

the Standard

Environmental Standards for Alberta's Livestock Industry

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Nutrient management: An opportunity in Alberta's environmental legislation

AOPA brings new rules that can strengthen farm business fundamentals.

There's un-harvested potential on Alberta's farms. The investment opportunities available to the agricultural industry by effectively managing manure as a resource simply haven't been fully realized.

The new Agricultural Operation Practices Act (AOPA) legislation will help rectify that. The sweeping changes under AOPA usher in a new era of livestock management and include a major focus on nutrient management – establishing a basis for manure to be managed as a crop nutrient.

Nutrient management refers to managing the amount, source and placement of manure in crop production. Many livestock operators are already meeting these new standards, says Dr. Mohamed Amrani, a nutrient management specialist with Alberta Agriculture, Food and Rural Development (AAFRD). The main difference now is that there is a more structured approach to nutrient management, and the new rules apply uniformly across the livestock industry.

The Natural Resources Conservation Board (NRCB) has been given the responsibility of overseeing the new process. As a quasi-judicial agency that reports to the Minister of Sustainable Resource Development, it administers the regulations under AOPA and is also responsible for monitoring and enforcing compliance with province-wide environmental standards.

AOPA will provide the greatest benefit to those producers who fully realize the nutrient potential of the manure on their farms, says Amrani. The AOPA nutrient management regulations

are designed to ensure long-term industry sustainability in the eyes of the

society that shares the air and water on which the industry so depends. Producers have until Jan. 1, 2005, to comply with AOPA's nutrient management requirements.

There are four important components producers must be aware of in the nutrient management regulations: land base requirement, application rates, minimum setbacks and record keeping. The following outlines the key information on each component and why producers should be interested.

SUFFICIENT LAND BASE

Land base can include land not owned by the producer as long as a spreading agreement has been established with the land owner.

Under AOPA, all agricultural operations that apply manure must have an adequate land base to handle the amount of manure produced, so one of the first steps for producers wanting to build or expand their livestock operation is to determine whether their land base is sufficient.

"Too much manure, and therefore too many nutrients, spread on too small a land base can have obvious effects on neighbouring water and air quality, and can even decrease crop production or cause livestock feeding problems," says Amrani. "The regulations can lead producers to more



profitable production while providing more structured environmental protection.”

Under AOPA, land base requirements are determined by the type and number of livestock proposed, and the soil type of the land to which the manure will be applied. Producers must demonstrate that their land base can accommodate the manure that will be produced by their livestock. Schedule 3 of the Standards and Administration Regulation of AOPA contains simple tables to help producers determine whether they have the land base needed for the size or type of operation they’re proposing.



“We based the tables on the average amount of nutrients that result from operations of different sizes and types,” says Amrani. “We then relate that to the levels of nutrients that should be applied per acre of land for different crops and soil types, and that relationship determines the land base requirement.”

However, producers who do not have the land base requirements as detailed by AOPA are not necessarily out of luck, he says.

If a producer doesn’t have the land base requirement, but still wishes to apply to construct or expand, he has to develop and submit a nutrient management plan (NMP) to the NRCB for approval.

“You can alter the land base requirement by having an NMP that is accepted by the NRCB,” says Amrani. “For example, a producer may be able to alter animal feed so that the resulting manure will have a lower nutrient content, or he could grow crops that require higher levels of nutrients, such as alfalfa or corn, which have the ability to take up a lot of nitrogen.”

For an NMP to be accepted, the NRCB must be satisfied that the plan will provide equivalent or greater protection to the water and the soil.

MANURE APPLICATION RATE RESTRICTIONS

AOPA includes regulations for manure application rates based on soil type, location of the water table and common bodies of water.

“AOPA regulations for manure application rates are designed to minimize the risk of nutrients, pathogens, manure and runoff reaching waterbodies,” says Amrani. “Producers know that if soil salinity gets too high, soil quality will be degraded and there will be a decrease in crop productivity. And, if nitrate and phosphorus levels get too high, they have the potential to become pollutants if they leach through to the groundwater or move into surface water. That’s why the AOPA regulations require setbacks when applying manure.”

With new regulations for manure application, come new responsibilities for producers. To ensure compliance, producers who apply more than 300 tonnes of manure annually must get their soil tested. Soil test information must be no older than three years for developing a new nutrient management plan.

Soil testing determines the nutrient and salinity levels of the soil, which can help producers ensure they don’t exceed nutrient and salinity limits when applying manure.

“Soil testing is a requirement under AOPA, but it’s also a tenet of good production sense,” says Amrani. “Manure sampling is another example of good production sense. Though not required by AOPA, manure sampling determines the exact nutrient profile being added to the land. It’s a tool more producers are trying in order to achieve greater production efficiency.

“Testing is something that some producers see only as a cost,” he says. “But, it can pay dividends. Not only does it help producers meet the new standards under AOPA, many are surprised at how much they can cut back on commercial fertilizer as a result.”

SETBACKS FROM WATER BODIES

AOPA also contains regulations for the minimum distance allowed between water bodies and where manure is applied. Minimum setback distances reduce the possibility of nutrients and pathogens reaching water bodies. Such distances help prevent manure or runoff from entering a common body of water or leaving the land on which it is applied or creating a risk to the environment.

If producers apply manure and incorporate it within 48 hours, the minimum setback distance is 30 metres, regardless of the land’s slope. If manure is not incorporated, producers must determine the minimum distance setback based on the slope of the land to which they’re applying the manure.



“Producers who apply manure on forage, direct-seeded crops, and on frozen and snow-covered soils must meet the minimum setback distances detailed in Schedule 3 of AOPA,” says Amrani. “For example, the bare minimum setback distance from a common body of water is 30 metres. That’s for land that has a mean slope of less than four percent. At the other end of the scale, land that has a mean slope of 12 percent or more is not allowed to have any manure applied at all, regardless of its distance from a body of water.”

Additional AOPA setback regulations are not related to land slope. For instance, a producer must not apply manure within 10 metres of a common body of water if using subsurface injection, regardless of slope, nor can manure be applied within 30 metres of a water well.

MANDATORY RECORD KEEPING

Under AOPA, nutrient management record keeping is mandatory.

“There are three critical reasons,” says Amrani. “First, records help producers manage manure nutrients more effectively. Second, record keeping shows due diligence. With written records, it’s a straightforward process for producers to demonstrate that they’ve done everything required by the Act. Third, keeping track of what has been done and what is being done makes it easier to avoid problems.”

Manure management records are required when 300 tonnes or more of manure is involved, though Amrani points out that record keeping is a good idea for everyone, regardless of the amount.

Anyone who applies, receives or transfers control of 300 tonnes or more of manure must record the names and addresses of whom they received manure from or transferred manure to. They must also record the volume or weight of manure involved.

Producers must record the volume and application rate of manure applied to land, along with the application dates and incorporation methods used for each field.

Producers applying 300 tonnes or more of manure per year to land under their own control, must also record the legal description of the land to which manure is applied, the application rates of manure nutrients and fertilizer (by field and year), and the soil test results (by field) for the nutrients specified in AOPA, Schedule 3.

In all cases, manure management records must be kept for a minimum of five years.

NEW GENERATION OF LIVESTOCK MANAGEMENT

Nutrient management under AOPA takes Alberta producers into a new generation of livestock management, says Amrani. “There is no way to have a long-term sustainable industry without defined standards for managing manure nutrients, which clearly lay out producer responsibilities.

“In the process, producers may find new value in what they’ve previously considered a waste product.”



The five fundamentals of “comprehensive nutrient management”

Tackling manure management as a “system” brings new solution options.

If one change in manure management stands out above all others, it is the concept of “comprehensive nutrient management” or CNM.

In the future, manure management will be approached as a system based on five interrelated fundamentals, says Dr. Mohamed Amrani, a nutrient management specialist with Alberta Agriculture, Food and Rural Development (AAFRD). “It means that a producer will not only be thinking about issues surrounding manure application, but all parts of the manure production and management system.



“This is a holistic approach to nutrient management,” he says. “One that continually evaluates new research and new management options to help producers build truly sustainable systems for the long-term.”

There are five key parts to a CNM system:

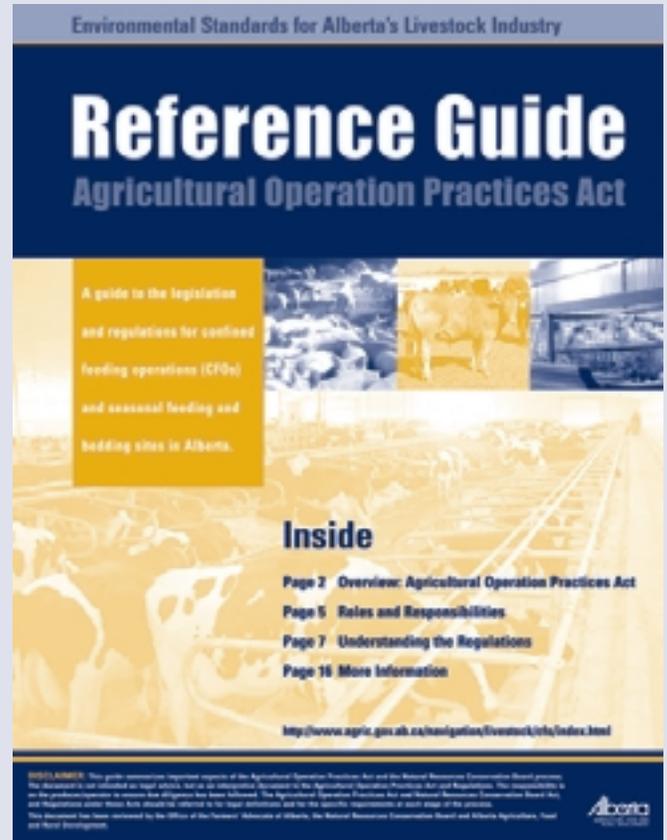
1. **Feeding strategy.** An altered feeding strategy, which may be the best solution to some manure management problems, is the first part of a CNM system. As an example, supplying phytase in swine and poultry feed results in manure with less phosphorus.
2. **Manure storage and handling.** Producers need to find ways, such as filters or other new technology, to reduce nutrient losses from manure during storage and handling.
3. **Land application.** Manure should be applied based on agronomic requirements, which means applying only as much as is needed for cropping purposes, no more.
4. **Land management.** Conservation techniques or practices can be used to reduce erosion, runoff, and overall impact of manure application.
5. **Record keeping.** CNM requires that records be kept for all parts of the manure production and usage system.

“We hope more producers will realize how much they can benefit from a comprehensive approach to nutrient management,” says Amrani. “Looking at manure production and usage as a complete system gives producers more control and management options.”

Some producers have adopted this holistic, proactive approach to manure management, but now there are higher standards – “beneficial management practices” – for the entire industry.

Reference Guide available

A Reference Guide gives producers a simple, easy-to-use overview of the Agricultural Operation Practices Act. The 16-page Guide is available from Alberta Agriculture, Food and Rural Development, livestock industry associations, and NRCB regional offices, and can be printed from the AAFRD Web site at: <http://www.agric.gov.ab.ca/livestock/cfo.guide.html>.



Farmers' Advocate of Alberta information

To contact the Farmers' Advocate of Alberta:

Web Site: www.agric.gov.ab.ca/navigation/agencies/farmersadvocate

Dial 310-0000 for a toll-free connection.

Edmonton Phone (780) 427-2433 Fax (780) 427-3913

NRCB information

For application forms and more detailed information on the new requirements, contact the nearest NRCB regional office (dial 310-0000 for a toll-free connection):

NRCB Web Site: www.nrcb.gov.ab.ca

Toll-free response line: (866) 383-6722

Lethbridge Phone (403) 381-5166 Fax (403) 381-5806

Red Deer Phone (403) 340-5241 Fax (403) 340-4896

Barrhead Phone (780) 674-8303 Fax (780) 674-8362

Fairview Phone (780) 835-7111 Fax (780) 835-3600

For more information

For more information regarding the Agricultural Operation Practices Act (AOPA) contact:

Alberta Agriculture, Food and Rural Development, 3rd Floor 4920 - 51 Street, Red Deer Alberta T4N 6K8

Ph (403) 340-5359 Fax (403) 340-4896 Dial 310-0000 for a toll-free connection. Email: cfoinfo@gov.ab.ca

Web site: www.agric.gov.ab.ca/navigation/livestock/cfo/index.html

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