



LARGE ANIMAL DISPOSAL

On-Farm Burial Option South Coastal Region of BC

Mortalities are a normal part of animal husbandry. Livestock producers may dispose of mortalities from their own farms through one of the following means:

- Dead animal collection service
- On-farm disposal by:
 - Composting
 - Incineration, or
 - Burial¹

In all cases, pollution must not occur through the disposal of mortalities.

This factsheet provides information to help you decide if on-farm burial of mortalities is a viable option for your farm operation. Topics addressed include:

- Environmental Risks of Burial
- Site Specifications of Burial Pits
- Burial Pit Design
- Record Keeping

Environmental Risks of Burial

The environmental risks associated with burial are:

- Holding (or burial sites) that result in surface and/or ground water and/or soil pollution and/or air pollution
- Flies or rodent attraction that results in possible disease transfer to people, livestock or wildlife
- Attraction of predators to a site

¹ It is considered a normal farm practice to bury animals from your farm on your farm. Regulations only allow for burial of your animals on your farm. (No animals from other farms.)

Site Selection for Burial Pits

Choosing an appropriate site for Burial Pits is important to minimize risk to the environment. The following guidelines assist in assessing possible burial sites to ensure that ground water and surface water resources are protected.

1. Assess Ground Water Contamination Potential

Potential ground water contamination can be assessed by looking at the soil type, soil depth and depth to ground water.

- **Soil Type:** Coarse soils such as sand and sandy loam increase the risk of ground water contamination because they allow rapid transport of liquids away from the burial site.²
- **Soil Depth:** Soils that are very shallow overlying bedrock or coarse rock and gravel permit rapid movement of contaminated water with minimal filtration or treatment.
- **Depth to Ground Water:** The zone above the ground water table up to the soil surface is effective in destroying some biological contaminants. However, this zone is minimal in areas where the water table is high. In all cases, it is recommended that burial pits be located one meter above the seasonal high ground water table.³

² Soil texture, soil depth and depth to shallow ground water can be determined by digging a test hole.

³ In a test hole look for free water and/or mottles (red-brown stains on lighter background) in the soil. Use soil maps or a qualified registered professional for more advice. The high water table is generally during the wettest part of the year (late fall and winter in the Lower Mainland or during freshet on sites adjacent to major rivers).

Depending on the combination of these three features, the ground water contamination potential could change. An evaluation of these three features can determine whether burial at the site may present a high, moderate or low risk of ground water contamination. Burial of large animals or large volumes of animals over unconfined aquifers such as the Abbotsford – Sumas or Hoppington Aquifers is not recommended. Use Table 1 to assess ground water contamination potential.

Burial sites should be well distributed around a property. No more than one large animal carcass should be placed in each burial site. No more than 700 kg (1500 lb) of mortalities should be buried per hectare per year. Once a burial site is used, it should not be re-used for at least three years.

Burial sites should be located a minimum of 30 m (100 ft) from each other.

Table 1 Ground Water Contamination Potential Based on Soil type and Depth to Watertable				
Soil Type	Depth to Watertable from Bottom of Pit			
	<1 m	1-5 m	5-15 m	>15 m
Soil depth less than 1 meter	N/A	1	1	1
Muck or peat soils	N/A	2	3	3
Sand with fast natural drainage	N/A	1	1	2
Sandy loam with moderate natural drainage	N/A	1	2	3
Clay loam with slow natural drainage	N/A	2	3	4
Clay with very slow natural drainage	N/A	3	4	4

Numbers in shading refer to ground water contamination potential

N/A not allowed under regulation
1 high potential for contamination – do not bury
2 moderate potential for contamination – not recommended, select a better site
3 low potential – location suitable for burial from a ground water protection perspective
4 very low potential – location suitable for burial from a ground water protection perspective

Source: Modified from Ontario Ministry of Agriculture and Food

2. Assess Surface Water Contamination Potential

A burial site should not be located where soil is easily eroded off the carcass. This may mean that burial sites on a slope (where there are fine-textured soils and/or rapid runoff) may not be suitable. Burial is not recommended adjacent to surface water bodies, or in low areas where surface water will collect.

3. Assess Distance to any Water Source used for Domestic Purposes

Burial sites should be at least 122 m (400 ft) from any well unless the burial site is configured to prevent contamination from leaving the site. Minimum separation to any source of surface water used for domestic purpose should be a least 30.5 m (100 ft). For areas with high ground water contamination potential, it is recommended that the burial site be located a greater distance from a well or any source of water used for domestic purposes.

Burial Pit Design

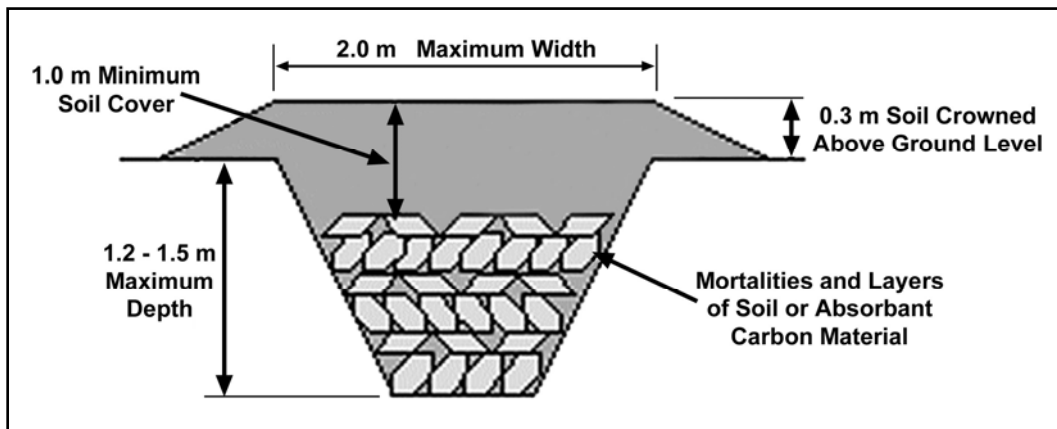
Pits need to be about 1.2 – 1.5 meters (4-5 ft) below the original ground level. There needs to be a cover of at least 1.0 m (3 ft) of packed soil over the mortalities and a mound of 0.3 m (1 ft) packed soil above the original ground surface level to help shed water so it does not collect in the pit. Soil cover will also prevent scavenging animals from exhuming the mortality (the *Wildlife Act* makes it an offence to feed dangerous wildlife such as bears, cougars, coyotes, wolves). A pit designed in this manner allows for settling and helps to shed surface water to limit leachate generation.

High carbon material such as shavings or sawdust can be used to line burial pits that are located in an area with ground water contamination potential of 2

(see Table 1) to make them less of a pollution risk. Lining the pits with approximately 15 cm (6 in) of high carbon material may speed the decomposition process, and may help attenuate potential contaminants.

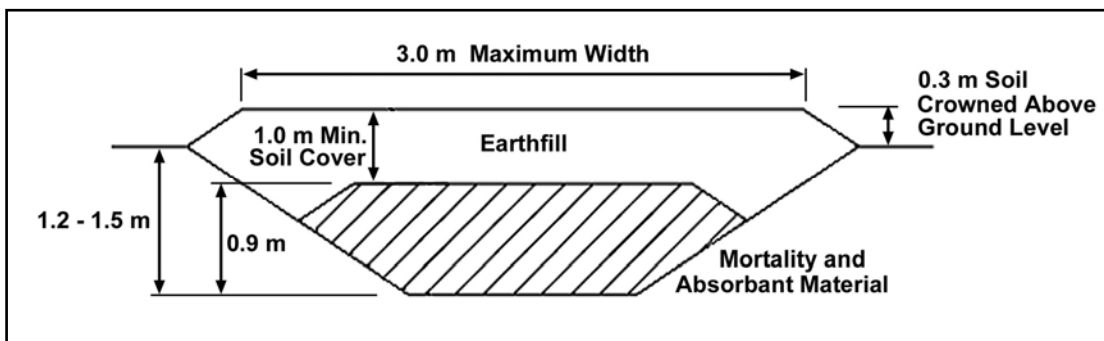
The large body cavities of the animal (abdomen, chest) can be opened to help facilitate faster decomposition. The stomachs of cows and horses should be lacerated to prevent bloating which may result in the carcass floating to the soil surface.

Apply a layer (up to 10 cm (4 in)) of agricultural or hydrated lime⁴ over a carcass can help reduce odours and potential scavenging.



Source: Modified from Ontario Ministry of Agriculture and Food

Diagram of Burial Pit - Small Animal Disposal
(e.g. Calves, Lambs, Goats, Piglets)



Source: Modified from USDA/Natural Resources Conservation Service (Texas)

Diagram of Burial Pit - Large Animal Disposal
(e.g. Cows, Horses, Sows)

⁴ Hydrated lime [Ca(OH)₂] or Quick Lime [CaO] can be very caustic to skin and eyes.

Regulations About Burial

Requirements for disposal of mortalities are outlined in the *Agriculture Waste Control Regulation* under the *Environmental Management Act*. These requirements allow for on-farm burial of mortalities if the livestock, poultry or farmed game are disposed of on the farm where they died and if burial pits are located at least 30 meters (100 ft) from any source of water used for domestic purposes. Burial of dead stock is not allowed to cause pollution.

In addition to the *Environmental Management Act*, other legislation that pertains to dead stock includes the *Forest and Range Practices Act* that requires a range agreement holder to take reasonable steps to ensure that dead livestock belonging to the holder is (a) not within 100 m (330 ft) of a stream in a community watershed, or (b) removed to a distance of 100 m (330 ft) or more from a stream in a community watershed as soon as practicable after the holder becomes aware of the dead livestock.

Record Keeping

Records should be kept on the date of burial and exact location of burial pits from some fixed point. Records help ensure that the same site is not reused too frequently. The same site should not be reused more frequently than once every three years.

Summary

If site and conditions do not allow for on-farm burial of mortalities, livestock producers should choose one of the other alternative means of disposal listed below:

- Dead animal collection service
- On-farm disposal by:
 - Incineration, or
 - Composting

More Information on Burial

[*Livestock Mortality Burial Techniques*](#) - Alberta Agriculture, Food and Rural Development

[*Proper Burial Techniques for Small Animals and Poultry Mortalities Under 25 kg*](#) - Ontario Ministry of Agriculture, Food and Rural Affairs

Acknowledgement

Some graphics used with permission of Ontario Ministry of Agriculture and Food

Original draft prepared by
Kim Sutherland, PAg
Regional Agrologist
604-556-3073

Edited by
Geoff Hughes-Games, PAg
Provincial Soil Specialist
604-556-3102