and the family are “one in the same,” then it’s a family farm, regardless of size and regardless of who provides what proportion of which factors of production.

A family farm can operate on rented land and borrowed money, but the family must put much of themselves into the farm, their labor and their management, if they are to truly be a part of the farm and the farm a part of them. The economic returns from a family farm may be far more than enough to meet the needs of the family, or alternatively, the farm may show no profit at all. Family farming is not a simple matter of economics. A family farm provides recreation, education, a place to live, a place to raise kids, a place to relax and to find harmony with nature. Such things would cost thousands of dollars for an urban resident, if they could be
bought, but they all come as part of a family farm. A family farm also can help meet the social and spiritual needs of the family, regardless of whether it contributes to their economic well being. Perhaps most important, a family farm reflects the physical abilities, the mental capacities, and spiritual value of the family. The farm is as much a part of the family as the family is a part of the farm.

The process of industrialization has systematically destroyed family farms all across America. The sole focus of industrialization is on operational and economic efficiency. There is nothing in the industrial model to help build, or even maintain, the productive capacities of people. In fact, specialization and standardization diminish the mental capacities of people as they focus on doing fewer things by the same means as everyone else while simply responding to directions or orders given by someone else. With industrialization, few people are given the opportunity to think – to be creative and innovative.

There is nothing in the industrial model to help build, or even maintain, interpersonal relationships among people. In fact, specialization and separation virtually tears people apart, within families, within communities, and within society as a whole. Each person goes their own way, does their own thing, and only relates to others through markets rather than personal interaction. With industrialization, few people are given an opportunity to come up with new and different “right” answers, which arise from the synergy of people thinking together.

Perhaps most important, there is nothing in the industrial model to help build, or even to maintain, the ethical and moral values of individuals, families, communities, or society as a whole. In fact, once industrial operations come under corporate control, they systematically seek to destroy all social and moral constraints to their pursuit of self-interests and greed. Corporations are not people; they only exist on paper as legal, economic entities. They exist for the purpose of facilitating the
accumulation of capital to finance large scale, industrial enterprises. Once the management of a corporation becomes separated from its corporate investors, as with most publicly-held corporations, the sole purpose of the corporation becomes to make profits and grow. Most stockholders have no commitment to nor real control over the companies in which they own shares, they invest only to earn dividends or profits from increases in stock values. The managers of such corporations have no choice but to maximize corporate profits and growth for their stockholders, otherwise they will be replaced. A corporation has no heart, it has no soul – it only knows profit and growth.

The complete corporatization of American agriculture would remove the last vestiges of the American family farm. Corporatization takes the family, and even the farmer, out of the agricultural production process. Farmers are inclined to do things “their” way, whereas with corporate production, it is the corporate way or no way. And there certainly is no place for wives or kids in a corporate business operation. The corporate producer can’t afford to give special consideration to neighbors or community, or to be good stewards of the environment. The profit margins are too thin. Contributions to civic or charitable causes must yield economic rewards in the form of fewer social or environmental constraints to the business.

In addition, corporate agriculture must deny all ethical and moral responsibility for its actions, because much of its economic advantage comes from its willingness and ability to exploit local workers and the natural environment. In fact, the economic advantages of corporate agriculture would largely disappear if corporations were required to pay living wages for labor and forced to dispose of their wastes by means that protected the natural environment and the health of their workers and neighbors. Corporate agriculture prospers by doing things that true family farmers simply would not do. People have hearts and souls, but corporations have neither.
Corporate agriculture seeks to discredit and destroy the concept of family farming in order to eliminate any viable alternative to their unrestricted pursuit of ever more profit and growth. Fortunately, a new model or paradigm for farming is emerging to address the growing deficiencies of industrial agriculture. This new paradigm is “sustainable agriculture.”

The issue of agricultural sustainability was first raised because of an increasing realization that agricultural industrialization was destroying the natural environment. Agriculture was destroying the resources upon which its future productivity must depend. Industrial farming methods were mining the soils of nutrients, allowing soils to erode, and depleting stocks of fossil energy and other non-renewable resources. The fundamental purpose of agriculture is to convert solar energy into energy forms that are useful to humans. But industrial agriculture uses up more energy, in the form of fossil fuels, than it captures from the sun, in the form of solar energy. In addition, inputs that are absolutely essential for industrial farming operations – commercial pesticides and fertilizers – were polluting groundwater and streams and were degrading the natural environment. In the process of producing the peoples’ food, industrial agriculture was poisoning the peoples’ environment. Some people were beginning to realize that an industrial agriculture was not ecologically sustainable.

Questions of ecological sustainability led to question of economic and social sustainability. Farmers began to realize that while new industrial technologies allowed them to cultivate more land or to raise more livestock, their profits per bushel or per head simply became narrower, leaving them no better off than before. They were farming more land, borrowing more money, hiring more laborers, and working harder, but they were earning no more for themselves than before. In addition, they realized that each round of new technology meant that some of their neighbors would have to go broke, so their farm would come up for sale.
To survive, farmers had to be able to get their neighbor’s land. The survivors began to realize that sooner or later, it would be their farms on the auction block. People slowly began to see that an industrial agriculture is not economically sustainable – at least not for farmers.

Questions of economic viability were followed by questions of social sustainability. Life is not just about making money, and environmental stewardship is not just about preserving nature. The economy and the environment are important because they contribute to the quality of life of people. But, our quality of life also is affected by our relationships with other people – within families, communities, nations, and human society. Some common symptoms of a society that has lost its ability to relate to each other are loneliness, depression, and divorce. Competition, confrontation, laws suits, crime, and war characterize societies that have depleted their social capital. Industrialization encourages people to treat other people as faceless machines, as nameless factors of production, as adversaries to be conquered, as something to be used up, and if necessary, exploited. Human relationships are reduced to business transactions. There is no room for caring about, sharing with, for loving your neighbor in an industrialized society. Some people began to realize that industrial agriculture was destroying farm families and rural communities and was contributing to the degradation of American society – that industrial agriculture was not socially sustainable.

Some people contend that the concept of a “sustainable agriculture” is still undefined, that they can’t support it because no one really knows what it means. This quite simply is not true. People may disagree on the specific words, but there is a general consensus among all who take the issue seriously that a sustainable agriculture is “an agriculture that is capable of meeting the needs of the present while leaving equal or better opportunities for the future.” The concept of sustainability applies the Golden Rule across generations. We should do for those of future generations, as we would have them do for us, if we were of their
generation and they were of ours. We must find ways to meet our needs, all of us who are here today, without diminishing the ability of those of future generations to meet their needs as well.

A sustainable agriculture must have three fundamental characteristics. It must be ecologically sound, economically viable, and socially responsible. Any system of farming that lacks any one of the three quite simply is not sustainable. This is not a matter for debate; it is just plain common sense. A sustainable agriculture must protect and maintain the productivity of its natural resource base. If the land won’t produce, the farm is not sustainable. A sustainable agriculture must make sufficient profits to remain economically solvent. If the farmer goes broke, the farm is not sustainable. Finally, a sustainable agriculture must provide for the food and fiber needs of people, but it also must provide people with opportunities to lead successful lives. Agriculture must do its part to support society or society will not support agriculture.

No one of the three dimensions is any more or less important to sustainability than the others. The ecological, economic, and social dimensions of sustainability are like the three dimensions of a box. A box that is lacking in height, width, or length quite simply is not a box. A farm that lacks economic viability, ecological integrity, or social responsibility quite simply is not sustainable. On this there is no credible disagreement. It’s just common sense.

This new paradigm for agriculture is being developed by thousands of farmers all across the American continent and all around the world. These farmers are developing the replacement for the industrial model of agriculture. They are developing the pattern for farming in the future. Farming sustainably is no simple task, but thousands of farmers are finding ways to succeed. They may carry the label of organic, low-input, alternative, biodynamic, holistic, permaculture, or no label at all, but they are all pursuing common economic, ecological and social goals. By their actions, these farmers are defining a new kind of farming.
These farmers, not the experts or the scientists, are the ones on the new frontier – they are the explorers, the colonists, the revolutionaries, and the builders. As on any frontier, life is difficult because no one really knows how to do what these folks are trying to do – they are creating the future. They are getting little help from the government, their universities, or the agricultural establishment. They are doing it pretty much on their own. They will continue to confront hardships, frustrations, and there will be some failures along the road. But, more and more of these new farmers are finding ways to succeed.

These new farmers are diverse, but they also share much in common. First, they share a common pursuit of a higher self-interest. They are not trying to maximize profit, but instead are seeking sufficient profit for a desirable quality of life. They recognize the importance of relationships, of family and community, as well as income, in determining their overall well being. They accept the responsibilities of ethics and stewardship, not as constraints to their selfishness, but instead, as opportunities to lead successful lives.

There are no blueprints for this new way of farming. But a few fundamental principles are beginning to emerge. In general, the new farming opportunities arise directly from exploiting the weaknesses resulting from misuses of industrialization -- specialization, standardization, and centralized decision making. The new farm relies instead on the advantages of diversity, individuality, and decentralized networks of interdependent decision-makers.

New farmers focus on working with nature rather than against it. The natural resource base that ultimately must sustain productivity is inherently diverse. Industrial systems have had to bend nature – to augment, supplement, alter, and force it -- to create an allusion of
conformity out of diversity in order to meet the demands of large-scale, industrial production. The ecological problems arising from industrialization are symptoms of natural resources being used in ways that are inherently degrading to their productivity. Thus, industrialization has created tremendous opportunities for farmers who learn to utilize the inherently productive capacity of a diverse natural resource base, rather than wasting time and money trying to force nature to conform.

These new farmers utilize practices such as management intensive grazing, integrated crop and livestock farming, diverse crop rotations, cover crops, and inter-cropping. They manage their land and labor resources to harvest solar energy, to utilize the productivity of nature, and thus, are able to reduce their reliance on external purchases inputs. They are able to reduce costs and increase profits while protecting the natural environment and supporting their local communities.

New farmers focus on value rather than costs. They realize that each of us values things differently, as consumers, because we have different needs and different tastes and preferences. Industrial methods are efficient only if large numbers of us are willing to settle for the same basic goods and services – so they can be mass-produced. So, industrialization has to treat us as if we are all pretty much the same. Customers have to be persuaded, coerced, and bribed to buy the same basic things rather than the things they really want. That’s why we pay more for packaging and advertising of food than we pay to the farmers who produce the food. The industrial system creates tremendous untapped opportunities for farmers who can tailor their products to conform to unique needs and preferences of individual customers, rather than try to bend the preferences of customers to conform to their products.

New farmers market in the niches. They market direct to customers through farmers markets, roadside stands, CSAs, home delivery, or by
customer pick-up at the farm. They use everything from the Internet to word of mouth to advertise their services. They market to people who care where their food comes from and how it is produced – locally grown, organic, humanely raised, hormone and antibiotic free, etc. They are often able to avoid some or all of the processing, transportation, packaging and marketing costs that make up 80 percent of the total cost of mass marketed foods. They increase value, reduce costs, and increase profits while protecting the environment and helping to build stronger local communities.

New farmers focus on what they can do best. They realize that we are all different -- as producers as well as consumers. We have widely diverse skills, abilities, and aptitudes. Industrialization has had to bend people -- train, bribe, and coerce them -- to make people behave as coordinated parts of one big machine rather than as fundamentally different human beings. Many social problems of today are symptoms of people being used by industrial systems in ways that are inherently degrading to our uniquely human productive capacities. Thus, industrialization has left tremendous untapped economic opportunities for farmers and others who can use their unique capacities to be productive rather than attempt to conform to systems of production that just don’t fit.

These new farmers may produce grass finished beef, pastured pork, free range or pastured poultry, heirloom varieties of fruits and vegetables, dairy or milk goats, edible flowers, decorative gourds, or dozens of other products that many label as agricultural “alternatives.” They find markets for the things they want to grow and are able to grow well rather than produce for markets where they can’t compete. Or they may produce fairly common commodities by means that are uniquely suited to their talents. Their products are better, their costs are less, and their life is better because they are doing the things that they do best. New farmers focus on creating value through uniqueness – among consumers, among producers, and within nature.
In general, the new farmers link people with purpose and place. By linking their unique productive capacities with unique sets of natural resources to serve the needs and wants of unique groups of customers they create unique systems of meeting human needs that cannot be industrialized. The more unique their combinations of person, purpose, and place, the more sustainable will be the value to customers and producers alike. The sameness of industrialization creates opportunities for unique farmers who can create unique linkages with both resources and customers.

Sustainable agriculture does not mean going back to the past; it is going forward to the future. The principles of diversification, individualization, and decentralization are no older or newer than are the principles of specialization, standardization, and centralization. The fundamental question is: “Which principles are more appropriate for solving the problems or realizing the opportunities of today?” The industrial era is of the past; the future belongs to post-industrial, knowledge-based systems. The future belongs to systems that empower people to be creative, innovative, productive individuals – not just cogs in some big industrial machine. Sustainable agriculture empowers “people” to be productive.

Some argue that people lack the ability to feed the world by working with nature rather than relying on current high-input, industrial systems. Or they claim that we must rely on biotechnology instead of basic biology. Such people are the “new Malthusians.” An economist by the name of Thomas Malthus claimed, more than 200 years ago, that humanity was destined to starve because food production couldn’t possibly keep pace with population growth. He underestimated human creativity. Those who say we can’t feed the world of the future without destroying the natural environment and human relationships quite simply are underestimating the capacity of people – when they are truly empowered to be productive.
Some argue that niche markets are limited and provide opportunities for only a few. But the fact is that all consumer markets are niche markets because we all have different tastes and preferences. The rest of the economy is already moving beyond industrial mass production with production tailored to the demands of narrow segments of markets. The question is not how many niche markets exist, but how many different markets to serve. There are plenty of niche markets to allow ecologically sustainable farming.

Others argue that sustainable agriculture will result in higher food costs. This is nothing more than a scare tactic to protect the interests of agribusiness. The farmer today gets less than a dime of each consumer dollar spent for food. The rest goes to pay for marketing costs and purchased inputs. So even if it were to cost ten percent more for farmers to produce food in ways that protect the natural environment and support human communities, food costs in the grocery store would only be one percent higher – one-tenth of the farmers’ dime. However, over time industrial systems will become less efficient, as the costs on non-renewable inputs rise and more environmental and social costs are internalized. And over time, sustainable systems will become more efficient than industrial systems, as more farmers become as efficient as are some of the “new farmers” today.

Whether America will have the wisdom to develop a sustainable system of farming is a question that only time will answer. However, sustainable agriculture represents the only hope for the future of “family farming, or even “farming,” in America. Those who pursue a future in farming must be willing to commit their bodies and minds to farming. Those parts of us of that work cannot be separated from those parts of us that think. Sustainable farmers will be “working thinkers” and “thinking workers.” Those who pursue a future in farming must be willing to commit their hearts and souls to farming. Those parts of us that love and believe cannot be separated from those parts that work and think. We must have
the wisdom and courage to live as whole people, rather than allow ourselves to become compartmentalized and isolated into economic, ecological, and ethical boxes.

Our common sense tells us that we are made up of body, mind, and soul. Our common sense tells us that personal, interpersonal, and spiritual dimensions of our lives are inseparable and all three are important to our quality of life. Our common sense tells us that our farms must be economically viable, ecologically sound, and socially responsible – that all three are necessary and none alone is sufficient. Our common sense tells us that our quality of life is better when we care about others and when we are good stewards of nature, as we accept responsibility for taking care of ourselves. Those who want to pursue a future in farming need only rely on their common sense.

Wendell Berry, a Kentucky farmer, has clearly articulated the critical nature of connections among people and between people and the land that are necessary for farming sustainably.

"...if agriculture is to remain productive, it must preserve the land and the fertility and ecological health of the land; the land, that is, must be used well. A further requirement, therefore, is that if the land is to be used well, the people who use it must know it well, must be highly motivated to use it well, must know how to use it well, must have time to use it well, and must be able to afford to use it well."

To sustain agriculture we must have successful farmers on the land, who understand the land, and are committed to caring for the land. The future of farming is in the hands of those farmers who are finding ways to make a decent living while loving each other, and loving the land. In a very real sense, the future of America is the hands of the "new family farmers."
*From “What are People For,” by Wendell Berry.
The current lack of competitiveness in agricultural markets is a direct reflection of a national obsession with the industrial paradigm of business organization. Specialization, standardization, and centralization characterize the industrial paradigm. Specialization, with each person or unit performing fewer functions, allows each function or step of a production process to be performed more efficiently – i.e. division of labor. Standardization allows the various specialized functions to be integrated into an efficient overall production process – i.e. assembly line production. Specialization and standardization allow, in turn, efficient centralization of management and consolidation of control – i.e. economies of scale.

Economies of scale allow fewer firms or business organizations to grow larger and thus to gain greater control over the total output of an industry – e.g. allows fewer packers to gain control over total livestock slaughter and processing. As firms become fewer and larger, they acquire increasing market power – the ability to reduce buying prices and increase selling prices – leading to further economies of “size,” still greater market power, and chronically declining competitiveness of markets.

An industrial organizational structure has evolved to facilitate specialization, standardization, and centralization of control. Organizations are separated into specialized units – divisions, sections, departments, etc. – so as to facilitate gains from specialization. The function of each
unit then must be specified and standardized so that all units work together effectively to achieve the overall purpose of the organization.

All workers in an industrial organization have responsibilities to carry out the specific, standardized tasks associated with their particular position within the organization. Workers with more highly interrelated responsibilities are grouped together within work units to facilitate integration of their individual functions – e.g. sales representatives make up the sales department. Likewise, units with more highly interrelated responsibilities are grouped together to form higher level divisions within the organization – e.g. all sales, advertising, and promotion departments may make up a merchandizing division. Management positions carry the responsible for ensuring that the output of a particular unit meets or exceeds the standards necessary for that unit to fulfill its specified function within the organization.

The manager of each department within a division is responsible to the manager of the overall division for the performance of his or her department. Thus, management is centralized at each level of organization, but decisions of mid-level managers are narrowly bounded by the demands of the overall organization. Within industrial organizations, the ultimate responsibility for all decisions is centralized in the position of the chief executive officer of the organization. Mid-level managers certainly may have input in decisions made at higher levels in the organization, as do boards of directors, but ultimate responsibility for management lies with the chief executive officer.

By its very nature, the focus of industrialization must be on functions, procedures, and positions rather than people. Each person who fills a position within an organization, including the chief executive officer, must perform the functions associated with their position according to prescribed procedures in order for the organization to function effectively. Any significant deviation from the prescribed standards by any person –
no matter how innovative, creative, or potentially productive – detracts from the overall functioning of the organization. All of the individual parts must work together in a prescribed manner for the good of the organization as a whole.

Each organization must have a purpose; otherwise there is no logical reason for bringing people, money, and other resources together. If a purpose can be achieved as effectively and efficiently by a collection of unrelated individuals, an organization is unnecessary. The organization is designed so that its specific functions, procedures, and responsibilities, if carried out properly, will ensure that the purpose of the organization is achieved. In a sense, the purpose is designed into the organization.

A well-run industrial organization works like a well-oiled machine. Each machine is designed to fulfill a purpose – which may be as simple as drilling a hole or as complex as assembling the body of an automobile. Each part of a machine is designed to perform a specific function by a specific process so that all parts working together allow the machine to fulfill its purpose. Each machine is controlled by an operator who may do something as simple as flipping a switch or as complex as guiding the machine through a series of intricate maneuvers. However, the role of the operator is matched with the design of the machine – together they fulfill a purpose.

A machine must be maintained if it is to continue to perform effectively. A poorly maintained machine is vulnerable to breaking down and wearing out. Even under the best of care, individual parts may wear out and have to be replaced. Machines with interchangeable, replaceable parts can be repaired rather than replaced, and thus, have a tremendous advantage over machines that are manufactured as single units. Eventually however, any machine will become obsolete – it will no longer be able to fulfill its purpose as well as some newer design. Eventually any machine must be either redesigned or discarded and replaced with a newer model.
An industrial organization, like a machine, is designed to fulfill a purpose. Each position in the organizational chart, from chief executive officer to production line worker, is defined so as to fulfill a specific function in achieving the purpose of the organization – just as each part of a machine is designed to contribute to the purpose of the machine. An organization requires constant maintenance to ensure that each person in the organization performs his or her function in support of the overall organization. Even in the best of organizations, individuals eventually “wear out,” – become disabled, retire, or simply lose their commitment or usefulness to the organization – and will have to be replaced. However, a “new person” can be hired to fulfill the specific responsibilities of the “old person” – the parts are interchangeable – and the organization will again function as before.

If the organization becomes obsolete – is unable to perform its purpose as effectively as some competitive organization – it must be reorganized, restructured, or redesigned so as to make it run more effectively. The ultimate responsibility for redesign lies with those who own the organization, the stockholders in the case of a corporation, but may be delegated to top level management. Regardless, someone must decide when an organization has become obsolete and thus must be redesigned or discarded.

Many of the problems of industry today arise from the unfortunate combination of the industrial model of organization combined with the corporate model of ownership. Corporate ownership has become the dominant ownership structure because it complements the industrial model of organization. Corporate ownership allows firms to centralize decision making by becoming ever larger and increasingly powerful in their respective markets. Industrialization provides the motive for separation of management from ownership, and incorporation allows it to happen. However, while industrial organization has allowed the
management to become concentrated in the hands of a few high level managers, the corporate financial structure has caused ownership to be dispersed among many individual shareholders, each of which has relatively little if any control over the companies they collectively own.

Corporate managers have little incentive for reorganizing the companies they control – particularly if reorganization might mean they would have less power, a smaller paycheck, fewer stock options, or no “golden parachute.” It’s easier for top management to use their market power to discourage or destroy would-be competitors and to extract profits from suppliers of raw materials or consumers of their products rather than to reorganize or liquidate. Shareholders are far more interested in dividends and growth in the value of their portfolios than in either the true efficiency or ethics of the companies they own. So as long as a corporation shows quarterly profits and continues to grow, no one demands that it be reorganized or disbanded -- no matter how inefficient or obsolete it may become. Inefficiency and obsolescence become apparent only if markets are open to new entrants – but this requires competitive markets.

The current competitiveness crisis in agriculture markets is a symptom of obsolete organizational and ownership structures. The industrial organizational paradigm not only dominates corporate agribusiness structure but also now dominates even the public institutions with responsibility for monitoring agribusiness and maintaining the competitiveness of agricultural markets.

Under current conditions, no one is capable of wresting control of agricultural markets from corporate agribusiness – not even the top managers of agribusiness firms themselves. Stockholders demand profits and growth, not just over the long run, but quarter after quarter. So there is no opportunity for management to stop, reorganize, or redesign a corporation in any substantive way, even if they wanted to. In general, no individual stockholder has the power to restructure, redesign, or to
liquidate the corporations in which they own shares. So industrial corporations can only continue to do what they were designed to do—nothing more or nothing less. Corporations are designed to make profits and to grow.

Government can’t stop the corporations, because politicians too have come under their power. Politicians are strongly influenced, if not controlled, by the agribusiness corporations through their large contributions to political campaigns. Agricultural constituencies are influenced, if not controlled, by the general farm organizations and commodity groups. These groups are far more concerned with maintaining production and profits for agriculture as an industry than in maintaining competitive markets or viable family farms and rural communities. The USDA and the rest of the government bureaucracy have an organizational structure much like industry that responds far more to agribusiness interests than to the needs of family farmers. Consequently, government either supports or at least offers no meaningful resistance to corporate consolidation and ultimate corporate control of agricultural markets. Thus, American agricultural is dominated by an obsolete organizational structure that is essentially out of control.

The crisis of competitiveness in agriculture markets will not pass unless or until the current industrial organizational structure is replaced with an alternative self-regenerating, post-industrial organizational paradigm. Such a paradigm quite likely will emerge from the dozens of different ideas that are currently being tested in the twenty-first century marketplace. Ultimately a new, post-industrial organizational model will replace industrialization as the dominant paradigm for organization of productive resources.

We are at that very point in time when a 400-year-old age is dying and another is struggling to be born—a shifting of culture, science, society, and institutions enormously greater than the
world has ever experienced. Ahead, the possibilities of the regeneration of individuality, liberty, community, and ethics such as the world has never known, and a harmony with nature, with one another, and with the divine intelligence such as the world has never dreamed. (Dee Hock)

Dee Hock, the founder of VISA Corporation, is perhaps the most effective critic of the old industrial, hierarchical model of organizational control, and the most vocal advocate of organizational change. Hock advocates what he calls a “chaordic” organizational paradigm as the replacement for industrialization. However, Hock most certainly is not alone in his belief that the industrial model is obsolete, at best – that industrialism must be replaced with an alternative system of resource management if we are to have a sustainable human society.

Alan Savory advocates a “holistic” approach to resource management. Peter Senge promotes a “learning systems” approach to business organization. Peter Drucker writes about a “post-capitalist” economy, and Alvin Toffler of a “knowledge based” approach for economic development. Fritjof Capra focuses on living organisms, rather than machines, as the appropriate paradigm for living organizations. These and others share a common believe that the industrial era is ending and a new post-industrial era is emerging – a new era that will require a new and different organizational paradigm.

The commonality of all these new post-industrial approaches is a focus on purpose, principles, and people. The post-industrial organization, like any organization, must have a purpose. However, the purpose is much more prominent and important to the post-industrial organization. For the industrial organization, purpose was of primary importance in designing the organizational structure. However, once the structure was in place – each position identified, given a specific function, and placed within the management hierarchy – the purpose became secondary. If the
responsibilities of each position were performed effectively, the organization would fulfill its purpose. With post-industrial organizations, however, the purpose of the organization must remain continually in the consciousness of everyone in the organization. The focus is on the people who fill the positions rather than on the position descriptions.

The structure of post-industrial organizations is dynamic rather than fixed. Positions, departments, divisions, organizational units, take on new meaning. They are continually changing and evolving, forming, and dissolving as the organization transforms and renews itself to meet the ever-changing demands of a dynamic marketplace in an ever-changing economic, social, and natural environment. This is the chaotic part of Hock’s chaordic organizational model. The order part of the chaord is embodied in a set of organizational principles. The purpose and principles of the organization remain unchanging -- leaving the structure to evolve as needed to maintain the effectiveness and efficiency of the organization.

The post-industrial organization is embodied in its principles of operation rather than its organizational structure. The principles of an effective organization must embody the standards of individual conduct that are both necessary and sufficient for the organization to fulfill its purpose. If a principle is not necessary for the functioning of the organization, it will unduly constrain the ability of the organization to adapt to changing needs. If the set of principles is not adequate or appropriate to ensure success if followed completely, the organization may not function effectively.

Principles are fundamentally different from the specific functions that make up a position description. A person in a post-industrial organization may still have specific responsibilities, but will be free to meet those responsibilities by any means consistent with the principles of the organization. The person in a position, not the position description, will determine the most appropriate means of pursuing the purpose of the
organization. And the person may change their means of fulfilling their responsibilities at any time to adapt to different situations or changing organizational environments. Thus the focus of post-industrial organizations is on purpose, principles, and people.

The differences between industrial and post-industrial organizational paradigms are much like Capra’s description of differences between dead and living systems. A machine is a dead system – it has no life of its own. A human body is a living system – it can function autonomously.

Capra contends that all systems have three basic characteristics: pattern, structure, and process.

The pattern is the conceptual framework for the system. For a dead system, the pattern is the blueprint or design. For a living system, the pattern is embedded in the DNA – in the genetic code. The pattern is constant, unchanging, or fixed for both dead and living systems. A machine always is a machine and a person always is a person.

The structure of a system is the physical embodiment of the pattern. For dead systems the structure is the thing you see or touch – the machine, the building, the road, etc. For a living system the structure also is the thing you see or touch – the plant, the animal, the human body, etc. The primary difference between dead and living systems is found in the structure. For dead systems, the structure is fixed – it can never change on its own. It may wear out or it may be rebuilt or redesigned, but it has no autonomous ability to change. A machine keeps its same physical structure for all of its useful life. However, the structures of living systems are in a continual state of change. Living things are born, they grow, they mature, they reproduce, and they die. This continual change is a fundamental characteristic of life.

Process also is different for dead and living systems. Dead systems
perform their purpose or tasks by linear sequential processes of input, transformation, and output. The fundamental purpose of dead systems is to transform some input into a more useful or desirable output. A person rides a bicycle to transform kinetic energy embodied in leg muscles into mechanical energy that turns the wheels and propels the bike down the road. An engine transforms the kinetic energy in fossil fuels into mechanical energy to perform some useful task. Input results in output.

Living systems perform useful purposes or tasks as well, but living processes are self-renewing and self-regenerating as well as functional. Living processes are circular and simultaneous rather than linear and sequential. Living systems operate in cycles of birth, growth, and reproduction – before death. Function and regeneration occur simultaneously for living system – they renew themselves in the process of fulfilling their purpose.

In summary, dead systems are designed to accomplish some purpose according to some blueprint or pattern, they function for the duration of their usefulness, and then they are either redesigned or discarded. On the other hand, the pattern and purpose of a living system is embedded in its genetic makeup, in its Dante processes of a living system include both functional usefulness and self-renewal. Living systems continually change and renew their structure in accordance with the unchanging genetic code embedded in their DNA.

The industrial organization is a dead system. Post-industrial paradigms are living systems. The purpose of the post-industrial organization is encoded in the principles by which the organization functions. Principles rather than structure ensure that the post-industrial organization will function so as to fulfill its purpose. By organizing around principles, the structure of the post-industrial organization can continually change and evolve as needed to continue fulfilling its purpose. The conceptual DNA of the post-industrial organization is encoded in its organizational principles.
The post-industrial organization doesn’t have to be reorganized, restructured, or liquidated by some outside force. It is self-making, self-renewing, and even self-liquidating. Once a living organization loses its ability to adapt sufficiently to fulfill its purpose it will reproduce itself as another organization. Or if its purpose is no longer relevant to society, the post-industrial organization quite simply will die. Unlike the industrial organization, a living organization has no fixed structure to keep it on “life support” long after it is “brain dead.”

The corporate industrial organizational structure evolved to meet the apparent needs of the industrial era of economic development, but the industrial era is rapidly coming to an end. New economic activity – investments, jobs, income – is not being generated in the industrial sector of the economy, but is rising from post-industrial technology, information, and service based enterprises. New economic activity is not being generated by the large, industrial firms of the past, but instead by small entrepreneurial enterprises which employ a handful to a few dozen people. The old industrial firms still exist, but they are not the source of true innovation or new economic growth.

While many of the large technology and service based businesses have adopted the old industrial organizational paradigm, most top managers now realize that the industrial organizational paradigm has become obsolete. They are desperately seeking some way to make their organizations more dynamic and flexible without having to discard entirely the archaic structure of which they are a part. The world is changing at an accelerated pace and they are falling behind. Today’s corporate managers are like the southern plantation owners of Civil War days who knew that slavery was a thing of the past, but they were simply unwilling to give up their familiar way of life without a fight. The new information based firms, regardless of size, have all but abandoned the industrial model of hierarchical command and control. And smaller businesses of all
kinds are finding it more effective to focus on purpose, principles, and people rather than structure, functions, and positions.

Agriculture was industrialized last because it was poorly suited for specialization, standardization, and centralization – the requirements of industrialization. Agricultural systems are living systems. As a consequence, industrialization of agriculture has generated fewer benefits and has created more negative environmental and social side effects than has the industrialization of any other industry. Agriculture is just entering the final stage of industrialization – corporate consolidation. However, most of the rest of the American economy already is moving into a new era of post-industrial development. Hopefully, the industrial era in agriculture will be brief – for the good of all concerned.

The industrial agriculture of today did not evolve in a neutral public policy environment. Public policies at all levels were designed to improve the operational efficiency of agriculture through the basic processes of industrialization – specialization, standardization, and consolidation of decision-making. Nearly all government farm programs of the past 75 years – commodity price stabilization, farm credit, subsidized crop insurance, investment tax credits, accelerated depreciation of equipment, grades and standards, export enhancement, etc. have all subsidized adoption of the industrial paradigm of business organization. The current corporate takeover of agriculture and the government’s lack of willingness to maintain competitive markets are but the natural consequence of past agricultural policies.

A prerequisite for restoring the competitiveness of agricultural markets will be a fundamental change in public policy, first to remove the subsidies for industrialization and then to provide incentives for changing to a paradigm more appropriate for the organization of living systems. To achieve this objective, the policy process should adopt a living-systems approach as well. New agriculture policies should spell out clearly the purpose of the
legislation and the principles that must be pursued for the legislation to be effective. The rules and regulations should be dynamic and flexible allowing them to be adapted to different situations and to the ever-changing economic and natural environment. In the future, meeting the letter of the law should never be considered adequate or sufficient; complying with the principle will be the only acceptable evidence of compliance. The focus should be on empowering people of principle to fulfill the purpose of the law.

Moving from the industrial to post-industrial organizational paradigm will be not quick or simple – neither for corporate agribusiness nor for government. Both are locked into a hopelessly out-of-date system that is essentially beyond their control. However, it is unrealistic to expect that competitiveness will be restored to agricultural markets, or to any other markets, unless and until society breaks free of the grip of the corporate, industrial organizational mentality.

Change is inevitable, and society will continue to transform itself as it enters a new, post-industrial era of human progress. The primary question is whether this will be an orderly evolutionary process of logical and reasonable change or instead will be a revolution sparked by some economic or social catastrophe. Policies that address symptoms without addressing cause will bring society no closer to real and lasting change. The relative magnitudes of the tasks will likely result in far more efforts being focused on restoring competitiveness of agricultural markets, a symptom, than on changing the industrial organizational agricultural paradigm, the cause. However, the most optimistic results from such efforts will be a temporary relief from the symptoms. A lasting cure can be achieved only by removing the cause – by changing the organizational paradigm.
REFERENCES

Livestock factories are taking over the U.S. livestock-meat industry. In spite of growing opposition, the number and size of large-scale, corporate-owned, factory-like livestock operations continues to grow. Consequently, the number of smaller, independent, livestock farming operations continues to decline. Large, corporate feed lots have dominated cattle feeding for several decades. In 1998, for example, the largest 30 cattle feeding operations had pen space for nearly 5 million head of cattle – roughly half of the total number of cattle on feed at any given time over the past few years. Hog production, on the other hand, was almost entirely independently owned as recently as a decade ago. But, today the 50 largest hog operations control over half of total hog production, mostly through contractual arrangements. There is talk in the industry that contract beef cowherds will be next. Within a decade, an independent, non-contract producer of cattle or hogs may be a rarity.

**Economics of Self-interest**

Many believe that further industrialization of livestock production is not only inevitable but is desirable -- for producers and consumers alike. Those who defend these factory-like operations typically base their positions on short-run economic considerations. They point out that the industrialization of livestock production – through specialization, standardization and centralization of control -- is being driven by the free market system. They claim that large-scale, specialized operations have lower production cost – that they realize significant economies of scale. They say that consumers are demanding a more consistent quality product and are willing to pay for it. They conclude that new technology in breeding, feeding, and housing of livestock is making these large-scale operations more efficient in meeting consumer demand, and thus, they are more profitable.

The proponents say that rural communities should welcome these large-scale corporate livestock operations as engines of economic development. Investments in livestock factories create jobs and enhance local tax bases in economically depressed rural areas – just like any other factory. After all, such areas don’t have a lot of other development alternatives, and these big operations are going to locate somewhere. Family farms have not saved rural communities in the past, so communities must look elsewhere for the future. They reason that if these factory operations are more cost efficient than the smaller, family operations, even if marginally so, then traditional family farmers will inevitably be forced out of business anyway.

On issues of the environment, supporters reason that if problems arise, it will be easier and less costly to work them out with a few large operations than with many small ones. The big operations have the money to invest in the modern waste handling facilities that ultimately will be required of everyone. Many smaller farmers don’t. They admit that concerns for odors may be legitimate for those living nearby, but there are always costs associated with anything that generates benefits. No one wants a hog farm in their "backyard," but they have to be somewhere.

The thing that gives these arguments a ring of truth is their common foundation in the economics of short-run, self-interest. They are based on a deeply held faith that the promise of more profits, no matter how small, is the best means of allocating resources – whether it is allocation of people among alternative occupations, land among alternative uses, money among
Large-scale, Confinement Animal Feeding Operations:

investments, or people among communities. Unfortunately, we have become a society where the pursuit of short-run economic self-interest is treated as a God-given right.

If short-run economic thinking prevails, there is every reason to believe that livestock factories will totally dominate animal agriculture in America within another decade. And, corporations will locate their livestock factories pretty much wherever they choose, regardless of the ecological and social consequences. They probably will avoid locating them in heavily populated areas to minimize nuisance lawsuits. But, money invested in factory livestock will seek its place of highest return, regardless of where that may be.

The only way to successfully challenge this outcome is to challenge its basic premise -- that short run profits should take precedence over the long run well being of people. The economics of short-run self-interest should be not allowed to dictate either private or public decisions. The legitimacy of livestock factories must be challenged at its economic foundation. Ultimately we must successfully challenge the legitimacy of the economics of narrow short-run self-interest as a guiding principle. But, we can begin by challenging the validity of the economic claims of proponents of large-scale, corporate livestock operations.

Industrialization is not Market Driven

Proponents of large-scale, corporate operations claim that they provide a lower cost means of production. First, they may have lower cost than the "average" cost of smaller, independent operations – maybe as much as five percent lower, but they do not have lower costs than many independents. In other words, the factory operations are competitive because they have lower cost than "most" existing independent operations. But, it is also true that many independent producers have lower production cost than do the large, corporate operations.

For example, actual farm records routinely summarized by Midwestern universities have consistently shown that anywhere from 20 to 40 percent of independent commercial hog producers have cost of production lower than costs for the large corporate operations. So a well-managed, smaller, independent hog operation can compete cost-wise with the most efficient of the large operations. If all independent operations were managed as well as the top 20 to 40 percent, hogs could be produced at a lower cost on independent, commercial hog farms than in the large-scale corporate operations. Smaller operations are going out of business because they are losing access to competitive markets -- not because they can’t compete on cost.

Proponents also argue that consumers will benefit from lower-cost factory livestock operations. Even if they do, it won’t be by enough to notice. Consumers spend just a little over a dime of each dollar of their disposable income for food, and beef and pork make up less than 15 percent of the total. Producers get only a small portion of what consumers pay at retail. The farm value of pork accounts for around 35 percent total retail cost (closer to 20 percent in 1998), and the farmers’ share for beef is close to 50 percent of retail. So any realistic difference in farm level costs would have relatively little impact on retail meat prices and even less on consumers’ total food costs.

For example if production costs, on average, were five percent less for large operations; say $2/cwt for live hog and $3.50/cwt for fed cattle; the "maximum" savings to consumers would amount to only about two cents per dollar spent for beef and pork at retail. At best, total food costs would be three-tenths of one percent less and consumers on average would spend only three-one-hundredths of one percent less of their income for food. Any savings would be lost in rounding errors in consumer food cost statistics. With a handful of large corporations gaining control of the livestock and meat industry, it seems far more likely that in the long run meat prices would go up rather than down as a consequence of further industrialization. They wouldn’t want to control the market unless they intended to make larger profits – higher corporate profits would drive consumer prices up, not down. The only ones who really need to shave another penny or two

off production costs are those who are trying to export more meat into highly competitive world markets. That doesn’t include many family farmers or consumers.

Proponents argue also that the trend toward large-scale, corporate livestock operations is driven by consumer preferences. Meat from factory operations may well be more uniform because it all comes from the same basic genetic stock and is produced using very similar feeding management practices -- as is currently the case for poultry. Consumers do want consistency in their products -- they want a food product, such as a choice steak, to have the same eating qualities each time they buy it. However, that does not mean that all consumers want the same thing – that we would all prefer the same steak or pork chop.

People are different. Consumers have different tastes and preferences – different perceptions of quality. Making all pork or beef "the same" would not necessarily please more consumers, because they all don’t want the same things. The poultry people brag about the great variety of products they offer to consumers. They realize that people want variety, and so, they try to create the allusion of consumer choice. But, the fact of the matter is that all this so-called variety is nothing more than the "same generic chicken" cut up, packaged, and processed in dozens of different ways. Greater profit for producers and processors, not consumer satisfaction, is the real driving force behind the current trend toward industrial meat production.

Supporters claim large-scale operations are simply responding to incentives arising from free markets, that it’s the promise of profits that is driving the current trend toward industrialization – that’s what made America great. The motive most certainly is profits, but it most certainly is not to make profits by supplying free markets. Instead corporate producers are doing everything they can to free themselves from any free market forces that might tend to limit their profits. The poultry industry serves as a model to the pork and beef industries. Once all stages of production, from live animals to the retail meat case, are controlled by a handful of corporate firms they will be able to stabilize supplies and prices at higher and more profitable levels. When shifts in market conditions require supply adjustments to maintain profits, the negative consequences of such adjustments will be shifted to their contract growers. That’s not free market competition and that’s not what made America great. Control of markets, not free markets, is the driving force for industrialization of livestock.

Livestock Factories are not Good for Rural Communities

Livestock factories promise badly needed jobs for economically depressed rural areas. When a large, corporate livestock operation locates in a rural community, there almost certainly will be more jobs available in that community than before. But, the overall quantity of meat demanded by consumers will not expand just because corporate operations take control of an industry. If anything, demand for red meats has declined since beef and pork production has become more consolidated. So each hog or steer sent to market from a factory livestock operation means a market for one less steer or hog from an independently owned operation. Every time factory livestock takes a larger share of a market, independent livestock producers lose market share.

The job creation claim is at best only true in a narrow sense because, on balance, industrial livestock operations destroy more jobs than they create. Different studies report estimates of from one-and-a-half to three independent hog producers lost for every job created by industrial hog operations. The specific numbers depend on the underlying assumptions, but the conclusion that more jobs are destroyed than are created relies only on common sense. A fundamental principle of industrialization is the substitution of capital and technology for labor and management – to make it possible for fewer people to produce more. Large-scale operations simply concentrate the jobs created in one place and call it economic development while the larger numbers of jobs lost elsewhere are ignored or denied. In total, numbers of independent livestock producers displaced will most certainly be greater than the number of jobs created in new large scale, corporate operations. North Carolina and Missouri led the nation in the rate of increase in hog numbers as they led the nation in rate
Proponents argue that livestock factories offer better jobs than does farming. The risks may be less and the pay may be steady, but most livestock factories pay little more than minimum wage. In other respects, factory jobs are clearly less desirable than farming. Factories "use up" people. Assembly line work is "non-thinking" work. When you work on an assembly line, you simply do what you are told as fast as you can for as long as you can. Ask anyone who has been there. Large-scale livestock operations may not look like factory assembly lines, but the principle is the same. Big hog operators, for example, don’t want people who know anything about raising hogs. They want people who can be trained to do what they are told to do without thinking. An experienced hog farmer might start thinking, asking questions, and mess up their process. Livestock factories, like other factories, are looking for people who are dependable, who know how to carry out orders, and will work hard for a little money.

In addition, a large confinement livestock facility is not a pleasant or healthful place to work. For example, known health risks are associated with continuously breathing air that arises from manure pits in confinement hog facilities. Health problems cost money in lost wages and health care costs. But more important, an unhealthy workplace can destroy peoples’ lives. So why do people accept such jobs? History has proven that people will choose to work in dangerous work environments when they are desperate for work. Many rural people are desperate.

Supporters of corporate farming contend that contract production provides a way for farmers to continue farming under difficult times. Contract production may be a way to continue producing livestock, but contract production, in concept, is no different from working in a corporately owned facility. When a farmer signs a comprehensive production contract, they have turned all of the thinking over to someone else. The farmer may own the production facilities, but the corporation makes all of the decisions – genetic selection, feeding and medication regimes, timing of placement and delivery, etc. The farmer becomes just another hired hand carrying out the company’s instructions. Once the farmer signs a comprehensive production contract, he or she may have a job on the farm, but they are no longer a "farmer."

Other kinds of factories have come to rural America in the past. When these factories have found people in other regions, or in other countries, who would work even harder under more dangerous conditions for less, they moved on. Corporately owned factories have no roots. They leave behind a workforce that doesn’t know how to do anything other than what they are told. Intelligent, thinking, capable, independent people are transformed into detached, non-thinking, possibly disabled people who may be psychologically incapable of earning a living without depending on someone else to tell them what to do. Adam Smith even warned of such an outcome in his landmark book on economics, The Wealth of Nations. Our cities currently are plagued with such people -- people whose capacities have been degraded by factories long since gone. It just doesn’t seem to make sense to do the same thing to rural people. The truth is that when we replace independent, family farmers with livestock factories we are degrading the most valuable resource rural areas have to support their future development – rural people.

Livestock Factories Degrade the Natural Environment

Well-financed corporations may be more capable of dealing with any environmental problems that arise from confinement animal feeding operations, but they are far more likely to create problems than to solve them. They typically are better financed and have access to technologies that may not be feasible for smaller operations. But, large-scale operations are inherently more threatening to the environment than are small-scale operations, and thus, create more problems than they can solve. In fact, the large operations might well lose any competitive edge they now have if they were forced to invest in appropriate environment-protecting technologies.

If animals are scattered out across the landscape -- as in small family farming operations -- with animals running free on
pastures, letting their manure lay where it falls, they really don’t bother anyone very much. Ten thousand animals spread across ten thousand acres isn’t a problem, but ten thousand animals in a five-acre feed lot may create an environmental nightmare. When a large numbers of animals are placed in a confinement facility, environmental problems are created that simply did not exist when livestock were produced on pastures.

Even when diversified livestock/crop farms have feed lots, livestock manure normally is spread back onto cropland where the feed grain was grown. Most of the nutrients used to grow the crops are returned to the soil. But, when feed grains from specialized crop farms are shipped to distant livestock factories, the nation’s future productive capacity is being stacked up and flushed out into places where crops can’t grow. We can treat the symptoms – air pollution and water pollution – but the basic problem of piling up too much stuff is inherent within the system of large-scale, concentrated production.

Once you start collecting manure, flushing it, spreading and spraying it around – all normal practices in confinement animal feeding operations – it becomes pollution. It pollutes the air with foul odors and pollutes water through leaching or runoff. Air pollution and water pollution are symptoms of the same basic problem -- too much manure in one place. For example, the difference between the hog lagoon spills, such as those occurring in Missouri and North Carolina in recent years, and the normal runoff from a hog pasture is a simple matter of concentration. When you put a lot of hogs in the same place, you have to collect and store the waste. If it gets into the ground water or gets flushed into streams, it kills fish, clogs streams and lakes with algae, feeds water born disease organism, and wrecks havoc on the environment.

Supporters of the concentrated feeding operations claim that less intensive production methods, such as producing livestock on pastures, will require more land to produce the same amount of food and fiber, and thus, will require use of land that might have been set aside for wildlife or other ecological uses. First, each pound of meat that can be produced on pastures is a pound of meat that will not require land to be use for feed grain production – the single largest claimant of agricultural land and biggest user of agricultural pesticides. In addition, whenever grain feeding is required in producing an acceptable product, livestock can be fed out on small, diversified farming operations. Wildlife habitat can be an integral aspect of such farming operations – farming and wildlife sharing the same spaces. Many species of wildlife do not require isolation from people, but only require isolation from the destructive actions of people – such as factory farming. There is nothing to indicate that ecologically sound livestock would leave any less wildlife habitat than would livestock factories – in fact there are strong arguments to the contrary.

Proponents who admit inherent environmental risks with factory feedlots claim that it will be easier to monitor the problems with a few big feed lots than with thousands of small farmers. However, the "need" to monitor is linked directly to the large-scale, corporate nature of many of today’s livestock operations. Small family-based operations might require far fewer regulations and far less monitoring to achieve higher levels of environmental quality. Without regulation, large-scale corporate operations, by their very nature, will impose costs on their neighbors – air pollution, water pollution, and others -- that are not part of the historic costs of producing livestock. It will cost money for these livestock factories to deal with "externalities" such as air and water pollution. No "bottom-line" driven corporation will incur those costs unless they are forced to do so by government regulations – federal, state, or local.

Family farmers are people with human feelings and values, and most feel some sense of responsibility to their communities and the environment. Admittedly, there are some irresponsible and uncaring family farmers. But, family farmers at least have personal incentives to be stewards of the environment and good neighbors, regardless of how they may choose to behave. Public corporations have no such incentives. They are not people. Corporations have no heart or soul. Stockholders often are so detached from their investments they don’t know or care what stocks they own – just as long as they make money. Local managers and workers may be good people who really care about the community, but when it comes to keeping their job, they must put profits and growth ahead of community. Professed corporate support of local communities, by necessity, can be nothing more than another strategy for profit and growth. Thus, government regulation and continual conflict are an inherent fact of corporate life.
Some people argue that contract producers are no different from any other family farmers. But, contract farmers are not making the decisions that affect the environment any more than they are making the decisions that affect the economics of their operations. The folks back at corporate headquarters decide what type of manure handling facilities they are going to use, or at least set production standards which severely limit the logical options. Corporate contractors typically send their contract farmers into the political arena to defend the corporation from environmental regulation. But, regulation of contract producers is just as necessary and inevitable as regulation of corporations.

Some Real Economics

If there is a penny of profit to be made by turning farm feed lots into meat factories, the agribusiness corporations will do it. They will do it even if the benefits to consumers are negligible and the damage to rural communities is great. If there are a handful of jobs and a few dollars in tax revenue to be gained, some desperate rural community will go for them -- even if far more farmers elsewhere are forced out of business and tax revenues eventually fall short of other costs to the community. If the large corporate operations have to clean up their environmental messes, you can bet they will force similar restrictions upon smaller, diversified operations – not out of concern for the environment, but as a means of upping their own competitive advantage. The only thing that really matters to them is short-run, economic self-interests. A publicly-held corporation is incapable of being concerned with anything else.

But, corporate profits should not be allowed to take precedent over the lives of people. The future of rural communities should not be sacrificed to satisfy corporate greed. The natural environment should not be sold to the highest bidders – who invariably are its biggest exploiter. True economics does not demand that profits take priority over the earth and its people.

Adam Smith, the father of conventional economic thinking, said that pursuit of individual self-interests was transformed into serving the public good as if by "an invisible hand." But, he didn’t say that pursuit of profits by large, corporate operations would result in the greatest benefit to society as a whole. Most economic enterprises in Smith’s time, over 200 years ago, were small, family operations. For such operations, land, labor, capital, and management often resided in essentially the same entity, and farming was still the dominant occupation. Few enterprises were large enough to have any impact on the marketplace as a whole. Market transactions were direct between buyer and seller -- there were few opportunities for deceptive sales practices. Trade was mostly in basic commodities – every seller’s wheat, bread, or shoes were pretty much the same offered for sale by other sellers. Under these conditions, profits were quickly competed away in highly competitive local markets.

There were few corporations in Smith’s time, but he wrote about the dangers of monopolies and excess profits, -- "the price of a monopolist is upon every occasion the highest than can be got (p. 28)." He considered "joint stock companies," corporations, to be inherently irresponsible entities, and could think of only a handful of endeavors where publicly owned corporations could be justified (p. 341). Even those would require close public scrutiny and government control, he warned.

Human populations back then were small enough and technologies were sufficiently benign that people could have little permanent impact on their natural environment – at least not on a global scale. Strong cultural, moral, and social values dictated the norms and standards of "acceptable" individual behavior. Smith could not conceive of a society in which the welfare of the poor and hungry would not matter, or where people in general would behave in unethical or immoral ways. "No society can surely be flourishing and happy, on which the far greater part of the members are poor and miserable" (p 36).
In the environment within which conventional economics was born, in Smith’s time, pursuit of self-interest might have served the interests of society reasonably well. But, the world has changed over the past 200 years. None of the important assumptions of truly competitive markets -- the prerequisite for efficient resource allocation by free markets – are valid in today’s economy.

Today, giant corporations dominate almost every sector of local and global economies. Through mergers, joint ventures, and strategic alliances, corporations have formed "virtual" monopolies – irresponsible entities that maximize profits "upon every occasion." Corporate profits today are far larger than any concept of "normal" profit envisioned in classical economics. The basic economic resources of land, labor, capital, and management now reside in separate entities, sometimes divided even among nations. Labor and management are in continual conflict, and most corporate shareholders -- owners of mutual funds and pension funds -- are hardly conscious of how much of what companies they own. Land has become just another marketable commodity to be exploited and used up.

Producers and consumers have become disconnected, geographically and conceptually, as a consequence of industrialization. Consumers no longer have any personal knowledge of where their products come from or of who is involved in their production. They must rely on a complex set of standards, rules, and regulations for product information, and today’s advertising consists of "disinformation" by design. Superficial product differentiation abounds -- through processing, packaging, advertising, and marketing gimmicks -- making price competition impotent if not impossible.

Human activities are no longer ecologically benign -- if they ever really were. The pressures of growing populations and rising per capita consumption are now depleting resources of the land far faster than they can be regenerated by nature. Wastes and contaminants from human activities are being generated at rates far in excess of the capacity of the natural environment to absorb and detoxify them. Fossil fuels, the engine of twentieth-century economic development, are being depleted at rates infinitely faster than they can ever be replenished. Human population pressures are destroying other biological species, upon which the survival of humanity may be ultimately dependent. The human species is now capable of destroying almost everything that makes up the biosphere we call Earth, including humanity itself.

The society of Smith’s day was weak on economics – hunger, disease and early death were common -- but it had a strong cultural and ethical foundation. However, that social and ethical foundation has been seriously eroded over the past 200 years -- as glorification of greed has replaced enlightened self-interest. Civil litigation and criminal prosecution seem to be the only constraints to the unethical and immorality pursuit of profit and growth. Concerns of the affluent for today’s poor seem to be limited to concerns that welfare benefits may be too high or that they will be mugged or robbed if the poor become too desperate. Smith’s defense of the pursuit of self-interest must be reconsidered within the context of today’s society – a society that is now strong on economics but weak on community and morality.

Proponents of factory livestock operations argue that the industrialization of agriculture is nothing more than a continuation that has been underway in agriculture and elsewhere for the past couple of centuries. And so, they ask, "why is everyone getting so up tight about it now?" They are right, the trend toward industrialization has been underway for a couple of hundred years. The earlier phases on industrialization were likely good – at least for society as a whole. It lifted much of humanity out of a life to drudgery and despair. But over time, as the "invisibly hand" became less and less capable of transforming greed into good, the benefits of industrialization fell and its costs began to rise. Over the past 30-40 years it has become increasingly obvious to anyone willing to look that industrialization has turned from creating net benefits to society in general to creating profits for the few who have money to invest.

The current industrialization of agriculture is just the latest phase in this long painful process. But, there is little doubt in the minds of many that corporations, in general, now do far more damage to the natural environment and communities of people everywhere that any good they might do in additional material goods, employment, and income. People are "up tight" because they don’t want the same things to happen to agriculture that has already happened in much of the rest of
It's Just Common Sense

Society simply cannot justify destroying the lives and livelihood of thousands of struggling farmers to create huge profits for a few corporations by saving mostly affluent consumers a few pennies on a steak or pork chop -- particularly not when costs could be reduced as much or more by simply helping more farmers manage as well as many already do. It’s not socially responsible. It may make short-run economic sense, but it doesn’t make common sense.

As consumers, we don’t want our meat to come from genetically identically hogs and cattle, fed the same rations, to identical weights, and then cut, processed, and packaged in dozens of different ways to make us think we are getting something different. We are different people and we have different tastes and preferences. Forcing everyone to buy the same corporate hog or steer just to satisfy corporate greed doesn’t make sense – regardless of whether it is possible and profitable.

Free markets might very well be capable of meeting the needs of society through the pursuit of individual self-interests. But we no longer have free markets – at least not free in any sense needed to ensure the common good. What’s happening in the livestock industry today in not a response to free markets, but instead is a brazen attempt to serve private interests at the expense of society. It’s not socially responsible. It may make short-run economic sense, but it doesn’t make common sense.

The people of rural America are being sacrificed in the name of economic progress and corporate growth. Farming is being made obsolete by industrialization, not because farming is inefficient in meeting the needs of society, but because it is inconsistent with maximum profits and growth for corporate shareholders. Livestock factories require assembly line workers, not thinking, caring, independent decision-makers. As rural communities promote growth by trading farmers for corporate hired hands, they are not only destroying the lives of those who have helped build their communities, they are trading away the human resources upon which the future development of their communities must depend. This is not socially responsible. It may make short-run economic sense, but it doesn’t make common sense.

Society simply cannot justify destroying the natural environment of rural areas just to create huge profits for a few corporations, even if there are fewer people in rural areas to complain, and rural environments are generally less polluted than elsewhere -- particularly not when society has so little to gain and so much to lose. Industrialization concentrates too much "stuff" in one place. Nature is inherently diverse and naturally dilutes. Thus, industrialization and nature are in inherent conflict. The natural result of this conflict is polluted air, polluted water, degraded resource productivity, and unhealthy people. All of these problems are inherent within the nature of industrial systems of production. Industrial systems are not ecologically sound. They may make short-run economic sense, but they don’t make common sense.

It doesn’t make sense to apply the same environmental rules to small, diversified family farms as to large, specialized livestock factories -- the environmental risks are in no way comparable. It doesn’t make sense to spend millions of tax payer dollars trying to help corporate agriculture find ways to cope with the environmental problems of factory livestock operations, when there would be no such problems without livestock factories. It doesn’t make sense to mine nutrients from the soil in grain growing regions in order to create mountains of environmental wastes in places where crops can’t grow. It doesn’t make sense to force people out of business who have a obvious vested interest in protecting the environment, only to replace them with corporations that are fundamentally incapable of environmental consciousness. None of these things are ecologically sound. The may make short run economic sense, but they don’t make common sense.

The economy is a creation of people designed to serve the people – not the other way around. Any economic system that
Large-scale, Confinement Animal Feeding Operations:

fails to support society, eventually will be rejected by society – it is not sustainable. Systems that are not socially responsible are not economically viable over time. Livestock factories are not socially responsible systems of production, and thus, are not economically viable – no matter how profitable they may appear in the short run. This is the real economics of livestock factories.

Opposing corporate interests, in agriculture and in the general economy, is necessary but not sufficient to sustain the quality of human life in rural communities and in society in general. Being against something is not enough, we must also be for something. We must develop a positive vision for the post-industrial society toward which we want to move. That vision is emerging under the conceptual umbrella of sustainability -- sustainable agriculture, sustainable communities, and sustainable development.

Sustainability is not just about the future, it is also about "now." It’s about meeting our needs in the current generation while leaving equal or better opportunities for those of generations to follow. It’s about taking care of ourselves, sharing with our neighbors, and being good stewards of nature so there will be enough left for those of tomorrow. Sustainable farms, communities, and societies must be economically viable, but they must also be ecologically sound and socially responsible. Economics provides the optimum means of using up or exploiting resources – both human and natural. But economics does not even address the necessity for conserving or regenerating resources for the future. Thus, decisions guided by short-run, economics alone will sustain neither people nor nature. In the future we must make purposeful, conscious decisions to take care of each other and take care of the natural environment while taking care of ourselves. In fact this is the only way that we can truly take care of ourselves. We cannot rely on some "invisible hand" to somehow transform our greed into fulfillment of our social and ethical responsibilities.

The "real" economics of livestock factories is not the economics of short-run self-interest, but instead is the long run economics of sustainability. Any system of production that is not socially responsible and ecologically sound cannot be sustained over time, and thus, is not economically viable. Large-scale corporate livestock operations are not socially responsible, they are not ecologically sound, and thus, they are not economically viable. This is the "real" economics of livestock factories – it’s just common sense.

A 1992 report with the above title began with the following statement; "The State of Missouri is poised at a crossroads with respect to pork production. Developments within the state in the next five years will likely determine the future of pork production in Missouri well into the twenty-first century." The Impacts report describes recent industry trends and points out that "as consolidation has occurred, Missouri has fallen from fourth to seventh in production of swine nationally." It states the fall in Missouri's rank "is because a large number of small producers are retiring and the new generation of swine producers willing and able to construct twenty-first century pork production processes has been slow to emerge." The study concludes that "if this trend continues through the 1990's, Missouri stands in danger of losing its very significant share of national hog production."

There is little reason to disagree with any of the above conclusions. Missouri's national rank in hog production has slipped as large scale, confinement hog operations have expanded dramatically in several other states. The report points to "some hopeful signs" for Missouri swine production because large multi-state producers such as Cargill Swine Products, Murphy Farms of North Carolina, Premium Standard Farms, Tyson Foods and others are now interested in increasing hog production in Missouri.

Presumably, the major problem confronting Missouri's hog producers and their communities is a drop in national ranking and the solution to this problem is to bring in the large, multi-state corporate hog producers. The Impacts report states that "because of direct and indirect economic linkages of the swine production sector to ag and non-ag business throughout the state and region, the economic impact of reversing this significant decline could very well prove pivotal to the economic survival of many towns and regions of the state." Thus, the report focuses on the potential positive economic impacts of increasing contract swine production in Missouri.

The purpose in presenting this "alternative viewpoint" is not to challenge the earlier assessment of potential employment or net direct employee compensation associated with contract hog production. The fundamental questions addressed here relate to whether "loss in national rank" is the real problem confronting Missouri hog farmers and rural communities and consequently whether "increased contract swine production" is a logical economic development strategy for rural Missouri.

Summary of Selected Conclusions

Conclusions of the Impacts study that are relevant to this review are listed below. In some cases, ranges in estimates have been reduced to single figures for simplicity. None of the basic conclusions of the "alternative view" depend on specific figures, but rather hinge on general relationships that might be demonstrated using a wide range of reasonable estimates.

1. An average 600 sow contract farrowing unit (producing 12,000 feeder pigs per year) costs $550,000 and creates 2.5 new full-time jobs at the site.

1. An average 1,250 head finishing contract unit (finishing 3,400 market hogs per year) costs $130,000 and creates 0.5 new full-time jobs at the site.

3. For every job created at the site, approximately 0.56 new jobs are created in industries having direct links to the unit (such as feed business, construction, pharmaceutical, veterinary, suppliers, etc.). In addition, 0.66 jobs are created in the rest of the Missouri economy as purchases of other goods increase (primarily retail purchases of goods and services by new employees).
4. The total sustained employment impacts include 1.22 (0.56+0.66) new jobs throughout the economy for each new farm level swine production job, for a total of 2.22 jobs per full-time job created at the hog production site.

5. Each 600-sow contract farrowing unit produces approximately $57,000 in net direct employee compensation per year to on-site labor.

6. Each 1,250 hog finishing contract unit produces approximately $11,000 in net direct employee compensation per year to on-site labor.

7. Each $5,000,000 of new investment in contract hog production would create 40 to 44 new jobs in the Missouri economy, depending on the distribution of investment between farrowing and finishing units.

The Impacts report states that the model used to estimate employment "is built assuming the existing structure of the swine industry in the state. The proposed new investment is directed toward one particular production structure (namely, contract production). For this reason, some caution is merited in interpreting the results." In fact, there is reason to believe that input purchasing and marketing practices for contract production units might be significantly different from practices of existing hog producers, particularly with regard to the proportion of inputs and supplies purchased within the local community, and even within the state. Thus, the geographic distribution of off-site employment might be significantly different for existing hog operations and new contract production units. Otherwise, the above conclusions seem reasonable and are accepted as given. The basic questions unasked, and thus unanswered, are: what are the logical alternatives to encouraging $5,000,000 in new investments in contract hog production and what are the alternative consequences for Missouri's rural economy?

An Alternative Viewpoint

The fundamental challenge confronting Missouri hog producers and rural communities is not Missouri's loss in national rank in hog production, but rather the declining availability of quality employment opportunities for farmers and others who choose to live and work in rural Missouri. More hogs may or may not result in more quality employment opportunities. A recent Special Report prepared by the Center for Rural Affairs in Walthill, NE, from USDA Statistics shows that between 1986 and 1993, the state of North Carolina more than doubled their hog numbers, increasing from 2.40 to 5.25 million head (Center for Rural Affairs and USDA, 1993). North Carolina's national ranking among states in hog production rose from 7th in 1986 to 3rd by 1993. However, during this same period, the number of North Carolina hog producers dropped by nearly half, from about 15,000 in 1986 to 8,000 by 1993. During North Carolina's dramatic rise in national rank nearly half of its hog farmers got out of the business.

While these two trends might at first seem contradictory, the results should not be surprising. North Carolina's rise is national rank has been linked to its leadership role in large-scale, corporate and contract hog production. Large-scale confinement hog operations reduce total costs by using production methods which allow fewer people to produce more hogs. The substitution of capital and mass-production technologies for labor and management is the primary advantage that large, specialized hog production units have over smaller, diversified operations.

The production environment in large-scale operations is controlled through utilization of buildings and equipment that require large capital investments but greatly reduce labor requirements. Production technologies associated with large-scale, contract production also change the basic nature of the management function. Mass-production technologies (which standardize genetic selection, breeding, feeding, herd health, and marketing functions) transfer most of the management function from on-site hog producers to corporate production supervisors who travel among production units; and to an even greater extent, to production managers back in corporate headquarters who design and refine production strategies. Large-scale, specialized hog production replaces people with capital intensive, mass-production technologies and centralized
A simple comparison of results from the *Impacts* assessment report with reports from actual Missouri hog operations serves to illustrate the basic principle of production input and resource substitution. The first column in Table 1 shows the relevant numbers for a basic 600 sow farrowing unit, producing 12,000 pigs/year. A $550,000 investment would be expected to result in 2.5 on-site jobs with a total direct employee compensation of $57,000/years or 22,800 per job. The assumed 2.22 impact multiplier results in a total of 5.55 jobs including on-site and off-site employment.

The second column in Table 2 shows the similar implications associated with 3.5 finishing units, a number sufficient to feed out 11,900 hogs per year, a number generally comparable with the number of pigs produced by one basic contract farrowing unit. Note in this case, the investment, number of jobs, and total direct employee compensation have been multiplied by 3.5. The total employment associated with the 3.5 finishing units is 1.75 jobs on-site and 3.89 jobs in total.

<table>
<thead>
<tr>
<th>Table 1. Comparisons: Contract and Individually Owner Hog Production</th>
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<tbody>
<tr>
<td>Contract Farrowing</td>
</tr>
<tr>
<td>Production Units</td>
</tr>
<tr>
<td>Sows</td>
</tr>
<tr>
<td>Pigs/year</td>
</tr>
<tr>
<td>$Investment B&amp;E</td>
</tr>
<tr>
<td>$Total Assets</td>
</tr>
<tr>
<td>$Sales</td>
</tr>
<tr>
<td>Cwt-Sales</td>
</tr>
<tr>
<td>Mgt-Labor</td>
</tr>
<tr>
<td>Other Labor</td>
</tr>
<tr>
<td>Total Labor</td>
</tr>
<tr>
<td>Jobs Displaced</td>
</tr>
<tr>
<td>$Assets/Person</td>
</tr>
<tr>
<td>$Return: Mgt+Capital</td>
</tr>
</tbody>
</table>
The third column represents a composite of one farrowing unit and 3.5 finishing units capable of producing approximately 12,000 slaughter hogs/year. Note that the total investment is approximately $1 million, which includes buildings and equipment costs but no land cost. Total dollar sales are based on 11,900 hogs sold at 250 lbs for $46/cwt. The number of hogs and price was the same as assumed in the Impacts study. A market weight of 250 lbs. was the average reported in 1992 Management Information Records (MIR) production data for hog finishers(Plain). The composite operation results in an estimated 4.25 on-site jobs; total direct employee compensation of $93,750, or $22,059 per job; and 9.44 on-site and off-site jobs in total.

The fourth column in Table 1 is based on production data reported in the 1992 Missouri Farm Business Summary (Ehlmann and Hein, 1993). A total of 25 farms participating in the MIR program in 1992 were classified as hog farms. Sales of livestock accounted for about 90 percent of total sales on these farms and livestock accounted for all of net returns. In fact, crop returns, except for crops fed, showed a net average $12,000 loss to operators of MIR hog farms in 1992. Average sales per MIR hog farm in 1992 was about $265,000 per farm. Slaughter hog prices in 1992 averaged about $42/cwt., $4/cwt. less that the average used in the contract units in Table 1. Total dollar sales for 4.5 MIR hog farms are estimated at $1.3 million, by adjusting 1992 sales upward to reflect the $4/cwt. price difference. This brings total sales for MIR hog farms in column four roughly in line with sales for the composite contract farrow-to-finish unit in column three. Note that total investment in buildings and equipment is about the same for the composite contract and MIR hog operations. Additional investment in land and other assets nearly double the "total" investment in MIR operations in comparison to the composite contract unit. Contract operations presumable would require a significant investment in land for manure disposal, however, total assets for contract units in Table 1 reflect only the building and equipment investment.

A key difference between contract and individually owned hog production is found in management and labor requirements. The composite farrow-finish contract operation employs only 4.25 people in the process of generating $1.3 million in sales of hogs. On the other hand, independently operated hog farms in Table 1 employ 12.60 people in the process of producing a slightly smaller dollar value of hog sales. Large-scale, specialized operations produce more hogs per person employed, and consequently, creates fewer jobs per hog produced. Contract production allows a state to produce more hogs with fewer people. Consequently, large-scale, contract production employs far fewer people than would be employed to produce the same number of hogs in a typical owner-operated hog farms.

Some of the difference in employment is accounted for by the fact that many hog farmers produce a significant portion of their own feed, whereas contract operators typically purchase their feed from outside suppliers. Management functions of

<table>
<thead>
<tr>
<th>$Return: Labor</th>
<th>57,000</th>
<th>36,750</th>
<th>93,750</th>
<th>78,975</th>
</tr>
</thead>
<tbody>
<tr>
<td>$Return: Mgt+Labor</td>
<td>57,000</td>
<td>36,750</td>
<td>93,750</td>
<td>349,307</td>
</tr>
<tr>
<td>$/Unit-Mgt+Lab+(Cap)</td>
<td>22,800</td>
<td>21,000</td>
<td>22,059</td>
<td>27,723</td>
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<tr>
<td>Multiplier</td>
<td>2.22</td>
<td>2.22</td>
<td>2.22</td>
<td>2.22</td>
</tr>
<tr>
<td>Total Employment</td>
<td>5.55</td>
<td>3.89</td>
<td>9.44</td>
<td>27.97</td>
</tr>
<tr>
<td>Jobs Displaced</td>
<td>18.54</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Displacement Ratio</td>
<td>2.96</td>
<td>to one</td>
<td></td>
<td></td>
</tr>
<tr>
<td>$5 Mil. -- (9 &amp; 11 units)</td>
<td>50.00</td>
<td>42.79</td>
<td>47.18</td>
<td>139.86</td>
</tr>
<tr>
<td>Jobs Displaced</td>
<td>92.69</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
independent hog farmers are performed by off-farm supervisors and corporate managers in contract operations. However, when feed is produced on the farms where it is fed and returns to management accrue to local farmers, there is little doubt about whether the economic impacts will be felt in the local community. (The issue of off-farm impacts is addressed more fully below.) In addition, other enterprises on the farm may be critically interdependent with, and thus, fundamentally inseparable from the hog operation on many owner-operated hog farms. Thus, "total" employment on many hog farms may well be dependent on the economically viability of the hog enterprise.

Note also that total assets per person employed in contract production is considerably higher than for MIR hog farms, even though land needed for the contract unit is not included. Total investments on MIR farms include all land, machinery, and equipment associated with all enterprises, including on-farm feed production. However, the contract production asset figures are based on new investment costs whereas facilities on MIR hog farms were likely of varying ages in 1992 and were reported at depreciated values. Thus, asset comparisons in Table 1 reflect the reality of 1992 rather than an average over some future time period.

Economic returns to operators of well managed owner-operated hog farms are competitive with returns to operators of contract production units. The Impacts report includes only direct employee compensation, or returns to labor, in reported estimates of economic performance for contract units. Direct employee compensation for contract production is net of interest and principal payments on buildings and equipment. If the useful life of buildings and equipment exceed the repayment period, some additional returns would presumably accrue to the contract producer's investment. However, total returns to management, labor, and capital for contract operations in Table 1 reflect direct employee compensation estimates.

Returns to capital, management, and operator labor are fundamentally inseparable in owner-operated farming enterprises, although separate returns for different production factors are often "estimated." At 1992 hog prices, returns to management on MIR hog farms were estimated at a negative $.43/cwt, although the 24 year average shows a positive $3.58 (Plain, 1993). The difference is approximately equal to the $4 difference between 1992 hog prices and the $46 long term average assumed for total returns. The return to management and capital for the MIR hog farms in Table 1 reflects 1992 returns adjusted to reflect the long run average return to management. Returns of labor for MIR hog farms reflect reported compensation for hired labor.

Estimated returns to management, capital, and labor per person employed is over 25 percent higher for MIR hog farms in Table 1 than is the direct employee compensation per person in the contract operations. Some of this difference is quite likely due to the fact that returns to management and equity capital accrue to the farmers in independent hog operations but accrue to corporate managers and investors in the contract operations. However, even the most ardent advocates of contract production freely admit the fact that well managed independent hog operations can compete with large-specialized hog operations. Glenn Grimes of the University of Missouri, who has studied economies of scale in hog production over several decades, concludes: "the lowest-cost one-third of producers are competitive with the best large producers" (Grimes, 1994) The comparisons of economic returns per person for MIR and contract units in Table 1 do nothing more than confirm this conventional wisdom. Well managed independent hog farms can employee more people at compensation levels comparable to those offered by contract hog production.

Comparing Apples to Oranges

Comparing MIR hog farms to contract hog production units is like comparing apples to oranges. One represents whole-farm operations, the other represents hog enterprises. In one, the equity capital and management is on-farm, in the other most of the capital and management comes from the outside. One set of assets represents an investment in a specific set of buildings and equipment; the other represents a wide variety of capital assets at various stages of depreciation. So how can such comparisons have any real meaning? The comparisons have meaning precisely because the two systems represent two very different, but very realistic, futures for hog production in Missouri.

One alternative is to promote large-scale, contract production as a means of increasing Missouri’s rank in national hog production in hopes of regaining the state's losses in hog farmers. The other is to promote better management as a means
of improving the competitiveness of Missouri's smaller, independently-owned hog operations. These two strategies may require very different kinds of hog production systems. Economic returns to management reflect returns associated with decision making. Mechanized, specialized, tightly controlled production systems allow room for very little individual management input and thus provide very little opportunity to earn a true return to management. Operations with greater potential returns to management tend to be more diverse, complex, and dynamic systems with a great deal of flexibility for managers to make decisions which impact performance. The realistic choices for the future are not between apples and apples, but rather between apples and oranges. It is more important that comparisons reflect realistic alternatives than that they be clear and easy to make.

Another logical strategy for increasing employment in hog production is to support beginning hog farmers who might choose "low-investment," pasture production systems. One low-investment farrowing system requires less than $70,000 in buildings and equipment to establish an 80 sow unit capable of turning out more than 1,200 feeder pigs per year. Such a hog production unit would require an 80 percent commitment from one person and is estimated to return about $15,000 per unit, or $18,750 per full-time equivalent (Osburn, 1994). The estimated return per unit of labor and management is about 15 percent less than for the contract farrowing unit in Table 1. However, the investment per person employed in the contract unit is two-and-one-half times as great as for the low investment facility, excluding land costs in both cases. In terms of hog farm employment, ten low-investment units would produce 12,000 feeder pig per year and create 8 full-time positions. A single contract farrowing unit producing about the same number of pigs but would employ only 2.5 people. Large-scale contract units would produce more hogs per person, but the low-investment units would employ far more people per hog produced or per dollar invested in hog production.

Missouri hog producers have a variety of potentially viable options for hog production in the 21st century. To support one model of 21st century hog production, and not support others implies the only choice is between apples and nothing. The people of Missouri, including hog farmers and others who live and work in rural communities, should be allowed to choose their own future. If they choose apples over oranges, it will have been their choice. However, given a choice between apples, oranges and bananas, they just might choose some of all three.

The Question of Employment Multipliers

On-site or on-farm employment in hog production generates additional economic activity in the local community, in the state, and in the larger economy. The Impacts report utilized average state level impact multipliers of .56 for off-site employment in agricultural related enterprises and .66 for indirect effects in the general retail and services sectors. However, these estimates are based on the existing structure of hog production in Missouri rather than on contract production, as indicated previously. One might argue that contract producers are likely to purchase a larger proportion of their production inputs, particularly feed, rather than produce it on the farm, and thus might generate more local purchases. However, the low-investment feeder pig operation described above was budgeted assuming that all feed was purchased, as was the case for the contract farrowing unit. Even if off-farm purchases were greater for contract units, contract producers might be less likely to purchase inputs, including feed, from local, or even in-state suppliers. A recent Minnesota study, which included examination of tax records of large and small livestock producers, indicated that smaller producers bought a greater proportion of their inputs locally. For smaller livestock farmers (annual gross sales less $400,000), the weighted average of local spending (within 20 miles) was 79 percent; whereas for larger farmers the weighted average of local spending was only 47.5 percent (Chism, 1993). Based on this study, the 80 sow "low-investment" feeder pig operations may be more supportive of local input suppliers than either larger owner-operated or contract operations. However, contract producers might have fewer ties to the local community and thus less loyalty to local suppliers than would larger independent producers.

A series of studies spanning over two decades have consistently documented the negative impacts of trends toward large-scale, specialized farming operations on rural communities. John Allen, in a paper included in the proceedings of the 1993 Breimyer Agricultural Policy Seminar, provides a set of references to studies on the subject for anyone who cares to review the research in this area (Allen, 1993). A study by Labao is typical in its findings that "an agricultural structure that was increasingly corporate and non-family owned tended to lead to population decline, lower incomes, fewer community services, less participation in democratic processes, less retail trade, environmental pollution, more unemployment, and an emerging rigid class structure" (Center for Rural Affairs, 1994). The obvious decline in quality employment opportunities in
agriculturally dependent communities over the past several decades should provide clear evidence to the thoughtful observer that larger, more specialized farming operations have not provided more quality employment opportunities in rural communities than did the smaller, diversified farms they replaced. An increase in large-scale, contract hog production can only be expected to accelerate the past trends toward declining rural employment and rural economic decay.

The question of in-state impacts is somewhat different from that of local community impacts. However, uniformity and quality control are strong principles underlying low-cost, large-scale production. The demand for uniformity and quality control will be strong forces for centralization of input purchasing, and ultimately for centralization of input production, under the control of corporate contractors. The resulting uniformity of production will be a strong force also for vertical integration of production, slaughter, and processing, if potential market premiums for uniform production are to be realized. Whether the off-site activities associated with contract production are located in one state or another will likely be determined by factors other than location of the contract hog production units. Most contractors currently interested in Missouri appear to be out-of-state corporations. There are obvious public relations benefits associated with "buying local", during the time when contractors are attempting to gain acceptance in a community and are soliciting contracts with local producers. However, long run personal, corporate, and political interests may well lie much more in supporting the economies of states where corporate headquarters are located, and thus where the corporate executives and their families live.

In time, the answer to the questions of off-farm impacts of increased contract hog production will become more apparent. However, off-site impacts magnify on-site differences in employment among systems, even if the state-level multipliers for contract hog production are assumed to be no smaller than for independently owned hog farms. Note in Table 1 that a single farrowing unit would generate a total of 5.55 jobs, and 3.5 finishing units would add 3.89 jobs for a total of 9.44 jobs including on-site and off-site employment in the composite farrow-to-finish contract unit. MIR farms producing a comparable number of hogs would create 27.97 full-time employment opportunities, a difference of 18.54 jobs per 12,000 hogs produced. Ten low-investment hog operations might be expected to generate 17.6 jobs, on-site and off-site, in the process of producing 12,000 feeder pigs. These smaller farrowing units could support 12 more full-time workers than would be supported by a 600 sow contract farrowing unit producing the same number of pigs.

Who Benefits and Who Loses

If new contract hog units were to replace independent operations producing the same number of hogs, approximately two hog farmers would be left without jobs for each new job created. In the process of changing $1.3 million in hog production from independently-owned production to contract production, a net of 18-19 jobs currently linked to hog production would be displaced. A new $5 million investment in contract production would generate 40-50 new jobs but would displace approximately three-times that number of independent hog farmers.

There is no reason to believe that contract hog production will "add to" rather than "displace" existing hog production. Hog farmers' receipts from sales of live hogs account for only about one-third of the total cost of pork to consumers at the retail level, therefore, any reduction in farm level production costs is divided by three before it reaches the consumer level. Increases in total hog production made possible by marginally lower average farm-level costs are likely to be negligible in comparison to hog production displaced by contract production.

The obvious argument in favor of contract hog production in any given community, or state, is that the gains will be concentrated locally and the losses will be spread around elsewhere. An even more common argument is, if Missouri doesn't expand contract production, Missouri farmers will be displaced by contract producers in other states. A comparison of trends in North Carolina and Nebraska clearly refute this claim. Nebraska has a law against corporate hog production while North Carolina is clearly a leader among states in corporate hog production. During the 1986-93 period while the number of hog farmers in North Carolina fell by nearly one-half, total hog production and the total numbers of hog farmers in Nebraska remained virtually unchanged (Center for Rural Affairs, 1994). Nebraska kept its hog farmers employed without promoting large-scale corporate contract hog production. On the other hand, the farmers displaced most frequently by increased corporate hog production in North Carolina appear to have been independent North Carolina hog farmers. The associated negative economic and social impacts quite likely have been felt most keenly in North Carolina's rural communities. This evidence would suggest that while the gains from contract production may be concentrated close to home, a lot of the economic losses may be felt fairly nearby. The pain of displacement and dislocation cannot necessarily
be exported to other states.

Alternatives for the Future

Contract hog production is a reality of the current agricultural environment. It seems quite likely that contract hog production will become more common over time in spite of anything that its opponents may do to slow its spread into new areas of the country. Contract hog production simply continues a long term trend toward industrialization of the agricultural economy. Industrialization at first appears to increase productivity of human resources through mechanization and mass production technologies. However, over time, industrial technologies replace more and more labor with mechanization. Over time, the management function also becomes more concentrated among fewer and fewer people. The traditional economic assumption is that more efficient production, in general, will increase total economic output by enough to provide new jobs for displaced workers in newly emerging sectors of the economy. However, the growing number of displaced workers in the American economy, who now range from underemployed to permanently unemployable, has begun to raise serious questions about the traditional economic assumptions with respect to gains from further industrialization.

Rural Missouri cannot retreat to an earlier time when cost competition was less keen, full-time family farms were the norm, and agricultural communities were strong and growing. However, there is clear evidence that independently-owned, modest-sized, family-operated hog farms can be commercially competitive with current contract production units. There is also clear evidence that successful, modest-sized, family-operated hog farms contribute more to the economic and social well being of rural communities than do their corporate counterparts. It would seem that a goal of improving management capabilities of independent hog farmers should receive at least as high a priority as contract hog production as a rural economic development strategy. Greater reliance on intensive management creates more quality employment opportunities in rural areas by enhancing the productivity of people rather than replacing people with capital investments and large-scale, mass-production technologies.

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Large-scale, Corporate Hog Operations: Why rural communities are concerned and what they should do
John Ikerd
Agricultural Economist
University of Missouri, Columbia

I was recently asked by a rural advocacy group in Missouri to list some logical reasons why rural community leaders should be concerned about the impacts of livestock factories on their communities? I considered this to be a reasonable request and thus developed a list of reasons why I think rural residents should question whether or not they want large-scale, corporate hog farms to locate in their communities. Those reasons seem to make a logical starting point for a paper concerning why rural communities are concerned about large-scale corporate hog operations and what they should do about them.

As I indicate in my response to that request, there is no scientific consensus on this issue. Thus, there is no set of scientific "facts" to either prove or disprove the validity of these concerns. Research exists to support many of the concerns on my list, even though they cannot be proven. However, most of the concerns on the list are based primarily on logical reasoning and common sense. Some may dismiss these "logical" concerns as illogical, uninformed, or inconsequential. But, such assessments simply represent differences in "beliefs," not proven facts or some unique knowledge of reality. The people of rural communities have a right and responsibility to weigh the evidence and logic on both sides of this issue and to make their own decisions.

Top ten reasons for rural communities to be concerned about large-scale, CAFOs

A "top ten list" wasn’t chosen just to be cute or catchy. Ten is enough to get the point across, but not so many as to overdo discussion of the issue. Also, I wanted to start at the bottom of my list and work my way to the top.

Concern #10. Hogs stink

Odor is at the top of the list for many opponents of large-scale hog farms. The most vocal opponents tend to be those affected most directly – those who wake up most days to the smell of hog manure. To a hog producer, hog manure may "smell like money," but to the neighbors, it just "smells like hog manure." There are legitimate human health concerns associated with air quality surrounding large hog operations. Thus, the odor problem goes beyond the very real nuisance of living with stench in the air. Odors associated with giant hog farms affect the lives of people for "miles around," not just those on adjoining farms. Few would be willing to stay in, or move into, such a community if they have an opportunity to locate elsewhere. Odor ranks only 10 on my list because something could possibly be done to mitigate its impacts, such as using odor-reducing technologies, compensating those most affected and locating facilities so as to minimize impacts of the greater community.

Concern #9. The work is not healthy for people

A large confinement hog facility is not a pleasant place to work. Known health risks are associated with continuously breathing air that arises from manure pits in confinement hog facilities. Health problems cost money in lost wages and health care costs. But more important, an unhealthy workplace can destroy peoples’ lives. History has proven that people will choose to work in dangerous work environments when they are desperate for jobs. Health risks can be life threatening, so I rank worker safety above odor problems. But as in the case of odor, health problems can be mitigated by protecting workers from the noxious fumes, by limiting exposure, and by keeping people with other health problems out of confinement facilities.
Concern #8. Piling up too much "stuff" in one-place causes problems.

If you spread out the hogs and let hog manure lay where it falls in a pasture, it doesn’t bother anyone very much. But if you start collecting it, flushing it, spreading and spraying it around – all normal practices in confinement hog operations – it becomes air pollution. Water pollution also is a symptom of the same basic problem -- too much manure in one place. The difference between the hog lagoon spills, such as those in Missouri and North Carolina, and the normal runoff from a hog pasture is a simple matter of concentration. When you put a lot of hogs in the same place, you have to collect and store the waste. If it gets into the ground water or gets flushed into streams, it kills fish, clogs streams and lakes with algae, feeds water born disease organism, and wreaks havoc in the environment.

In addition, manure on diversified hog farms normally is spread back onto cropland where the feed grain was grown. Most of the nutrients used to grow the crops are returned to the soil. But, when feed grains from specialized crop farms are shipped to distant hog-factories, the nation’s future productive capacity is being stacked up and flushed out into places where crops can’t grow. We can treat the symptoms – air pollution and water pollution – but the basic problem of piling up too much stuff is inherent within the system of large-scale, concentrated production.

Concern #7. Consumers have little if anything to gain.

Large-scale, corporate hog production is frequently justified to the general public as a more efficient, lower cost, means of producing higher quality pork. The facts of the situation simply do not support such a claim. The average consumer spends just over 10 percent, a dime out of each dollar, of their disposable income for food. About 10 percent, a penny out of the dime, is spent for pork. The costs of live hogs make up only about 35 percent of that penny. The rest goes for processing, packaging, advertising, transportation, and other marketing costs.

Farm record data have shown that costs of large-scale hog operations are only slightly lower than costs of "average" commercial hog producers. Even if production costs were five percent less, about $2/cwt of live hog; the "maximum" savings to consumers would be less than two cents per dollar spent for pork at retail. At best, total food costs would be two-tenths of one percent less and consumers on average would spend only "two-one-hundredths of one percent" less of their income for food. Any savings would be lost in rounding error in consumer food cost statistics. With a handful of large hog producers and packers gaining control of the industry, it seems far more likely that in the long run pork prices would go up rather than down as a consequence of further industrialization.

The argument that factory pork would be higher in quality doesn’t hold either. Pork would be more uniform because it would all come from the same basic genetic stock, as is currently the case with chickens. However, consumers have different tastes and preferences – different perceptions of quality. Making all pork "the same" would not necessarily please more consumers. Greater profit for producers and processors, not lower costs or higher quality, is the driving force behind the current trend toward industrial hog production. The only ones who really need to shave another penny or two off production costs are those who are trying to export more pork into highly competitive world markets. That doesn’t include many hog farmers or pork consumers. So, why should the general public support industrial hog production?

Concern #6. Continuing regulatory problems are inevitable.
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Without regulations, big hog operations will impose costs on their neighbors – air pollution, water pollution, and others -- that are not part of the historic costs of producing hogs. It will cost money for hog factories to deal with "externalities" such as air and water pollution. No "bottom-line" driven hog operation will incur those costs unless they are forced to do so by government regulations – federal, state, or local.

Family farmers are people with human feelings and values, and most feel some sense of responsibility to their communities and the environment. Family farmers at least have personal incentives to be stewards of the environment and good neighbors, regardless of how they choose to behave. Public corporations have no such incentives. They are not people. Corporations have no heart or soul. Stockholders often are so detached from their investments they don’t know or care what stocks they own – just as long as they make money. Local managers and workers may be good people who really care about the community, but when it comes to keeping their job, they must put profits and growth ahead of community. Professed corporate support of local communities, by necessity, can be nothing more than another strategy for profit and growth. Thus, government regulation and continual conflict are an inherent fact of corporate life.

Concern #5. Hog factories destroy public confidence in agriculture

Over the decades, family farmers have built up a vast treasure of public confidence and good will. Many people in the cities either grew up on farms or have parents or other close relatives whom either now are or once were family farmers. The "farm family" conjured up images of people who are hard working, moral, honest, solid, dependable, trustworthy, caring, and responsible. These images have been a valuable source of wealth for farmers – although not widely recognized as such.

Farmers have been awarded special privileges, exemptions, and variances under a whole host of public policies -- from taxation to environmental regulations -- because they were trusted to behave in the public interest. Support of "family farms" has been an important part of the rhetoric of every farm bill that has passed congress. Farmers have also enjoyed a special status "as people," apart from any monetary benefits. They have been respected and trusted. However, bad publicity surrounding large-scale, corporate hog production is using up the farmer’s stock of public confidence and good will at an alarming rate. Negative stories have appeared on every major television network over the past few years. When Ms. Magazine runs a feature article on the ills of corporate hog farming, as they did in 1997, we can conclude that the story has just about made the full circuit of public opinion shapers. Family farms will be paying for this loss of public trust for decades, if not forever.

Concern #4. Future of the community is turned over to outside interests.

Rural people need to take charge of their own destinies if they expect to sustain a desirable quality of community life for themselves, their children, and future generations of rural Americans. Quality of life is about much more than just creating more jobs and making more money. Quality of life is also about positive moral and social values and being responsible caretakers of the community as a place. Sure, people need jobs and need to make a decent living. But, jobs and high wages didn’t save the cities from decline and decay and jobs won’t save rural communities either. When an apparent solution to a problem comes from someone else, from outside, you can just about bet that the benefits will be going to someone else from outside as well.

Some rich and powerful outsiders have their own problems, and they have their eyes on rural communities as places to solve them. Sparse population, trusting people, and lack of jobs in rural areas are seen as ideal opportunities. They are looking for someplace to "dump stuff." An Industrial society creates a lot of "trash," whether in the form of garbage, toxic chemicals, or hog manure. Most "outsiders" promoting rural development...
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schemes have something they need to "dump." Jobs just aren’t enough compensation for turning a community
into a "dump." Rural people need to take control of their own destiny and build the kinds of communities in
which their children and their children’s children will choose to live and grow. The solutions to the problems of
rural Americans are in the hands, hearts, and minds of rural people themselves, not in outside investment and
corporate control.

Concern #3. The decision making process can rip communities apart.

The process of decision making may be more important than the decision itself. Anyone who has been a part of
a family has experienced this first hand. The memory of an act that triggered a family feud has long since faded,
but the feud goes on. Feuds result from a loss of confidence and trust, regardless of the context within which
the loss takes place. The large-scale, corporate hog farm issue is one of the most contentious issues to confront
rural America in recent history.

The social fabric of rural communities has been ripped apart by controversy surrounding the introduction of
large-scale, corporate hog operations. There seems to be no middle ground. Some people seem determined to
bring in the big hog operations, by almost any means, and others seem just as committed to keep them out, by
almost any means. Almost everyone eventually seems to feel obligated to take sides. The larger question in
such communities is not whether the hog factories come in or stay out, but can the community ever heal the
wound left by the fight?

A healthy, unified community can deal with almost any problem, including a large-scale corporate hog farm on
the outskirts of town. A sick, bitterly divided community is incapable of much more than survival, regardless of
its other advantages and opportunities. The future of rural America depends on communities of people being
able to work together for their common good. The divisiveness of the decision making process, presumably,
could be avoided. But, the consequences of failing to do so are so destructive that it ranks near the top of my
list.

Concern #2. Hog factories degrade the productive capacities of rural people.

Factories "use up" people. Assembly line work is "non-thinking" work. When you work on an assembly line, you
simply do what you are told as fast as you can for as long as you can. I know. I have been there. Large-scale
hog operations may not be assembly lines, but the principle is the same. Big hog operators do not want people
who know anything about raising hogs. They want people who can be trained to do what they are told to do
without thinking. An experienced hog farmer might start thinking, asking questions, and mess up their process.
Hog factories, like other factories, are looking for people who are dependable, who know how to carry out
orders, and will work hard for a little money.

On balance, large-scale, industrial hog operations destroy more jobs than they create. A driving force behind
industrialization is to substitute capital and technology for labor and management – to make it possible for fewer
people to produce more. Large-scale hog operations concentrate the jobs created in one place and call it
economic development. The jobs lost elsewhere are ignored or denied. The numbers of independent hog
farmers displaced elsewhere will be greater than the number of jobs created in new large scale hog operations.
Hog factories replace more independent hog farmers with fewer assembly line workers.

Other kinds of factories have come to rural America in the past. When these factories have found people in
other regions, or in other countries, who would work even harder for less, they moved on. Corporately owned

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factories have no roots. They leave behind a workforce that doesn’t know how to do anything other than what they are told. Intelligent, thinking, capable, independent people are transformed into detached, non-thinking people who may be psychologically incapable of earning a living without depending on someone else to tell them what to do. Our cities currently are plagued with such people -- people whose capacities have been degraded by factories long since gone. It just doesn’t seem to make sense to do the same thing to rural people. When we replace independent, family hog farmers with hog factories we are degrading the most valuable resource rural areas have to support future development – rural people.

Concern #1. Tomorrow’s problems are disguised as today’s solution.

My number one concern regarding large-scale, corporate hog operations is that rural communities will see them as "the solution" to today’s problems without seeing them as a potential "source" of problems for tomorrow. Maybe there are some communities so desperate for jobs that it makes sense to take the risks. Maybe they feel they have to do something today to give them a chance to do something better tomorrow. But, hog factories are a short-run solution, at best, that may create more long run problems than they solve today. Low-wage, assembly-line-like jobs should be viewed as a stop gap strategy suitable only for communities with no other options. Sooner or later non-thinking jobs will be done somewhere else on the globe, where people will work harder for less money and are accustomed to doing whatever they are told – by those who have no other options. In the longer run, all non-thinking jobs will be done using computers and robots – not by people anywhere.

The real opportunities for people to lead successful lives in the future will be in "thinking" work. The human mind is uniquely capable of complex thought. Almost anyone is "smarter" than a computer. But, people need to develop their unique human abilities to think. We need to accept the responsibility for thinking and for creating thinking jobs for ourselves and for others. As long as rural people think their problems are solved, or will be solved by someone else, they see no incentive to begin doing the things they need to do to ensure the future of their community.

The primary advantages for rural areas in the twenty-first century will be the unique qualities of life associated with open spaces, clean air, clean water, scenic landscapes, and communities of energetic, thinking, caring people. Communities that sacrifice these long run advantages for short run economic gains may have a difficult time surviving in the new century.

Thus, my number one concern is that large-scale, corporate hog operations are tomorrow’s problem disguised as today’s solution. They may keep rural people from doing the things that need to be done today to ensure the future of their communities. Large-scale, corporate hog operations will not create communities where our children and their children will choose to live and grow. Communities with a future must take positive actions today to ensure a desirable quality of life for themselves, their children, and rural children of future generations.

Why Do Rural Communities Accept Confinement Animal Feeding Operations?

Admittedly, there are reasonable arguments that can be used to support bringing large-scale confinement animal feeding operations (CAFOs) into a rural community. Community leaders who support such operations typically argue that people in their community:

- Need jobs in to replace those lost to globalization,
- Need a higher tax base to provide rural services,
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- Need to bolster their declining agricultural economy,
- Know that other communities will accept these operations if they don’t,
- Feel that they can’t stand in the way of progress,
- Believe big operations can better afford modern pollution prevention technologies,
- Feel that local opposition is just another case of “not in my backyard,” thinking.

There are logical responses to each of these arguments, but each also contains elements of truth. One thing nearly all pro-CAFO arguments have in common is their foundation in short-run, self-interest economics. They are based on a deeply held faith that the market place is the best means of allocating resources – whether it is allocation of people among alternative occupations, land among alternative uses, money among investments, or people among communities. Those things possible and profitable shall be done. People have a right to protect themselves and their property from damage caused by others, but beyond that, the economics of the marketplace shall prevail. A community is nothing more than a collection of individuals that happen to be located in geographic proximity to each other. These are typical assumptions of self-interest economics.

After all, corporate investors are putting their money into CAFOs because they expect to make profits. Investments create jobs and enhance the local tax base. If CAFOs are more cost efficient than smaller farming operations, even if marginally so, traditional family farmers will inevitably be forced out of business -- so the argument goes. Why not give local farmers a chance to go to work for a profitable agricultural corporation? We know these Corporations are going to invest somewhere, so it might as well be here. There are always costs associated with anything that generates benefits. The opponents just want someone else to bear those costs.

They reason that if environmental problems arise, it will be easier to work them out with a few large operations than many small ones. The big operations have the money to invest in the modern waste handling facilities that ultimately will be required of everyone. The technology is available, it’s profitable, so it’s both futile and foolish to stand in the way of economic progress. The people who are opposed to these operations are accused of being out of touch with economic reality. Opponents of CAFOs are labeled as Luddites – as people who oppose progress or just want to keep things as they are.

If self-interest economics prevail, there is every reason to believe that CAFOs eventually will totally dominate animal agriculture in America. And, corporations will locate CAFOs pretty much wherever they choose, regardless of the ecological and social consequences. They will avoid locating them in heavily populated areas to minimize nuisance law suites. But, money invested in CAFOs will seek its place of highest return. The only way to successfully challenge this outcome it to challenge its basic premise – the right of private profits to prevail over public good – and to uphold the rights of people to prevail over the pursuit of profits in protecting their communities and shaping their destinies.

**Sustainability: The Challenge to Land Use Economics**

Current land use decisions in the United States, including location of large hog operations, have their foundation in economic theory as it relates to the concept of private property. Persons who hold ownership rights to property may do with it pretty much as they see fit, including exchange ownership rights with others, as long as it does not interfere with the private property rights of others. Any restrictions on individual land use are limited to uses that might affect the use rights held by other individuals.

With relatively minor exceptions, land use decisions are determined by the economics of the market place. Provisions are made through laws of eminent domain to acquire private property for public use, without the consent of owners, but not without just economic compensation to current landowners. Land uses of a criminal
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nature, deemed to be of clear public harm, may be restricted without compensation. Land use zoning may restrict land use as well. But in reality, economic considerations commonly dominate planning and zoning decisions. The question becomes, how can economic development be maximized with the minimum negative impact on community residents. Requests for changes in zoning are typically motivated by a desire to put land to a higher economic use. Opposition to changes typically is motivated by the desire to protect private property rights. It is a rare community that uses the tools of planning and zoning to ensure the long run ecological and social well being of the community as a whole.

So, with minor exceptions, private property may be put to its highest economic use. The concept of highest economic use gives legitimacy to competing private property rights, but commonly ignores or denies any right of the community, or public as a whole, to participate in all land use decisions. Economic theory treats a community as a collection of individuals, not as an entity with rights separate from, or in addition to, those of individuals of which the community is composed. In addition, conventional economics gives no consideration to potential ownership rights of future generations. Rights of intergenerational transfer of ownership are based on the premise that to prohibit or limit such transfers would unjustly restrict current private property rights. Free market economics makes no provision for future generations, other than those reflected in the self-interests of current decision-makers. And economics drives land use decisions.

The question of long run sustainability presents a serious challenge to conventional economic thought as the foundation for land use decisions. Over the past decade, many different people have defined sustainable development, of which sustainable agriculture is but one part, in many ways. However, the underlying theme of nearly all such definitions is one of intergenerational equity -- a responsibility to meet the needs of the current generation while leaving equal or better opportunities of those of all generations to follow. In more common language, sustainability development applies the Golden Rule across generations -- doing for future generations as we would have them do for us.

The three cornerstones of sustainability are ecological soundness, economic viability, and social justice. The three are not separate goals or objectives, but instead are three separate dimensions of the same whole -- as with the three dimensions of a box; height, length, and width. Any object lacking any one of those three dimensions quite simply is not a box. Any system of development that is not ecologically sound and economically viable and socially just quite simply is not sustainable over time. All are necessary and none alone or any pair is sufficient to ensure sustainability.

Thus, sustainability requires that we look beyond the economics of short-run, self-interest to the broader set of issues affecting quality of life or human well being over time. Sustainability requires that we broaden our economic thinking to consider the long run health and productivity of the natural ecosystem, not just the optimum means by which it may be exploited for our short-run gratification. Sustainability requires that we broaden our economic thinking to consider the well being of the community, or society, as a whole, not just sum the welfare of individuals who make up a community or society. The economics of self-interest is an important dimensions of sustainability, but it is but one among three. Things ecological, social, and economic must be considered as complementing dimensions of the same whole, not as competing objectives that can be pursued separately.

**Economic Implications for Sustainable Land Use**

The following is a short discourse on the economics of land use under conventional and sustainable economic assumptions. For some readers, this discussion will be unnecessary, and they may feel free to skip to the next section. It is included for the benefit of those who might be skeptical regarding whether or not the conclusions of
this paper are based on sound economic logic. They are.

From a short-run economic perspective, production from a given piece of land should continue to be increased as long as the value of additional production exceeds the added cost of creating that production. Land is considered as a *fixed* economic resource -- its quantity cannot be increased -- and all other inputs such as hogs, feed, and labor are considered to be *variable* – more or less may be used on a given piece of land. The fundamental economic question is; " what quantity of variable inputs should be applied to a given amount of fixed resource?" In terms of hog production, the answer is: the number of hogs or size of production unit, and the number of production units in a given area, should be increased as long as the value of adding one more hog or production unit exceeds their addition to costs.

The economic optimum scale of hog production has increased dramatically over the past few years. New production technologies have allowed hog producers to avoid many of the previous problems of large-scale production – such as disease and labor problems. Changes in the food system have created opportunities for profitable integration of production and marketing activities -- favoring large-scale, corporate hog operations over individually owned family farms. Thus, the costs associated with larger scale production have declined and the returns from large-scale, corporate production have increased. There is little doubt that the dramatic increase in large-scale CAFOs has been driven by economics – by corporate greed and the pursuit of profit. However the economic arguments that support CAFOs are valid only from the perspective of economics of short-run, self-interest.

The conclusions are totally different if we instead take a long run, sustainable economics perspective of land use questions associated with large-scale hog operations. In the long run nearly all the agricultural inputs that are *variable* in the short run are *fixed*. For example, fossil fuels, fertilizers and pesticides for feed production, machinery, and many building materials are all derived from finite, non-renewable stocks of natural resources. Thus, their long-run supply is *fixed*, even though their short run use may be *variable*.

In the long run, our only truly *variable* resource is solar energy. Living organisms, including people, represent renewable resources, but living organisms are dependent on finite natural resources as well as solar energy. Every productive resource on earth can realistically be depleted over some finite period of time. But, the continuing supply of energy from the sun is expected to continue for billions of years into the future.

Geographic space is required to capture solar energy, at least for agricultural use. Land represents space. Thus, land – as space – serves as a proxy for solar energy, the only long run, *variable* resource. Of course, land has characteristics other than space -- such as organic matter, texture, and water holding capacity -- which may influence its productivity and value. But, these non-spatial aspects of land are finite, and thus, may be depleted over time. Land as space, while fixed in total at any point in time, represents a virtually infinite supply of solar energy that may be utilized in varying quantities over time, and thus, represents a *variable* long run resource.

Ironically, those things that are variable in the short run are fixed over the long run, and the one thing most fixed in the short run, space, represents the only variable long run resource. As we should expected, things that appear to be optimum from a short run perspective are far from optimum when one takes a long run perspective.

Solar energy in not only variable -- it is also *free*. The sun is the only resource that we don't have to pay for, by one means of another. Thus, in the long run, land – as space -- must be considered as *free*. Economics dictates that we maximize production from free resources if we are to maximize profits. When space is considered to be
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free, the profit maximizing use of all non-renewable inputs will be at the point of their minimum cost per unit of production. In hog production the optimum would be at the point of maximum production per pound of feed or per hour of labor, not maximum profit from a production unit or for a given corporation.

Maximum production per unit of non-renewable input will result in maximum total production from a given quantity of input over time – and maximum contribution to sustainable production. If land, as space, is allowed to take on a positive market value, less land will be used relative to other production inputs – feed, labor, capital, and equipment -- resulting in these non-renewable inputs being used up at faster than optimal long run rates. This conclusion is quite different from conventional short-run economics which treats land as a marketable commodity and focuses on maximizing profits for the firm or corporation, rather than maximizing long run benefits to the community or society.

Implications for CAFOs in Rural Communities

So what does all this mean for confinement animal feeding operations in rural communities? It means if short run economics is allowed to prevail, concentration of hogs in a given area will increased as long as each additional unit of production – increase in size or number of CAFOs -- adds more to total value of production than it adds to total costs. But, it also means if rural communities want to sustain development over the long run they cannot allow short-run economic self-interest to prevail.

Eventually, the size of CAFOs may be limited by rising costs. For very large operations, costs of production may eventually rise because feed and other inputs have to be shipped in and products shipped out from and to increasingly distant locations. But in reality, something other than economic scale of production typically limits the size and number of CAFOs in a given area. Costs associated with such things as foul odors, water pollution, worker health, displaced farmers, degradation of human potential, and destruction of communities are all considered to be "externalities," if considered at all, in short-run, self-interest economics. The limit of size typically is not one of internal economics, but rather one of external pressures.

External costs, by definition, are costs not imposed by the market place. Thus, those who are damaged must impose such costs – through law suites, government regulations, and social pressures from the surrounding community. External costs typically limit the growth of CAFOs within any given area. But, the economics of self-interest provide the constant and relentless motivating force for those who operate CAFOs to do the things that result in law suites, to violate government regulations, and bribe and coerce the community into accepting their presence. CAFOs almost always see opportunities to increase profits if external constraints can be overcome, avoided, or removed.

The existence of externalities cause those who operate CAFOs to choose those areas least willing and able to impose external costs of the corporation, which allows them to operate as near as possible at the short-run, self-interest economic optimum size. The most important spatial requirements for CAFOs at present appear to be space for dispersing foul odors in the air and space for spreading manure on the land. Rural areas are "valued" as dumping grounds for stench and manure – things other people don’t want to have around. Thus giant animal feeding factories have consistently located in remote, economically depressed rural areas. It all makes logical short-run, self-interest, economic sense. But, it is all long run, sustainable economic nonsense.

What should rural communities do?

Rural people must become actively involved in shaping the destiny of their communities. They cannot rely on
Large-scale, Confinement Animal Feeding Operations:

some "invisible hand" of economics to create a positive future. The "invisible hand" has been severely crippled, if not cut off, as an economy made up of small proprietorships has been replaced by an economy dominated by large corporations. Rural people must assert their right put their long run, community interest ahead of the short-run, self-interest of those who invest in and operate CAFOs. Such operations cannot even be justified on economic grounds, when one takes a long-run economic perspective. Nor can the impacts of CAFOs on environmental quality and social justice be tolerated if communities are concerned about their long-run sustainability.

*Markets cannot be allowed to allocate the use of land as space.* This is the most important conclusion of the foregoing illustration of short run versus long run economics. Markets place positive prices on economic inputs, resources, and products. Those things that are most scarce – that are less available relative to the aggregate desire and ability to possess them – will command the highest market prices. Higher prices both ration the scarce supplies among those who are willing and able to pay and provide an incentive for increased production to reduce the scarcity. But land, as space, cannot be allowed to have a positive price without misallocating its use, and higher land prices quite simply cannot create more space. Land prices guide land use to its highest valued short-run economic alternative – whether for residential developments, hog factories, farming, or wilderness. Those using conventional economic theory have falsely assured us that society will realize the highest total value from a given stock of land by allowing free markets to allocate land use.

Some portion of the total value of land will reflect its inherent productive capacity, whether in agriculture, recreation, or other land-based production processes. That portion of land value can be allocated by market prices. However, much of the value of land represents its value as space -- a geographic place to carry out some activity, or simply as space to be held or controlled. Any market value placed on land as space will cause it to be used too intensively, using too many inputs on too little land, and will deplete resources at a faster than optimum rate. Thus, concern for long run sustainability will require a rethinking of fundamental concepts of private property, specifically of what it means to own land.

The first reaction of many will be to rise in defense of "private property rights" – the right to use their land as they see fit. However, when markets are allowed to dictate land use those with less money can easily be deprived of the right to use land as they see fit by those with more money. Those with more money may bid up land prices to the point were current users cannot afford to pay their property taxes or possibly justify not selling out to the highest bidder. The ability of one farmer to use their land may be affected by another’s land being purchased by an outside investor – the existence of a large CAFO in a county may bring on regulations that preclude existing hog farmers from further expansion. Farmers who would prefer to be good community citizens and ethical stewards of their land may be forced by competition from outside investors to exploit their community and the their land in order to stay in business. Insisting on unencumbered use of private property may be far more restrictive on use of private property by local landowners than would their participation in a community-based land-use decision making process.

The concept of private property has never meant the right to do whatever one chooses with the property they own. *Conditional ownership* was always implied, if not always stated. A new condition needed to ensure sustainability is one that denies any right to degrade the land or the surrounding community, just because one owns the right to use their land. Thus, the owner of land cannot possess, and thus cannot convey to another, the right to use land is ways that are inconsistent with long run societal well being. If the community, rather than the individual, makes the ultimate decisions regarding how land is used, land as space will have no market value because there will be no right of alternative use for its owner to convey. Its price will reflect only that portion of its value that is associated with its potential productivity in its current use.
What should rural communities do? They should demand their right to be protected against the economic tyranny of the marketplace by making logical, long-run land use decisions for their communities. They should refuse to allow the long-run economic, ecological, and social well-being of their communities to be degraded in the pursuit of short-run, economic self-interests. They should demand the right to allocate land use within their community by means other than market prices—and to exceed any set of state or national health and environmental standards to protect the community if necessary.

Traditional remedies such as law suites and environmental regulations will not provide lasting solutions. Traditional remedies are based on the principle of conflicting self-interest, rather than the collective interest of the community as a whole. Law suites, at best, only compensate individuals who are damaged by the actions of another—even in the case of class actions. Environmental regulations invariably reflect some compromise among conflicting individual interests, which settles to some minimum common denominator in a society driven by short-run, self-interest. Communities must find the courage and the means to act as a whole, for the long-run well-being of the community as a whole, both now and forever. This is not a matter of compromise among conflicts; it is a matter of harmony within.

Communities may use zoning laws to pursue their objectives where they are allowed to do so under current state law. Communities may also use health and environmental regulations to protect the people and the land where such laws at the local level are allowed. In cases where state or national laws prevent a community from protecting itself from exploitation, the laws must be changed. But, all current restraints on CAFOs are only "band aid" treatments for a potentially fatal disease. Those with the greatest economic interests ultimately will prevail. New means must be found for allocating land use that will remove any economic incentive for degrading the land. Land must be treated as a commonly managed natural resource, rather than an economic commodity that can be bought and sold to the highest bidder.

The inherent common property nature of land as space certainly is not a new concept. In 1796 revolutionary writer Thomas Paine, in his paper, Agrarian Justice, pointed out that all land was initially held in common. Thus, the previous removal of land from the commons deprived those of later generations of their common birthright—the right of access to land. Initially, land could only be removed from the commons if as much land and as good of land was left for any others who chose to claim it. Consequently, land taken from the commons had no market value—by definition, it could not be scarce. A similar argument can be made to support the rights of future generations to as much land as good of land as we have today. And to protect this right, land as space cannot be allowed to have a market value.

Economist, Henry George in his 1879 book, "Progress and Poverty" proposed that all use value of land be taxed away to prevent the pricing of land as a market commodity. A more logical approach today might be devise a policy for capturing any increases in land values attributable to rezoning for higher market valued uses in order to compensate those whose land is rezoned to lower-valued uses. This would remove any economic incentive for current or future owners to rezone land to either higher or lower valued uses, and would make it much easier for the community as a whole to make logical long-run land use decisions. A similar capturing of capital gains in land values attributable to growing population demands would remove speculative incentives for land ownership and would generate public funds to sustain and enhance the productivity capacity of land.

Sustainable development ultimately will require that land use decisions be made by means that find harmony among long-run economic, social, and ethical or moral concerns. It makes no more sense to buy and sell the right to misuse land than to buy and sell the right to misuse another person. Land, particularly land as space, is a fundamental resource upon which all life depends. It cannot be allowed to belong to anyone individually or to us in total as a collection of individuals—just as people cannot belong to other people. Land belongs to the
earth just as people belong to the earth, to the collective "us" as a whole – inseparable, indivisible, across all generations.

We may logically buy and sell those things that enhance the productivity of land -- for those uses with impacts that fall within the realm of legitimate self-interest. But we cannot allow markets to allocate the use of land as space. We may logically decide some land use issues by a vote of the people -- for those uses with impacts that fall within the realm of the community of interest. But, many uses of land as space have impacts on future generations, and future generations cannot vote. Such land use decisions must reflect our fundamental values concerning the responsibilities of being human. Such issues cannot be resolved by economics or politics, they rest on a fundamental code of ethics or morality. They arise out of a consensus of what is fundamentally right and wrong.

Many issues concerning the natural environment are fundamentally moral or ethical issues. We should not be buying and selling pollution rights, because no individual has the moral right to pollute in the first place, and thus, has no right to sell it. Businesses may argue that society has given them that right, through the political process. But, no society has the right to pollute, so it cannot convey that right to a business or anyone else. Pollution of the environment is fundamentally, morally wrong, the same as it is morally wrong to kill, to steal, or enslave. The environment can assimilate some level of waste, as society can tolerate certain amounts or kinds of killing, stealing, or enslaving. But, those things are still morally and ethically wrong, regardless of the ability of society to survive them. We don’t condone or encourage them by allowing people to openly buy or sell the right to enslave another person, nor vote on whether one person should be allowed to kill another for personal reasons. We cannot prevent pollution, but it is always morally wrong to degrade the natural environment.

It is also morally wrong for one person to exploit another person for personal, economic gain. The short-run economics of self-interest makes no provision for avoiding such exploitation. Those who have fewer opportunities are forced to do the jobs that others can avoid at wages lower than others would be willing to accept. Pursuit of short-run profit dictates that people be hired to work as hard as they can be made to work at wages as low as they will accept. There is not short run economic incentive for businesses to invest in improving the productive capacity of people if there are already people available who possess the skills and abilities needed. But, communities have a very large stake in maintaining the productive capacities of their members. In essence, a community is the collective whole of its people. If we allow the people of our community to be degraded, our community is degraded. If we allow our communities to be degraded, human society will be degraded.

No one has the wisdom to plot a true course toward a sustainable human society. At this point in time, we simply don’t know how we can meet the needs of the current generation while leaving equal or better opportunities for those of future generations. But, we are beginning to learn some things that we cannot do. We cannot allow the economics of short-run, self-interest to determine the use of our land and our people. We know that the relentless pursuit of profits and growth will degrade both our natural and human resources, and will not leave as much and as good as we have today for those of future generations.

We also know that we cannot allow large, corporate organizations, such as those operating CAFOs, to do whatever they want to do wherever they have the money and/or can buy the votes to do it. Rural America may well be the place where America makes a historic stand for sustainability – just as the cities of the South gave birth to the Civil Rights movement. The first rural community to declare and defend the fundamental moral and ethical right of its people to determine how land is used may be remembered much as Rosa Parks is remembered for refusing to move to the back of the bus in Montgomery.
The most significant long-run social, economic, and cultural impacts of CAFOs on rural communities could well be the beginning of a new revolution -- a revolution that ultimately will discard the outdated paradigm of short-run, self-interest economics for a new paradigm of sustainable economic, ecological, and social development.
I was recently asked by a rural advocacy group in Missouri to "list some logical reasons why county commissioners and other rural community leaders should be concerned about effects of livestock factories?" I considered it to be a reasonable request and thus developed a list of reasons why I think rural residents should question whether or not they want large-scale, corporate hog farms to locate in their communities.

As I indicate in my response to the request, there is no scientific consensus on this issue. Thus, there is no set of scientific "facts" to either "prove or disprove" the validity of these concerns. There is research to support many of the concerns on my list, even though they cannot be proven. Published proceedings from "An Interdisciplinary Scientific Workshop: Understanding the Impacts of Large-scale Swine Production," edited by Kendall Thu, University of Iowa, is a good starting point in reviewing supporting literature. However, most of the concerns on the list are based primarily on logical reasoning and common sense. Some may dismiss these "logical" concerns as illogical, uninformed, or inconsequential. But, such assessments simply represent different "beliefs," not proven facts or some unique knowledge of reality. The people of rural communities have a right and responsibility to weigh the evidence and logic on both sides of this issue and to make their own decisions.

Admittedly, there are reasonable arguments in favor of locating large-scale corporate hog operations in specific rural communities. They include: (a) we need the jobs, (b) we need the tax base, (c) we don’t want to lose our agricultural base, (d) other communities will do it if we don’t, (e) we can’t stand in the way of progress, (f) consumers want uniform quality that only big operations can supply, (g) big operations can better afford modern pollution prevention technologies, and (h) the opposition is just another case of "not in my backyard," selfish thinking. There are logical responses to each of these arguments. However, rather than argue these points, I have chosen to provide a logical list of reasons why rural communities might be concerned about the location of large-scale corporate hog operations in their areas.

A "top ten list" wasn’t chosen just to be cute or catchy. Ten is enough to get the point across, but not so many as to overdo discussion of the issue. Also, I wanted to start at the bottom of my list and work my way to the top.

Concern #10. Hogs stink.
Odor is at the top of the list for many opponents of large-scale hog farms. The most vocal opponents tend to be those affected most directly – those who wake up to the smell of hog manure most every morning. To a hog producer, hog manure may "smell like money," but to the neighbors, it just "smells like hog manure." There are legitimate human health concerns associated with air quality surrounding large hog operations. Thus, the odor problem goes beyond the very real nuisance of living with stench in the air. Odors associated with giant hog farms affect the lives of people for "miles around," not just those on adjoining farms. No one likes living in a community that smells like a cesspool. Few would be willing to stay in, or move into, such a community for any reason other than employment. Odor ranks only 10 on my list because something could possibly be done to mitigate its impacts, such as using odor reducing technologies, compensating those most affected, and restricting location to minimize impacts of the greater community.

**Concern #9. The work is not good for people.**

A large confinement hog facility is not a pleasant place to work. Known health risks are associated with continuously breathing the air that arises from manure pits in confinement hog facilities. Health problems cost money in lost wages and health care costs. But more important, an unhealthy workplace can destroy peoples’ lives. History has proven that people will choose to work in dangerous work environments when they are desperate for jobs. Health risks can be life threatening, so I rank worker safety above odor problems. But as in the case of odor, health problems can be mitigated by protecting workers from the noxious fumes, by limiting exposure, and by keeping people with other health problems out of confinement facilities.

**Concern #8. Piling up too much "stuff" in one-place causes problems.**

If you spread out the hogs and let hog manure lay where it falls in a pasture, it doesn’t bother anyone very much. But if you start collecting it, flushing it, spreading and spraying it around – all normal practices in confinement hog operations – it becomes air pollution. Water pollution also is a symptom of the same basic problem -- too much manure in one place. The difference between the lagoon spills in Missouri and North Carolina and the normal runoff from a hog pasture is a simple matter of concentration. When you put a lot of hogs in the same place, you have to collect and store the waste. If it gets into the ground water or gets flushed into streams, it kills fish, clogs streams and lakes with algae, feeds water born disease organism, and wreaks havoc in the environment.

In addition, manure on diversified hog farms normally is spread back onto cropland where the feed grain was grown. Most of the nutrients used to grow the crops are returned to the soil. But, when feed grains from specialized crop farms are shipped to distant hog-factories, the nation’s future productive capacity is being stacked up and flushed out into places where crops can’t grow. We can treat the symptoms – air pollution and water pollution – but the basic problem of piling up too much stuff is inherent within the system of large-scale, concentrated production.
Concern #7. Consumers have little if anything to gain.

Large-scale, corporate hog production is frequently justified to the general public as a more efficient, lower cost, means of producing higher quality pork. The facts of the situation simply do not support such a claim. The average consumer spends just over 10 percent, a dime out of each dollar, of their disposable income for food. About 10 percent, a penny out of the dime, is spent for pork. The costs of live hogs make up only about 35 percent of that penny. The rest goes for processing, packaging, advertising, transportation, and other marketing costs.

Farm record data have shown that costs of large-scale hog operations are only slightly lower than costs of "average" commercial hog producers. Even if production costs were five percent less, about $2/cwt of live hog; the "maximum" savings to consumers would be less than two cents per dollar spent for pork at retail. At best, food costs would be two-tenths of one percent less and consumers on average would spend only "two-one-hundredths of one percent" less for food. Any savings would be lost in rounding error in consumer food cost statistics. With a handful of large hog producers and packers gaining control of the industry, it seems far more likely that pork prices would go up than down as a consequence of further industrialization.

The argument that factory pork would be higher in quality doesn’t hold either. Pork would be more uniform because it would all come from the same basic genetic stock, as is currently the case with chickens. However, consumers have different tastes and preferences – different perceptions of quality. Making all pork "the same" would not necessarily please more consumers. Greater profits for producers and processors, not lower costs or higher quality, is the driving force behind the current trend toward industrial hog production. The only ones who really need to shave another penny or two of cost of production costs are those who are trying to export more pork into highly competitive world markets. That doesn’t include many hog farmers or port consumers. So, why should the general public support industrial hog production?

Concern #6. Continuing regulatory problems are inevitable.

Without regulations, big hog operations will impose costs on their neighbors – air pollution, water pollution, and others -- that are not part of the historic costs of producing hogs. It will cost money for hog factories to deal with "externalities" such as air and water pollution. No "bottom-line" driven hog operation will incur those costs unless they are forced to do so by government regulations – federal, state, or local.

Family farmers are people with human feelings and values, and most feel some sense of responsibility to their communities and the environment. Family farmers at least have personal incentives to be stewards of the environment and good neighbors, regardless of how they choose to behave. Public corporations have no such incentives. They are not people. Corporations have no heart or soul. Stockholders often are so detached from their investments
they don’t know or care what stocks they own – just as long as they make money. Local managers and workers may be good people who really care about the community, but when it comes to keeping their job, they must put profits and growth ahead of community. Professed corporate support of local communities, by necessity, can be nothing more than another strategy for profit and growth. Thus, government regulation and continual conflict are an inherent fact of corporate life.

**Concern #5. Hog factories destroy public confidence in agriculture.**

Over the decades, family farmers have built up a vast treasure of public confidence and good will. Many people in the cities either grew up on farms or have parents or other close relatives who either are or were family farmers. The "farm family" conjured up images of people who are hard working, moral, honest, solid, dependable, trustworthy, caring, and responsible. These images have been a valuable source of wealth for farmers – although not widely recognized as such.

Farmers have been awarded special privileges, exemptions, and variances under a whole host of public policies -- from taxation to environmental regulations -- because they were trusted to behave in the public interest. Support of "family farms" has been an important part of the rhetoric of every farm bill that has passed congress. Farmers have also enjoyed a special status "as people," apart from any monetary benefits. They have been respected and trusted. However, bad publicity surrounding large-scale, corporate hog production is using up the farmer’s stock of public confidence and good will at an alarming rate. Negative stories have appeared on every major television network over the past few years. When Ms. Magazine runs a feature article on the ills of corporate hog farming, as they did in a recent issue, we can conclude that the story has just about made the full circuit of public opinion shapers. Family farms will be paying for this loss of public trust for decades, if not forever.

**Concern #4. Future of the community is turned over to outside interests.**

Rural people need to take charge of their own destinies if they expect to sustain a desirable quality of community life for themselves, their children, and future generations of rural Americans. Quality of life is about much more than just creating more jobs and making more money. Quality of life is also about positive moral and social values and being responsible caretakers of the community as a place. Sure, people need jobs and need to make a decent living. But, jobs and high wages didn’t save the cities from decline and decay and jobs won’t save rural communities either. When an apparent solution to a problem comes from someone else, from outside, you can just about bet that the benefits will be going to someone else from outside as well.

Some rich and powerful outsiders have their own problems, and they have their eyes on rural
communities as places to solve them. Sparse population, trusting people, and lack of jobs in rural areas are seen as ideal opportunities. They are looking for someplace to "dump stuff." An Industrial society creates a lot of "trash," whether in the form of garbage, toxic chemicals, or hog manure. Most "outsiders" promoting rural development schemes have something they need to "dump." Jobs just aren't enough compensation for turning a community into a "dump." Rural people need to take control of their own destiny and build the kinds of communities in which their children and their children's children will choose to live and grow. The solutions to the problems of rural Americans are in the hands, hearts, and minds of rural people themselves, not in outside investment and corporate control.

**Concern #3. The decision making process can rip communities apart.**

The process of decision making may be more important than the decision itself. Anyone who has been a part of a family has experienced this first hand. The memory of an act that triggered a family feud has long since faded, but the feud goes on. Feuds result from a loss of confidence and trust, regardless of the context within which the loss takes place. The large-scale, corporate hog farm issue is one of the most contentious issues to confront rural America in recent history.

The social fabric of rural communities has been ripped apart by controversy surrounding the introduction of large-scale, corporate hog operations. There seems to be no middle ground. Some people seem determined to bring in the big hog operations, by almost any means, and others seem just as committed to keep them out, by almost any means. Almost everyone eventually seems to feel obligated to take sides. The larger question in such communities is not whether the hog farms come in or stay out, but can the community ever heal the wound left by the fight? A healthy, unified community can deal with almost any problem, including a large-scale corporate hog farm on the outskirts of town. A sick, bitterly divided community is incapable of much more than survival, regardless of its other advantages and opportunities. The future of rural America depends on communities of people being able to work together for their common good. The divisiveness of the decision making process, presumably, could be avoided. But, the consequences of failing to do so are so destructive that it ranks near the top of my list.

**Concern #2. Hog factories degrade the productive capacities of rural people.**

Factories "use up" people. Assembly line work is "non-thinking" work. When you work on an assembly line, you simply do what you are told as fast as you can for as long as you can. I know. I have been there. Large-scale hog operations may not be assembly lines, but the principle is the same. Big hog operators do not want people who know anything about raising hogs. They want people who can be trained to do what they are told to do without thinking. An experienced hog farmer might start thinking, asking questions, and mess up the process. Hog
factories, like other factories, are looking for people who are dependable, who know how to carry out orders, and will work hard for a little money.

On balance, large-scale, industrial hog operations destroy more jobs than they create. A driving force behind industrialization is to substitute capital and technology for labor and management – to make it possible for fewer people to produce more. Large-scale hog operations concentrate the jobs created in one place and call it economic development. The jobs lost elsewhere are ignored or denied. The numbers of independent hog farmers displaced elsewhere will be greater than the number of jobs created in new large scale hog operations. Hog factories replace more independent hog farmers with fewer assembly line workers.

Other kinds of factories have come to rural America in the past. When these factories have found people in other regions, or in other countries, who would work even harder for less, they moved on. Corporately owned factories have no roots. They leave behind a workforce that doesn’t know how to do anything other than what they are told. Intelligent, thinking, capable, independent people are transformed into detached, non-thinking people who may be psychologically incapable of earning a living without depending on someone else to tell them what to do. Our cities currently are plagued with such people -- people whose capacities have been degraded by factories long since gone. It just doesn’t seem to make sense to do the same thing to rural people. When we replace independent, family hog farmers with hog factories we are degrading the most valuable resource rural areas have to support future development – rural people.

Concern #1. Tomorrow’s problems are disguised as today’s solution.

My number one concern regarding large-scale, corporate hog operations is that rural communities will see them as "the solution" to today’s problems without seeing them as a potential "source" of problems for tomorrow. Maybe there are some communities so desperate for jobs that it makes sense to take the risks. Maybe they feel they have to do something today to give them a chance to do something better tomorrow. But, hog factories are a short-run solution, at best, that may create more long run problems than they solve today. Low-wage, assembly-line-like jobs should be viewed as a stop gap strategy suitable only for communities with no other options. Sooner or later non-thinking jobs will be done somewhere else on the globe, where people will work harder for less money and are accustomed to doing whatever they are told – by those who have no other options. In the longer run, all non-thinking jobs will be done using computers and robots – not by people anywhere.

The real opportunities for people to lead successful lives in the future will be in "thinking" work. The human mind is uniquely capable of complex thought. Almost anyone is "smarter" than a computer. But, people need to develop their unique human abilities to think. We need to accept the responsibility for thinking and for creating thinking jobs for ourselves and for others. As long as rural people think their problems are solved, or will be solved by someone else, they see no
incentive to begin doing the things they need to do to ensure the future of their community.

The primary advantages for rural areas in the twenty-first century will be the unique qualities of life associated with open spaces, clean air, clean water, scenic landscapes, and communities of energetic, thinking, caring people. Communities that sacrifice these long run advantages for short run economic gains may have a difficult time surviving in the new century.

Thus, my number one concern is that large-scale, corporate hog operations are tomorrow’s problem disguised as today’s solution. They may keep rural people from doing the things that need to be done today to ensure the future of their communities. Large-scale, corporate hog operations will not create communities where our children and their children will choose to live and grow. Communities with a future must take positive actions today to ensure a desirable quality of life for themselves, their children, and rural children of future generations.
I always appreciate an opportunity to participate in the Breimyer Seminar, regardless of the topic. I told the conference organizers they could give my topic any name they wanted this year, and I would try to deal with it. So I ended up with: "Why I don't like industrialization and want it stopped." I am sure that title was meant to be provocative -- to spark a bit more interest in a debate between Bruce Bullock and myself on the pros and cons of agricultural industrialization.

Well, I've changed my topic just a bit from the one in your program, to make it bit more academic, but hopefully not making it any less provocative. What I like or don't like about industrialization, and whether I do or don't want it stopped is not of any particular significance. I have personal opinions on those things, but they are no more important than yours or those of any other private citizen. I trust that my long-time friend and colleague, Bruce Bullock, will be dealing with fundamental economic concepts and basic principles in his rebuttal to my remarks. So, I intend to rely on science and logic, rather than just my opinions, to make my case as well.

So, I have changed the title of my talk to "The Industrialization of Agriculture and Why We Should Stop Promoting It." I will be addressing the fundamental economic and social motives for the industrialization of agriculture. And, there are sound, logical reasons for industrialization. But, there are also sound logical reasons to question industrialization. And, I will be questioning it. But, as a scientist working in the public sector, working for the tax payers, it is not my job to attempt to stop the industrialization of agriculture. However, as a public sector scientist, I do have a responsibility to question whether or not we should be using public dollars to "promote" industrialization. Our job is to provide people with information. The people must decide whether they want to stop something or promote something based on that information.

I have three basic reasons for questioning the industrialization of agriculture. First, the logical, economic and social gains from industrialization of agriculture have already been realized. Those gains were significant, but there is simply very little left to be gained from industrialization... from further specialization, mechanization, and routinization of agricultural production and marketing. Second, there are rising costs -- environmental, social, and economic costs -- associated with the industrialization process. The marginal costs of industrialization may have exceeded its marginal benefits as far back as two or three decades ago. Third, and as a consequence of the other two, there is growing evidence the industrial era is coming to an end -- as it has already ended in many sectors of our economy. Industrialization was the model or paradigm for human progress in the twentieth century. But, it is rapidly becoming obsolete as we approach the twenty-first century. Its time has come and gone. We should focus our scarce public resources on exploring approaches that have possibilities for progress in century ahead, rather than on promoting a model whose century has passed.
Peter Drucker, a noted and time-honored consultant of twentieth-century industrial managers, discusses the transformation from an industrial to a post industrial society in his book: the Post-Capitalist Society. He states and I quote: "Every few hundred years in Western history there occurs a sharp transformation. Within a few short decades, society rearranges itself -- its worldview; its basic values; its social and political structure; its arts; its key institutions. Fifty years later, there is a new world.... We are currently living through just such a transformation." (1994 p. 1).

In the late 1800s, as we began to industrialize agriculture, the potential gains from continuing the industrial revolution in the larger American society were undeniable. At that time we were still an agrarian society. More than half of the people of this country were either farmers or lived in rural communities, and it took about half of our total resources.. money, time, and effort, just to feed and cloth ourselves. If we as a nation were to realize the emerging opportunities of the industrial revolution... to become the modern society we know today... we had to do two things.

First, we had to free people from the task of farming to go to work in the factories and offices of the emerging industrial economy. Second, we had to free up income and other resources spent on food and clothing so people could buy the things these new industries were going to produce. In short, we had to make American agriculture more efficient. We had to make it possible for fewer farmers to feed more people better at a lower real cost.

The industrialization of agriculture allowed us to accomplish those two things. Through specialization, mechanization, simplification, and routinization we bent nature to serve our needs. We gradually harnessed the vagaries of biological processes and transformed farms into factories without roofs. Our fields and feed lots became biological assembly lines with inputs coming in one side and commodities going out the other. We achieved the economies of large-scale, specialized production as we applied the principles, strategies, and technologies of industrialization to farming.

Publicly funded research and education programs supplied many of these new industrial technologies and strategies. These technologies reduced per unit production costs and thus had a build-in profit incentive for their adoption by farmers. The promise of profits was even greater for those farmers who expanded production. But, as more farmers increased production, market prices soon dropped by as much or more than the reduction in cost. The only thing the later adopters earned was a right to continue farming, at least for a while, and those who adopted too little, too late were "freed" from farming to go to work in the factories.

This industrialization of American agriculture resulted in the most efficient agriculture in the world, at least in terms of the dollar and cent costs of production. A more efficient agriculture made it possible for this nation to build the strongest economy in world. The agricultural sector can be proud its past successes. But, the objectives of industrialization have been achieved. Most of the things that industrialization could do for America have already been done.

Today, less than 2 percent of the people in this country are farmers. Today, as a nation, we spend only about 10 percent, or a dime out of each dollar, of our disposable income for farm produced food. Equally important, the farmer gets only a single penny out of that dime, while nine cents goes to the marketing
and input firms. We now pay more for packaging and advertising than we pay the farmer to produce the food.

Future gains from the further industrialization of agriculture must be squeezed from the farmer's penny. Folks, there just isn't much left in to be squeezed out of the cost farming to benefit either farmers or society. It simply doesn't make much difference to society any more whether there are more or fewer farmers or whether farmers are more or less efficient.

At the same time that the benefits to society of an industrial agriculture have declined, the perceived threats of agriculture have risen. Threats to the environment, threats to the natural resource base, and threats to the quality of life of farmers, of rural residents and of society as a whole have all risen. The same technologies that support our large-scale, specialized system of farming, the industrial systems through which we have increased agricultural productivity, these same technologies have now become the primary focus of growing public concerns.

Industrial systems historically have degraded their environment and have depleted the natural resource base. Commercial fertilizers and pesticides -- essential elements in a specialized, industrialized agriculture -- have become a primary source of growing concerns for environmental pollution. Industrialization has transformed an agriculture created for the purpose of converting solar energy to human-useful form, into an agriculture that uses more non-renewable fossil energy than it captures in solar energy from the sun.

Industrial systems of production also degrade the human resource base. Henry Ford is quoted as once saying the biggest problem in running a factory is that you have to hire whole people when all you need is two hands. Large factory farms transform independent decision makers, into farm workers, into people who only know how to follow instructions or directions -- but not how to make decisions.

Industrial agriculture, inherently, is management extensive. It allows fewer farmers to farm more land by using more capital -- machinery and equipment -- and more purchased inputs. Industrialization of agriculture made sense as long as the farmers who were displaced in the process could find more productive employment in the larger economy. However, the days of good paying factory jobs are gone. American industries are reducing -- not increasing -- employment at all levels. Robots and computers are replacing people, and eventually will do anything and everything that can be done without thinking. American industry simply doesn't need any more displaced farmers.

As farms have grown larger and more specialized, agriculturally dependent rural communities have withered and died. Larger farms meant fewer farms and fewer farm families to support local schools, churches, public institutions, and retail businesses. In addition, larger farms tend to bypass local communities in purchasing production inputs and in marketing their products. It takes people, not just production, to sustain local communities. The fundamental purpose of agricultural industrialization was to make it possible for fewer people to produce more. So why do we continue to industrialize agriculture?

There is growing evidence that in much of the rest of the economy, the process of industrialization is slowing, stopping, and even reversing.
Alvin Toffler, in his book *Powershift*, points out that many forecasters simply present unrelated trends, as if they would continue indefinitely, without providing any insight regarding how the trends are interconnected or what forces are likely to reverse them. The professional and popular agricultural press is filled with such forecasts for the future of agriculture.

But, Toffler contends that the forces of industrialization have run their course and are now reversing, that the industrial model of economic progress is becoming increasingly obsolete, and that the old notions of efficiency and productivity are no longer valid. He contends that mass production is no longer a symbol of "modern" business operation. The new "modern" model is to produce customized goods and services aimed at niche markets, to constantly innovate, to focus on value-added products and specialized production.

He goes on to state that "the most important economic development of our lifetime has been the rise of a new system of creating wealth, based.. on the mind" (Toffler, p. 9). He contends that "the conventional factors of production -- land, labor, raw materials, and capital -- become less important as knowledge is substituted for them" (Toffler, p. 238). "Because it reduces the need for raw material, labor, time, space, and capital, knowledge becomes the central resource of the advanced economy (Toffler, p. 91). The linear, sequential systems that characterize industrial production are being replaced with networks of simultaneous systems of production. Synergism is replacing specialization as the primary source of productivity.

Drucker, in his book *The New Realities*, talks of the "Post Business Society." He states, and I quote: "the biggest shift -- bigger by far than the changes in politics, government or economics -- is the shift to the knowledge society. The social center of gravity has shifted to the knowledge worker. All developed countries are becoming post-business, knowledge societies. Looked at one way, this is the logical result of a long evolution in which we moved from working by the sweat of our brow and by muscle to industrial work and finally to knowledge work" (1989, p. 173).

Robert Reich, U.S. Secretary of Labor, addresses future trends in the global economy in his book, *The Work of Nations*. He identifies three emerging broad categories of work that correspond to emerging competitive positions within the global economy -- routine production service, in-person service, and symbolic-analytic services (Reich, p. 174). He calls routine service workers the old foot soldiers of American capitalism in high-volume enterprises. This category includes low- and mid-level managers -- foremen, line managers, and clerical supervisors. -- in addition to traditional blue collar workers. Production workers typically work for large industrial organizations. These workers live primarily by the sweat of their brow, or by their ability to follow directions and carry out orders, rather than by using their minds.

In-person service, like production service, entails simple and repetitive tasks. The primary difference is these services must be provided person-to-person. This category includes people such as retail sales workers, waiters and waitresses, janitors, cashiers, child-care workers, hairdressers, flight attendants, and security guards.
Symbolic-analysts are the "mind workers" in Reich's classification scheme. They include all the problem-solvers, problem-identifiers, and strategic-brokers. They include scientists, design engineers, public relations executives, investment bankers, doctors, lawyers, real estate developers, consultants of all types, and even university professors. He points out that symbolic analysts often work alone or in small teams, which are connected only informally and flexibly with larger organizations. Like Toffler and Drucker, Reich believes that future human progress will result from symbolic-analysis, from mind work, rather than routine production or in-person services.

Drucker points out an important, fundamental difference between knowledge work and industrial work. He states that industrial work is fundamentally a mechanical process, whereas, the basic principle of knowledge work is biological in nature. He relates this difference to determining the "right size" of organization required to perform a given task. I quote: "Greater performance in a mechanical system is obtained by scaling up. Greater power means greater output: bigger is better. But this does not hold for biological systems. There, size follows function. It would surely be counterproductive for a cockroach to be big, and equally counterproductive for the elephant to be small. As biologists are fond of saying, 'The rat knows everything it needs to know to be a successful rat.' Whether the rat is more intelligent than the human being is a stupid question; in what it takes to be a successful rat, the rat is way ahead of any other animal, including human beings" (Drucker, 1989, p. 259).

He concludes, that differences in organizing principles may be critically important in determining the future size and ownership structure of economic enterprises. Other things equal, the smallest effective size is best for enterprises based on information and knowledge work. According to Drucker, "'Bigger' will be 'better' only if the task cannot be done otherwise" (Drucker, 1989, p. 260).

But if all this is true, why are we currently seeing the rapid industrialization in some sectors of the agricultural economy, specifically in hog and dairy production? In Joel Barker's book: Paradigms, he points out that new paradigms (including developmental models) tend to emerge while, in the minds of most people, the old paradigm is doing quite well. Typically, "a new paradigm appears sooner than it is needed" and "sooner than it is wanted." Consequently the logical and rational response to a new paradigm my most people is rejection (Barker, p. 47). New paradigms emerge when it becomes apparent to some people, not necessarily many, that the old paradigm is incapable of solving some important problems of society. Paradigms may also be applied in situations where they are not well suited, thus creating major new problems while contributing little in terms of new solutions.

American agriculture provides a prime example of over application of the industrial paradigm. The early gains of appropriate specialization in agriculture lifted people out of subsistence living and made the American industrial revolution possible. But, the potential societal benefits from agricultural industrialization were probably largely realized by the late 1960s. More recent "advances" in agricultural technologies may well have done more damage to the ecologic and social resource base of rural areas than any societal benefit they may have created from more "efficient" food production.

Industrialization of agriculture probably lagged behind the rest of the economy because its biological systems were the most difficult to industrialize. Agriculture by nature doesn't fit industrialization; it has to be forced to conform. Consequently, the benefits were less, the problems are greater, it became fully
industrialized last, and it likely will remain industrialized for a shorter period of time.

In fact, a new post-industrial paradigm for American agriculture is already emerging under the conceptual umbrella of sustainable agriculture. The sustainable agriculture paradigm has emerged to solve problems created by the industrial model, primarily pollution of our environment and degradation of our natural resource base. However, this new paradigm seems capable of creating benefits the industrial model is inherently incapable of creating, such as greater individual creativity, greater dignity of work, and more attention to issues of social equity.

The sustainable agriculture paradigm is consistent with the visions of Toffler, Drucker, Reich and others of a post-industrial era of human progress. Sustainable agriculture is management intensive, rather than management extensive. Sustainable systems must be individualistic, site-specific, and dynamic. Thus, sustainable farming is inherently information, knowledge, and management intensive.

Complexity, interdependence, and simultaneity are fundamental elements of the sustainable model, which is clearly biological rather than mechanical in nature. For such systems, size and form must follow function. In biological systems, individual elements must conform to their ecological niche. Big, specialized farms will be sustainable only if their "niche" is equally large and homogeneous. It will take "mind work," not physical or economic muscle, for farmers of the future to find a niche where they carry out their function by means that are ecologically sound, economically viable, and socially responsible.

Why should we stop promoting the industrial paradigm of farming? -- because there is growing evidence it is obsolete, old fashion, out of date, and may well be doing more harm than good. Why should we stop promoting the industrialization of agriculture? -- because a new post-industrial model is emerging which deserves at least a share of our time and attention.

Many of my colleagues will respond that we do not promote industrialization or any other particular model of farming. But, we do. The agricultural establishment, including agricultural colleges, may not intentionally promote industrialization, but it is none the less promoted by their attitudes and actions.

Barker points out that successful old paradigms, such as industrialization, often collect a host of avid, but unwitting, advocates. The advocates tend to apply their industrial paradigm -- unconsciously, spontaneously -- to any problem that arises. They separate, sequence, analyze and organize as a matter of standard operating procedure. Integration, simultaneity, synthesis and spontaneity are missing from their mental problem-solving tool box. Thus, they are automatically led to specialization, never to synergism, as their logical solution, regardless of the nature of the problem. In their minds, there are no logical alternatives.

But in fact, there are logical alternatives to industrialization. Success in the future will require new ways of thinking. I return to Peter Drucker's Post Capitalistic Society and quote: "In the knowledge society into which we are moving, individuals are central. Knowledge is not impersonal, like money. Knowledge does not reside in a book, a databank, a software program; they contain only information. Knowledge is always embodied in a person, carried by a person; created, augmented, or improved by a person; applied by a person; taught by a person, and passed on by a person. The shift to the knowledge society therefore
puts the person in the center."

Finally, we need to quit promoting industrialization because it detracts from our fundamental purpose as an academic institution. That purpose is to build the productive capacity of people -- to promote the public good by empowering people to be productive in the post-industrial century of human progress.

REFERENCES


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