the standard
Environmental Standards for Alberta's Livestock Industry

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Manure Management Record Keeping Regulations

> "The purpose of AOPA is to ensure that the province's livestock industry can grow to meet the opportunities presented by local and world markets in an environmentally sustainable manner."

The *Agricultural Operation Practices Act* (AOPA) sets out manure management standards for all agricultural operations in Alberta. Under AOPA, confined feeding operations (CFOs) and anyone who handles 500 tonnes or more per year of manure must keep records for a minimum of five years.

The following types of activities require record keeping:

- manure production
- manure transfer
- manure application

Terms used in this publication have been simplified to make it easier to read. Complete definitions are found in Section 1 of the legislation. For example: the term **manure*** in this document includes the livestock excreta, straw, other bedding material, litter, soil, wash water and feed in the manure. Composted manure has the same requirements as manure.

Some of the records required include soil test results, amount of manure produced or handled, the name and address of a person who receives or applies manure and the applicable dates as well as the application rates of manure and fertilizer. **Record keeping and soil testing are not required for anyone who handles less than 500 tonnes of manure per year.**

However, everyone must comply with the various manure application and short-term solid manure storage setback distances. Manure must also be applied or handled according to the soil nitrogen and salinity limits specified in the regulations or according to a nutrient management plan or a manure handling plan that has been approved by the Natural Resources Conservation Board (NRCB).

For more information, please refer to the contacts listed at the end of this publication.

Records required for CFOs

A CFO owner or operator must keep the following records:

- volume or weight of manure produced
- name and mailing address, or legal land description, of a person to whom control of a total of 500 tonnes or more of manure is transferred in a year
- date of the transfer of manure
- volume or weight of manure transferred

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The following table is an example of how a person might keep records required for a CFO.

CFO Manure Production Record* (Standards and Administration Regulation, Section 28 (2))			**Name: ABC Feeders**
Operating Unit: Feedlot	**Address: Box 99, Anywhere, AB**	Legal Land Description: SE 6-18-22-W6	**Year: 2005**
Type of Livestock: Beef Finishers	Number of Livestock: 7,000	Manure Production per Animal: 2.2 tonnes/year	**Total Volume / Weight: 15,120 tonnes**
Est. Total Nitrogen per Ton: 10 kg/tonne	Est. Crop N per Ton: 3.2 kg/tonne		
Record of Manure or Compost Transfers			
Date:	**Name:**	**Address:**	**Manure Volume / Weight:**
April 18-21, 2005	**Self**	**SW 6-18-22-W6**	**4,900 tonnes**
Sept. 21-26, 2005	**J. Smith**	**NW 18-18-22-W6**	**5,080 tonnes**

***Note:** Table information in **bold** lettering means it is required by AOPA. Information that is not bolded is not required, but is included to add clarity, especially for operations with more than one type of livestock.

Records required for manure transfers by manure applicators or haulers

Each person who transfers control, receives, or removes 500 tonnes or more per year of manure must keep records of the following:

- name and address of the person from whom manure is transferred, received or removed
- date the manure is transferred, received or removed
- volume or weight of manure that has been transferred, received or removed

The record keeping requirements of this section also apply to custom manure applicators, producers who spread manure on their own land and anyone who receives more than 500 tonnes per year of manure.

The following table is an example of how a manure applicator or hauler might record the required information.

Manure Transfer Record Form (Standards and Administration Regulation, Section 28 (3), (4))			
Date: Sept. 21-26, 2005		**Type of manure: Solid manure**	
	Transferred from:	**Removed by:**	**Received by:**
Name	**ABC Feeders**	**XY Corral Cleaners**	**J. Smith**
Address	**Box 99, Anywhere, AB**	**Box 33, Where, AB**	**Box 52, Here, AB**
Volume / Weight	**5,080 tonnes**	**5,080 tonnes**	**5,080 tonnes**

Records required for manure application

Under AOPA, a person who applies a total of 500 tonnes or more of manure in a year to land under the person's control (usually the owner or renter) must keep the following records:

- name and address of the person from whom manure is received
- date the manure is received
- volume or weight of manure received
- legal land description of the land to which manure is applied
- area of the land to which manure is applied
- date the manure is applied
- volume or weight of manure applied
- application rates of manure nutrients and fertilizer by field and year
- dates of application and incorporation and the methods used for each field
- soil test results (see next section for details)

Note: AOPA record-keeping requirements do not apply to grazing livestock. However, all livestock operations are subject to the standards for manure collection, as well as manure application and storage setback distances from neighbours and common bodies of water.

Soil testing and analysis

No soil testing is required for persons who handle less than 500 tonnes of manure per year. A person who applies a total of 500 tonnes or more of manure in a year must conduct soil tests at least once every three years on each field before applying manure or compost. If a person applies manure more than once every three years to a field, he or she must still stay within the specified limits in the regulations for soil nitrate-nitrogen and salinity.

Test once every three years for the following:

- extractable nitrate-nitrogen (NO_3-N) from a soil depth of 0 to 60 centimetres (cm)
- soil salinity based on electrical conductivity (E.C.) from a soil depth of 0 to 15 cm

Test once only for the following:

- soil texture, from a soil depth of 0 to 15 cm and 15 to 30 cm

Soil nitrate-nitrogen and salinity limits

The regulation sets soil nutrient and salinity limits for manure application. It should be noted that these limits can only be exceeded if a producer has a nutrient management plan that has been approved by the NRCB.

In various soil groups and with different farming methods, manure application will result in differing nitrate-nitrogen levels. The following table specifies the nitrate-nitrogen levels that are not to be exceeded in the top 60 cm of soil after manure application.

Nitrate-nitrogen limits in soil

(Standards and Administration Regulation, Schedule 3, Table 3)

Farming method	Soil group	Sandy (>45% sand and water table <4 m)	Sandy (>45% sand and water table >4 m)	Medium and fine textured soils
Dryland	Brown	80 kg/ha (75 lb/ac)	110 kg/ha (100 lb/ac)	140 kg/ha (125 lb/ac)
	Dark Brown	110 kg/ha (100 lb/ac)	140 kg/ha (125 lb/ac)	170 kg/ha (150 lb/ac)
	Black	140 kg/ha (125 lb/ac)	170 kg/ha (150 lb/ac)	225 kg/ha (200 lb/ac)
	Grey Wooded	110 kg/ha (100 lb/ac)	140 kg/ha (125 lb/ac)	170 kg/ha (150 lb/ac)
Irrigated	All groups	180 kg/ha (160 lb/ac)	225 kg/ha (200 lb/ac)	270 kg/ha (240 lb/ac)

Note: To convert kg/ha into lbs/ac, divide the kg/ha by 1.1 (eg. 110 kg/ha / 1.1 = 100 lbs/ac)

To ensure that the salts in manure do not affect plant growth, the regulations specify that manure must not be applied to soils that have an electrical conductivity (salinity) greater than 4 deciSiemen per metre (dS/m) from the top 0 cm to 15 cm of the soil. The regulations also specify that manure should not be applied at levels that that would increase the soil salinity (after the manure is applied) by more than 1 dS/m from a soil depth of 0 cm to 15 cm.

Nutrient management plans

Nutrient management plans are not mandatory for every person who applies manure. Under AOPA, an approved nutrient management plan is required if a person wants to exceed the soil nitrate-nitrogen or salinity limits when applying manure. The NRCB can approve a nutrient management plan for manure application in excess of the limits if the NRCB is satisfied that implementing the nutrient management plan will not adversely affect the soil or the environment.

Manure handling plans

A person applying for a CFO permit can submit a manure handling plan to the NRCB for approval to reduce or eliminate the need to meet the manure application and storage requirements under AOPA. The NRCB may approve a manure handling plan that provides an alternative to complying with the manure application and storage requirements. For example, an operation may submit a manure handling plan where an agreement is in place with others who will be accepting the manure from the operation. Manure production and transfer records must also be kept in these situations.

The following table is an example of the required information for land application.

Land Application Record* (Standards and Administration 28(5))

Owner	Legal Land Description	Field Name	Area
ABC Feeder	**SW 6-18-22-W4**	All	**64 ha**

Soil Test Records			Soil Texture		Soil Group or Farming Method
Date	**NO_3-N (0-60 cm)**	**E.C. (0-15 cm) (dS/m)**	**0-15 cm**	**15-30 cm**	
Oct. 22, 2002	**55 kg/ha (0-60 cm)**	**1.1**	**Clay loam**	**Clay loam**	Irrigated
May 4, 2006	**80 kg/ha (0-60 cm)**	**1.1**			

Manure Receiving Record		Type of Manure or Compost	Volume or Weight	Estimated Available Nitrogen
Date	**Received From: Name + Address**			
April 18-21, 2005	**Self Box 99, Anytown, AB**	Beef - Finisher	**4,900 tonnes**	3.2 kg/tonne
Sept. 14, 2005	**Compost Company XYZ Box 32, Elsewhere, AB**	Compost	**2,900 tonnes**	0.5 kg/tonne

Manure/Nutrient Application Record		Incorporation Record		Manure Application Rate	Available Nitrogen Application Rate
Date	**Total Weight or Volume Applied**	**Date**	**Method**		
May 5, 2003	**Fertilizer**	**N/A**	**N/A**	**N/A**	**50 kg/ha**
April 18-21, 2005	**4,900 tonnes**	**Apr 19-23, 2005**	**Cultivated**	**76.5 tonnes/ha**	**199 kg/ha**
Sept. 14, 2005	**2,900 tonnes**	**Sept. 16, 2005**	**Cultivated**	**40 tonnes/ha**	**20 kg/ha**

***Notes:**

- Table information in **bold** lettering means it is required by AOPA. Information that is not bolded is not required by AOPA, but is included to add clarity, especially for operations with more than one type of livestock.
- Soil test information used to determine manure application rates for each field must not be older than three years except for soil texture, which is a one-time analysis.
- To convert kg/ha into lbs/ac, divide the kg/ha by 1.1 (e.g. 110 kg/ha / 1.1 = 100 lbs/ac).
- To convert tons into tonnes, divide the tons by 1.1 (e.g. 550 tons/ 1.1 = 500 tonnes).
- For average solid and liquid manure volumes produced by livestock, refer to the blank record keeping forms.

For copies of blank forms, go to www.agric.gov.ab.ca (Search for "AOPA Record Keeping") or call 1-800-292-5697.

For more information, contact:

(Dial 310-0000 to be connected toll-free)

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www.agric.gov.ab.ca/aopa

Lethbridge:	(403) 381-5885
Red Deer:	(403) 755-1475
Morinville:	(780) 939-1218
Ag-Info Centre:	310 FARM (3276)
Publications:	1-800-292-5697

Natural Resources Conservation Board
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Lethbridge:	(403) 381-5166
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