



CHAPTER 8.0

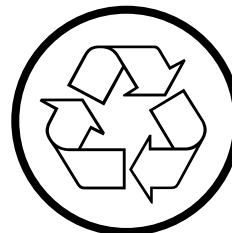
Farmstead Waste Management

This chapter discusses beneficial management practices that address waste management on the farm.

Farm waste items pose an environmental risk if they are not stored or disposed of properly.

The best strategy for managing waste on a farmstead starts by:

- **Reducing** the amount of waste created. This is the best waste management option.
- **Reusing** items for the same or different purposes.
- **Recycling**, composting and recovering energy as alternatives to waste disposal.
- **Disposing** of items only when other options are not possible.



Finding out what services are available in your community is your first step to waste management. Waste programs vary across Alberta, with municipalities developing management strategies that work best for their particular circumstance and location. The Government of Alberta is responsible for provincial waste standards and guidelines, but Alberta’s municipalities manage “on-the-ground” operations of municipal and regional landfills, as well as community waste diversion efforts. Many local community groups and non-government organizations devote a tremendous amount of time to promoting waste reduction and recycling programs.

The following table (Table 8.1) outlines options for managing different farm wastes. To ensure facilities will accept your waste, take the necessary steps or precautions prior to delivery. For more details on how to manage your wastes, contact the organizations listed in For More Information at the end of this chapter.

TABLE 8.1 TIPS ON HOW TO MANAGE FARM WASTES

ITEM	ON-SITE STORAGE OR TREATMENT	REDUCE	REUSE	RECYCLE OR RECOVER	DISPOSAL
Refrigerators or freezers	Get refrigerant removed by certified technician		Use as pesticide or animal health care product storage (where no refrigeration required)	Scrap dealer	Licensed landfill (Some sites will remove refrigerant for a fee)
Electronic wastes				Recycling depot (a fee may apply)	
Cardboard and plastic packaging	Keep clean and dry	Purchase products in bulk		Recycling depot	Licensed landfill
Petroleum product packaging	Empty and dry				Licensed landfill
Inert materials (brick, concrete, metal and wood building materials)	Store in secure area		Reuse on farm	Recycle dealers	Licensed landfill Only burn wood products with no preservatives (see Section 8.1)

TABLE 8.1 (CONTINUED) TIPS ON HOW TO MANAGE FARM WASTES

ITEM	ON-SITE STORAGE OR TREATMENT	REDUCE	REUSE	RECYCLE OR RECOVER	DISPOSAL
Restricted use materials (insulation, treated lumber, asbestos, composite products and lead pipe)	Store in secure area		Reuse except for asbestos	Recycle except for asbestos	Licensed landfill Dispose of asbestos as a hazardous waste
Old vehicles and farm equipment	Remove any fluids (oil, antifreeze, fuel)			Use for parts or take to scrap dealers	
Automotive wastes (lubricants, antifreeze, filters)	Store in secure area, ensure no water can get into fluids and do not mix antifreeze with other automotive wastes			Fuel dealers	Dispose of as a hazardous waste
Batteries	Store in secure area where spills or leaks can be contained			Recyclers (Automotive batteries cannot be transported in bulk)	Battery collection Dispose of as a hazardous waste
Pressurized tanks				Return to supplier	
Tires			Reuse	Tire recycling depot or retailer	Licensed landfill that will accept tires
Used motor oils and filters	Store in secure area		Reuse as a lubricant or as road dust control (see Section 8.8)	Oil recycling depot Local fuel retailer	Dispose of as a hazardous waste
Unused pesticides (see Section 8.6)				Return unopened and leftover product to dealer	Dispose of as a hazardous waste
Pesticide containers and contaminated packaging (see Section 8.6)	Triple-rinse or pressure rinse containers		Do not reuse	Take to pesticide container recycling depot or return to dealers where possible	
Organic wastes (grass clippings, trees, shrubs, and food waste)				Compost	Burn trees and shrubs (see Section 8.1)

TABLE 8.1 (CONTINUED) TIPS ON HOW TO MANAGE FARM WASTES

ITEM	ON-SITE STORAGE OR TREATMENT	REDUCE	REUSE	RECYCLE OR RECOVER	DISPOSAL
Treated seed (see Section 8.7)	Secure in a sealed container	Only treat what is needed			Licensed landfill
Mortalities (see Section 8.5)					
Sharps (see Section 8.4)	Secure storage to prevent injury and separate from other wastes				Class II landfill that accepts medical wastes Veterinary clinic that can handle sharps
Glass	Secure storage to prevent injury and separate from other wastes				Licensed landfill
Animal health care products and medical wastes (see Sections 8.3 and 8.4)	Store in original container in secure area		Return unused to retailer		Expired drugs Class II landfill that accepts medical waste Dispose of as a hazardous waste
Household hazardous wastes (see Section 8.2)					Dispose of as a hazardous waste
Paints, adhesives and cleaners	Store in secure area and dry out paint cans		Reuse or share with others in properly labeled containers		Dispose of as a hazardous waste

LICENSED LANDFILL:

Waste disposal creates issues involving leachate, methane gas and odour. A **licensed landfill** is a specific place designed to dispose of waste in a safe manner. All licensed landfills in Alberta go through a rigorous engineering site assessment to guard against surface water and groundwater pollution. Licensed sites separate wastes, such as construction materials, paint containers, batteries and household garbage. In general, licensed sites will have approval from Alberta Environment, which also classifies landfills based on the type of waste material collected.

8.1 Burning

Most farmsteads have a burning barrel, but burning waste not only poses a fire hazard, it also releases many chemicals creating environmental risks. Burning barrels do not reach high enough temperatures to destroy complex chemicals and they only tend to smoulder and smoke. These chemicals are released into your backyard and surrounding community. They can be quite toxic to animals and humans potentially contaminating food processed from animals that consumed residue-contaminated feed.

To reduce environmental and health risks associated with burning waste, only burn items listed under the Substance Release Regulation of the *Environmental Protection and Enhancement Act*, as "burnable debris," which includes:

- brush and fallen trees
- used power and telephone poles that do not contain preservatives
- wood or wood products not containing preservatives
- solid waste from post and pole operations that do not contain wood preservatives
- solid waste from tree harvesting
- straw, stubble, grass, weeds, leaves and tree prunings



A typical farmstead burning barrel for burnable wastes only — *Courtesy of AAFRD*

Under the same Regulation, "prohibited debris," which cannot be burned without a special permit, includes:

- animal manure
- wood or wood products containing wood preservatives
- waste materials from construction sites
- rubber, including tires
- plastics, including baler twine
- oil, pesticides or any other chemical containers
- plastic or rubber-coated materials, including copper wire
- any waste that causes dense smoke, offensive odours or releases toxic substances

If using a burning barrel, ensure to use proper ventilation and screens, locate far enough away from combustible materials and never leave it unattended during use. Remember, there are other alternatives to burning waste: reduce, reuse, recycle, recover and finally proper disposal.

8.2 Household Hazardous Waste

Household hazardous waste refers to materials used in daily activities that are potentially damaging to our environment, health and safety. Typical household hazardous wastes are materials leftover from activities such as painting, cleaning, disinfecting and gardening.

Communities throughout Alberta participate in annual one-day hazardous waste roundups and/or offer year-round collection facilities. Municipalities organize the roundups and pay for collection of the material. Alberta Environment provides funds for the transportation, treatment and disposal of collected material at the Swan Hills Treatment Centre.

To view a schedule for roundup days or permanent collection facilities, contact Alberta Environment or visit their household hazardous waste website at www.gov.ab.ca/env/waste/aow/hhw.

HAZARDOUS WASTE DISPOSAL

Hazardous wastes can be solids, liquids or gases held in containers that may be flammable, corrosive, explosive or toxic. Because of these dangerous characteristics, these wastes should not be disposed of in landfills or sewage systems.

Products that have potentially hazardous characteristics display at least one of the following warning symbols:



Flammable - burn easily like paints, degreasers and other solvents.



Corrosive - eat away surfaces and skin. Familiar examples are waste acids, rust removers, alkaline cleaning fluids and old battery acid.



Reactive/Explosive - react violently when mixed with other chemicals or that react under pressure or heat such as aerosols.



Toxic/Poison - poison or cause damage to living organisms. Materials containing heavy metals like mercury, lead or cadmium.

When a product displays one or more warning symbols, it should be disposed of as a hazardous waste.

For more information on disposing hazardous wastes, call Alberta Environment's Action-on-Waste Recycle Information Line at 1-800-463-6326.

8.3 Medical Wastes

Medicines may need to be disposed of for various reasons including expiry, spoilage or simply because they are no longer needed. There are two classes of expired medicines: unopened and opened. Unused expired drugs can be returned to where they were purchased. Many manufacturers will take them back for disposal.

Expired drugs can be discarded in the same ways as sharps. Modified live virus vaccines should be rendered non-infectious before disposal to prevent the virus from potentially infecting workers or animals. Freezing or adding bleach to the bottle can do this. When disposing of expired medicines, do not attempt to empty or wash bottles - discard them with their contents. Consult a local pharmacist to learn more about medicine disposal.

8.4 Animal Health Care Products

Any leftover or re-useable animal health care products should be returned to the place of purchase or stored in the original container in a secure storage area. Often, these products have recommendations for disposal printed on their labels.

Items that are not usable or have expired beyond the best-before date can be returned to the place of purchase or taken to a hazardous waste depot for proper disposal.

8.4.1 Disposing of Veterinary Waste

Sharps are veterinary and laboratory materials capable of causing cuts or punctures. Sharps include needles, syringes, scalpel blades, slides, coverslips, pipettes, broken glass and empty or expired pharmaceutical containers. There are risks of needle stick injuries or cuts when these materials are not handled or disposed of properly. Certain drugs or vaccines may cause reactions or infections if they are present on broken glass or used needles that break the skin. Blood on used needles, collection tubes or other equipment may contain viruses or bacteria that can cause illness following a cut or needle stick injury. Currently, no regulations cover the disposal of sharps in agriculture.

To safely dispose of sharps:

- Separate sharps from other waste.
- Use a labelled, puncture-proof container with a sealed lid for needles and surgical blades. Special containers can be obtained from many local veterinary clinics.
- Containers must be labelled clearly as containing sharps and must not be used for recycling.
- Do not use containers that allow easy access to the contents. Ensure children or animals cannot remove the lid. A plastic jug with a narrow mouth or a pail with a narrow opening in the lid also works well.
- Use another pail or rigid container for pharmaceutical bottles and syringes.
- Do not burn disposal containers. Use disposal facilities that are set up to accept the waste. This may include a local vet clinic, hospital or waste disposal company. Contact a local vet clinic or hospital for information. Labelled sealed containers can also be taken to Class II landfills that accept medical waste.

OTHER ANIMAL HEALTH CARE PRODUCTS:

Items including antibiotics, parasite treatments, vaccines, implants and banned drug products need to be disposed of immediately after use. In addition to returning those products back to the place of purchase, you can take them to a hazardous waste facility to be disposed of properly. Regularly consult your supplier or veterinarian about products that may have been banned.

8.5 Livestock, Poultry and Farm Animal Mortalities

Livestock and animal deaths may occur no matter how well an operation is managed. Disposing of dead animals quickly and effectively is important to reduce the risk and spread of disease. Carcasses can be a source of disease if scavenged by wildlife or pets. Some of these diseases can then be passed back to livestock or even humans. Carcasses are also unsightly, odourous and a breeding site for flies.

The choices for disposal under Alberta Agriculture's *Livestock Diseases Act - Destruction and Disposal of Dead Animal Regulation* are:

- burial
- incineration
- composting
- rendering
- natural disposal (except for animals that have been euthanized with drugs and chemicals or if the animal is known or suspected to have died from an infectious or reportable disease)

The dead animal should be disposed of within 48 hours of death. However, the dead animal may be stored for more than 48 hours if stored:

- less than a week in an enclosed structure with impervious walls and floors that have been constructed for the storage of dead animals
- outside during winter when the temperature is low enough to keep the dead animal completely frozen
- in a freezer
- in accordance with the directions of an inspector appointed under the *Health of Animals Act* or under the *Livestock Diseases Act*

8.5.1 Burial

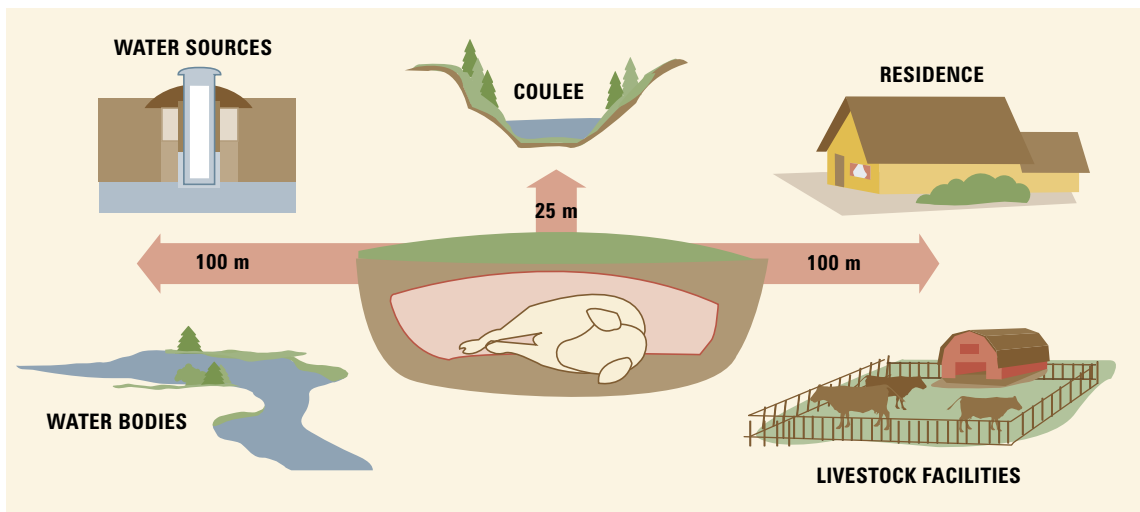
If carcasses are to be buried, do it promptly to control odour, insects and scavenging. Screen the burial pit area from view with trees, shrubs or fences, and locate it some distance away from livestock and other farm areas (see Figure 8.1). For more information, refer to Alberta Agriculture, Food and Rural Development's Livestock Mortality Burial Techniques document (Agdex 400/29-2).

Destruction and Disposal of Dead Animals Regulations contain the following guidelines for burial:

- The total weight of carcasses in a burial pit must not exceed 2,500 kilograms (5,500 lb).
- The pit must be:
 - 100 m (328 ft) from wells, waterways and high watermarks of lakes
 - 25 m (82 ft) from the edge of a coulee, major cut or embankment
 - 100 m (328 ft) from any livestock facility, including pastures that are not owned or leased by the owner of the animal
 - 100 m (328 ft) from a residence
 - 300 m (984 ft) from a primary highway
 - 100 m (328 ft) from a secondary highway
 - 50 m (164 ft) from any other road

- Apply quicklime to the carcass in sufficient quantities to control flies and odour.
- The pit must be covered with:
 - minimum of 1 m (3 ft) of compacted soil
 - wooden or metal lid that is designed to exclude scavengers
- The bottom of the pit must be at least 1 m (3 ft) above the seasonal high water table.

FIGURE 8.1 MINIMUM DISTANCE SEPARATIONS FOR BURIAL PITS



8.5.2 Incineration

The *Destruction and Disposal of Dead Animal Regulation* state that dead animals may be disposed of by incineration on your property. However, this practice must follow the *Substance Release Regulation* or the Code of Practice for Small Incinerators available from Alberta Environment.

8.5.3 Composting

Composting carcasses is an effective way of disposal and can be done in a bin system designed for composting, in a windrow system or open compost pile. Examples of bin designs are available in Alberta Agriculture, Food and Rural Development's Swine and Poultry Mortality Composting documents (Agdex 440/29-1 and Agdex 450/29-1).

A windrow or open compost pile must be:

- 100 m (328 ft) from wells or other domestic water intakes, streams, creeks, ponds, springs, and lake high watermarks
- 25 m (82 ft) from the edge of a coulee, major cut or embankment
- 100 m (328 ft) from any residence
- 100 m (328 ft) from any livestock facility or pasture owned or leased by another person
- designed in a manner that will exclude scavengers

Within these structures:

- each animal or part of it must not exceed 100 kg (220 lbs)
- maximum volume of the animals must not exceed 25 percent of the total compost pile
- animals must be covered by at least 15 cm (6 in) of composting material

8.5.4 Rendering

Dead animals must be picked up by rendering plants within 48 hours of death; until then, the carcass must be stored. When storing carcasses:

- locate the storage area close to the entrance of the farm to minimize the need for collection vehicles to enter the property
- use an area that will minimize the spread of disease — for example, do not store the carcass near a waterway or water body or where it will be easily scavenged
- if not picked up within 48 hours, use special storage bins or refrigeration until the carcass is taken to a rendering facility

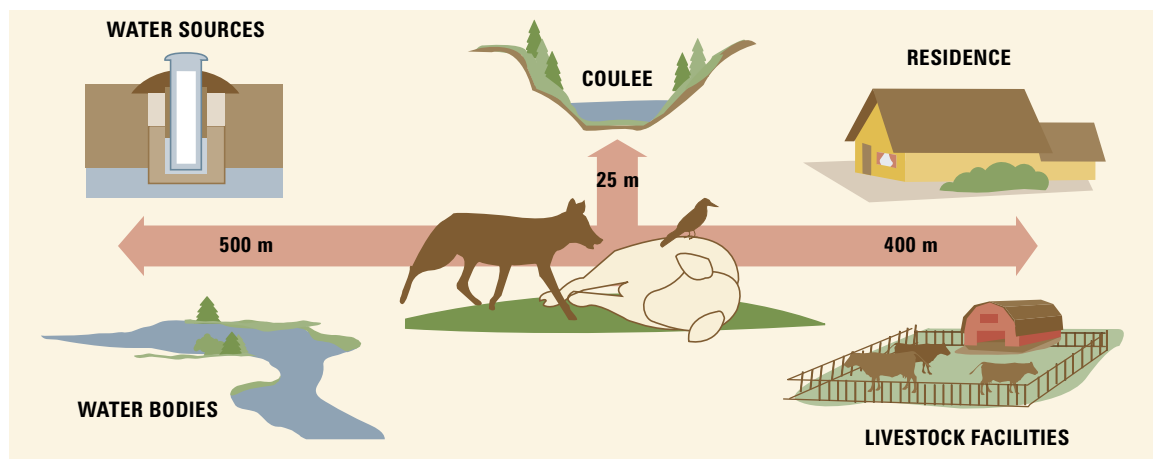
8.5.5 Natural Disposal

Natural disposal refers to disposal by scavenging and sites must be located well away from farm areas, water bodies and sources (see Figure 8.2). However, if the animal is known or suspected to have died from a reportable or an infectious disease that can be spread by scavengers or insects, it is best to dispose of these animals under the direction of a veterinarian. Also, natural disposal is not allowed under the *Livestock Diseases Act* if the animal is euthanized.

Here are the following guidelines for natural disposal under the *Destruction and Disposal of Dead Animals Regulation*:

- The animal is disposed of on property owned or leased by the owner of the animal.
- The total weight of the carcasses disposed of at any one site must not exceed 1,000 kilograms (2,200 lbs).
- There must be at least 500 m (1640 ft) between disposal sites.
- The site must be:
 - 500 m (1,640 ft) from wells, waterways and lake high watermarks
 - 25 m (82 ft) from the edge of a coulee, major cut or embankment
 - 400 m (1,312 ft) from any livestock facility, including pastures that are not owned or leased by the owner of the animal
 - 400 m (1,312 ft) from a residence
 - 400 m (1,312 ft) from a road allowance
 - 400 m (1,312 ft) from a provincial park, recreation area, natural area, ecological reserve, wilderness area or forest recreation area
- The site must not create a nuisance.

FIGURE 8.2 MINIMUM DISTANCE SEPARATIONS FOR NATURAL DISPOSAL



8.6 Pesticides

8.6.1 Proper Pesticide Disposal

Pesticides that are no longer usable are considered hazardous wastes and cannot be disposed of in approved Class II landfills or by burning.

To use up and dispose of excess or unwanted pesticides:

- Return unopened or non-compromised product to the dealer for a refund.
- Offer opened and unused leftover pesticide supplies, in original containers with product labels attached, to other potential users (such as neighbours or the municipality) for use according to label directions.
- Consider using up smaller quantities for weed control, according to label directions, along fence lines and other areas difficult to access with large spray equipment.
- Contact the nearest hazardous waste depot for disposal.

8.6.2 Pesticide Container Disposal

Unrinsed containers have the potential to contaminate soil, groundwater and surface water, which can be toxic to fish and wildlife, as well as fill valuable space in landfills. Also, these containers impede the processing and recycling of other empty pesticide containers, as they have to be emptied, exposing workers to the residue. Residues can be transported into the atmosphere during storage, processing, shipping and energy recovery, or they can contaminate end products from plastic recycling processes. In addition, it is estimated that 6 to 7 percent of product can be left in unrinsed containers. This amount of material can treat ½ to 1 acre of land and can save you several dollars.

Pesticide containers must be manually triple-rinsed or **pressure rinsed** and dried before disposal at a pesticide container site. Currently, most producers use triple-rinsing, and in most cases, this practice leaves plastic, metal or glass pesticide containers more than 99 percent free (less than 1 ppm) of residues.

Follow these steps for manual triple-rinsing your containers:

1. Empty container contents into sprayer tank and drain in a vertical position for 30 seconds.
2. Add water to container to about 1/5 full.
3. Shake container thoroughly, empty into sprayer tank and drain for 30 seconds.
4. Repeat procedure two more times (it should only take about 5 minutes in total).
5. Puncture or break open triple-rinsed container so it cannot be reused. Note: Do not puncture unrinsed containers as pesticide from unrinsed containers is concentrated and will leak, exposing persons handling the containers and the environment to the concentrated pesticide.
6. Dispose of all plastic and metal containers at a pesticide container collection site.

Instead of using the triple-rinse procedure, producers can eliminate steps with a pressure jug rinser. Pressure rinsers direct water from a pressurized source against the inner sides of the container, which effectively washes the pesticide residue into the spray tank. Pressure rinsers also have the added advantage of rendering containers useless by automatically puncturing them. This method reduces environmental risks by ensuring jugs are rinsed automatically and reduces the risk to the producer by eliminating handling of pesticide containers.

Empty pesticide containers must be disposed of properly and in accordance with provincial regulations. Under Alberta's *Environmental Protection and Enhancement Act*, non-refillable plastic or metal pesticide containers (restricted, commercial, agricultural and industrial products) must be disposed

of at a pesticide container collection site. A list of pesticide container disposal sites in Alberta and operation hours are available from municipalities, the AAFRD Crop Protection Manual, (Agdex 606-1) or Alberta Environment.

Paper and cardboard pesticide packaging that have not been contaminated with pesticides can be directed to a recycling centre. Any cardboard contaminated due to a container rupture, accidental spill or improper handling procedure should be disposed of as a hazardous waste. Evidence of cardboard contamination should be obvious – signs of exposure to liquid, powder or granules, or a strong chemical odour. Do not burn paper bags or cardboard containers. Some pesticide container sites have bins or separate areas for collecting these outer packaging materials. Containers from topical parasiticides (e.g. pour-on compounds or powders for lice and mange) should be returned to dealers for collection and disposed through programs operated by manufacturers.

8.7 Treated Seed

Practices to properly store and dispose of treated seed include the following:

- If you are treating bulk seed on the farm, treat only as much as you need for immediate use.
- For temporary storage on the farm, place the seed in a secure, sealed container.
- If you have leftover treated seed that cannot be returned to a dealer, plant the seed at a rate not exceeding three times the normal seeding rate, or contact a regional sanitary landfill for authorization to bring the seed to the landfill for immediate burial.

8.8 Used Oil for Road Surfaces

Used oil can be recycled or used to control dust, but only in accordance with Alberta Environment's Guidelines for the Application of Used Oil to Road Surfaces.

These guidelines allow used oil to be applied for dust control under the following conditions:

- The applicator must have permission from the land owner or municipality responsible for the road.
- The oil must meet certain specifications for maximum contents of things like arsenic, cadmium, lead, etc. (These components are listed in the guidelines, but fortunately most waste oil from typical diesel or gasoline engines contains less than these limits, so farmers are not obligated to send their oil in for testing).
- The application of the oil must be more than 25 m from surface water (including sloughs) or a domestic water supply.
- The application rate cannot result in visible runoff of oil beyond the traveled portion of the road.
- Application of oil is limited to two times per year.

EMERGENCY PLAN

Every farmstead needs an emergency plan, which outlines the location of hazardous materials, emergency equipment, telephone numbers and necessary clean-up instructions. The plan gives those living on the farmstead guidelines to follow for minimizing potential environmental damage to the site, as well as protects those living on the site and in the surrounding community. For more information about emergency planning and the steps necessary to minimize environmental risk and ensure the safety of others, refer to the Appendix.

8.9 Legislation

Producers should be aware of the following pieces of legislation that pertain to wastes and the environmental risks associated with their storage and disposal. For more information on the legislation, refer to Chapter 12 of this manual.

Federal Legislation

Fisheries Act

Health of Animals Act

Provincial Legislation

Environmental Protection and Enhancement Act

Substance Release Regulation

Waste Control Regulation

Livestock Diseases Act

Destruction and Disposal of Dead Animals Regulation

8.10 For More Information

All Alberta government offices may be reached toll-free by dialing the Rite Line: 310-0000

Alberta Agriculture, Food and Rural Development

Publications: 1-800-292-5697

- Crop Protection – the Bluebook Agdex 606-1
- Home Composting Agdex 537-1
- Livestock Mortality Burial Techniques Agdex 400/29-2
- Livestock Mortality Management Agdex 400/29-1
- Poultry Mortality Composting Agdex 450/29-1
- Swine Mortality Composting Agdex 440/29-1
- Tips and References for Owners of Small Farms and Acreages Agdex 570-8

Ag-Info Centre: 310-FARM (3276)

Website: www.agric.gov.ab.ca

Alberta Environment

Publications: 780-427-2700

- Alberta's Municipal Waste Action Plan 2004-2006
- Code of Practice for Compost Facilities
- Code of Practice for Small Incinerators
- Saving the World Begins at Home

Action-on-Waste Recycle Information: 1-800-463-6326

Website: www.gov.ab.ca/env

Alberta Plastics Recycling Association

Office: 780-939-2386

Website: www.plasticsrecycling.ab.ca

Alberta Recycling Management Authority

Electronic and Tire Recycling: 1-888-999-8762

Website: www.albertarecycling.ca

Alberta Used Oil Management Association

Recycling Centre Locations: 1-888-922-2298

Website: www.usedoilrecycling.com

Olds College

Publications: 403-556-4683

- On-Farm Composting Handbook

Website: www.oldscollege.ab.ca

OCCI Composting Technology Centre

Technical Information: 1-877-815-6224 or 403-507-7970

Website: www.occ.ab.ca