

FARM PRACTICE

COMPOSTING

Description

Composting is defined as the biological decomposition of organic materials under controlled circumstances to a condition sufficiently stable for beneficial storage and use. Composting is used as an essential tool for, but not limited to, the management of agricultural wastes, the production of mushroom growing media, the disposal of animal mortalities or farm-generated slaughter waste, and the production of soil amendments for field application or use in soilless mixes. Compost is defined as a product of composting which is used or sold for use as a soil amendment, artificial topsoil or growing medium, or for some other application to land. Materials may include manure, straw, vegetative waste, woodwaste, ground paper, other sources of carbon and nitrogen, and bulking agents.

The *Agricultural Waste Control Regulation* (AWCR) and the associated *Code of Agricultural Practice for Waste Management* outline conditions for agricultural waste compost production in B.C. Composting operations which are not covered by the AWCR are not considered agricultural composting operations and are subject to conditions and stipulations laid out in the *Organic Matter Recycling Regulation* (OMRR). Mushroom composting facilities producing compost for use off the farm of origin are subject to conditions specified under the *Mushroom Composting Pollution Prevention Regulation*. All three regulations are captured under the *Environmental Management Act*.

Agricultural waste is defined within the *Agricultural Waste Control Regulation*. Wood waste is the only non-agricultural waste that can be co-composted with agricultural waste, with the resulting compost permitted to be used on the farm or sold off the farm. The wood waste must, however, have been previously used on the farm for any of the allowed uses described in the *Agricultural Waste Control Regulation*. Local governments may also enact bylaws related to composting which can require specific design criteria or site management plans.

Non-agricultural wastes brought onto a farm for composting purposes will require a permit or approval from Ministry of Environment as outlined in the *Organic Matter Recycling Regulation*.

Composting operations which fall outside the definition of composting in the *Code of Agricultural Practice for Waste Management* may require approval from the Agricultural Land Commission. In addition, local or regional government bylaws may require permits or applications for a composting operation to be constructed or operated on a farm. Regardless of the specifics, farmers should check with these agencies prior to developing a composting operation to determine if approval is required. From a broad perspective, on-farm composting should be permitted if the lot on which the composting occurs incorporates some commodity production of the farm unit and the composting activities meet the requirements of the Agricultural Land Commission or the Ministry of Environment.

Nuisance Concerns

The three main disturbances mentioned in the *Farm Practices Protection (Right to Farm) Act* are odour, noise and dust. All three disturbances can be relevant to composting practices.

Odour

Farmers engage in a variety of activities that produce odours. Many composting operations can release some odours. The degree to which individuals perceive an odour to be a nuisance will depend on the frequency, intensity, duration and offensiveness of the odour. Other factors that come into play include a person's sensitivities and personal previous experiences.

See also Nuisance Reference: [Odour](#)

Noise

Farmers may engage in a variety of composting activities that require the use of equipment. Most equipment generates some noise. Noise is defined as any sound that is audible but judged to be an unwanted, irregular or erratic disturbance. Noise levels vary and may rise when equipment is run at higher speeds. Noise may be generated continuously or intermittently.

See also Nuisance Reference: [Noise](#)

Dust

Dust is defined as fine-grained suspended particulate in air. The degree to which individuals perceive dust to be a nuisance will depend on the frequency, intensity and duration of a dust-generating event. Many composting operations require the use of equipment or practices that will create dust. Dust may also be generated as fugitive dust when fine particulates are lifted from fields, roads, buildings and yards via air turbulence.

See also Nuisance Reference: [Dust](#)

Activities and Operations

Composting Facilities

Composting facilities are an important part of the composting process. In most cases facilities include impervious pads or buildings. These facilities are used to store or manage raw materials or finished compost and may be an integral part of the active composting stage. Other facilities may include equipment for ventilation, air scrubbing, filtering, screening and bagging. Mobile equipment in the form of forklifts, tractors and trucks is common.

See also Farm Practice: [Structures](#)

Composting Processes

The most common methods of on-farm composting include the following:

- static piles or windrows
- aerated static piles or windrows
- turned windrows
- in-vessel composting

The formulation and condition of raw materials making up a compost mix should be suitable for the type of composting method being used.

Storage of Raw Materials

Raw materials should be stored in a storage facility or placed on an impermeable pad with a cover to protect them from the weather and to prevent the production of leachate and runoff. Care must be taken to ensure that no leachate or runoff causes pollution of surface water or ground water. Raw materials may be piled in the open for short periods of time, but precautions must be taken to ensure that none of it is lost or escapes. Unsightly piles of raw compost materials must not be left for long periods of time. Raw materials – such as dead fish and animals, manure, or ground paper – which have a particular potential to cause odours, dust or pest problems should be covered or managed so that problems do not occur.

See also Farm Practice: [Storage of Farm Supplies and Products](#)
[Storage of Hazardous Material](#)

Blending and Grinding

In order to begin the composting process and to obtain the desired quality of compost, it may be necessary to grind and mix raw materials. Once the correct formulation of materials has been determined, raw materials must be blended and placed in the composting facility or returned to storage.

See also Farm Practice: [Mobile Equipment](#)
[Product Processing](#)
[Stationary Equipment](#)

Curing and Storage

Compost should be cured after the active composting phase is complete. Compost undergoing the curing process – and the cured product itself – should be stored so that no compost is lost or escapes and compost quality is preserved. Compost which is to be used on the farm should be stored in accordance with the *Code of Agricultural Practice for Waste Management*.

See also Farm Practice: [Storage of Farm Supplies and Products](#)

Packaging

Compost that is to be marketed off the farm may be sold either in bulk or packaged form. The packaging of compost may require the operation of packaging equipment.

Receiving and Shipping

On-farm composting typically requires the introduction of co-composting raw materials from off the farm and the shipping of finished compost. Materials should be moved on and off the farm during regular business hours.

Mortalities and Slaughter Waste

Increasingly, livestock and poultry farmers are composting mortalities and slaughter waste generated from on-farm slaughter operations. Proper management of such wastes is critical in ensuring that odours are minimized. In addition, farmers must be aware of regulations governing the transportation and processing of wastes containing specified risk materials (SRM).

Specified risk materials (SRM) are those cattle tissues which may harbour the prions related to bovine spongiform encephalopathy (BSE). Stringent federal regulations govern all SRM management to ensure the public and trading partners that Canadian beef and cattle products are safe for consumption and export.

One important exception, however, to the federal SRM regulations exists in that they do not apply to on-farm SRM management if the specified risk material does not leave the farm on which cattle have died. British Columbia does not have any specific regulations or guidelines for SRM management related to the farm of origin. The *Agriculture Waste Control Regulation* specifically allows for composting of animal mortalities on the farm where they died provided that it does not cause pollution.

See also Farm Practice: [Mortality Disposal](#)
See also Commodity: [Beef](#)
[Dairy](#)

Related Farm Practices

Other farm practices that pertain to composting include, but are not limited to, the following.

Ventilation

Buildings used to accommodate composting activities or to store compost may require ventilation. Bio-filters may also be used to control odours.

See also Farm Practice: [Ventilation](#)

Direct Farm Marketing and Agriculture Tourism

Compost produced on the farm from farm wastes may be sold directly from the farm.

See also Farm Practice: [Direct Farm Marketing and Agriculture Tourism](#)

Legislation

Information on federal and provincial legislation can be found in Appendices B and C. Acts, regulations and bylaws that regulate or may affect composting practices include, but are not limited to, the following.

Federal Legislation

The *Fertilizers Act* requires guaranteed analyses to control the quality of compost sold or given away as fertilizer.

The *Health of Animals Act* addresses diseases that may affect animals or be transmitted to humans.

The Act also enables regulatory control of Specified Risk Material (SRM) to prevent its entry into the animal feed system. The enhanced feed ban regulations under this Act stipulate that producers not feed any animal products containing SRM to livestock and that abattoirs properly identify SRM to ensure that it is removed from the feed system.

Provincial Legislation

The *Agricultural Land Commission Act* controls the siting of non-farm composting operations within an Agricultural Land Reserve.

The *Environmental Management Act* protects the soil, water and air environment from pollution.

Included under this Act are the following three applicable regulations:

The *Agricultural Waste Control Regulation* which allows farmers to operate without a waste permit when managing composting according to the *Code of Agricultural Practice for Waste Management*.

The *Organic Matter Recycling Regulation* which regulates composting and land application for a range of organic materials.

The *Mushroom Composting Pollution Prevention Regulation* which deals specifically with the requirements of any mushroom media production facility.

Publications

Publications that provide further information on composting include, but are not limited to, the following. Refer to Appendix D for details.

British Columbia Agricultural Composting Handbook