

## CHAPTER 2 METRIC CONVERSIONS

Metric	Imperial Equivalent
300 mm	12 inches
15 cm	6 inches
30 cm	1 foot
1 m	3 feet
3 m	10 feet
4.5 m	15 feet
7 m	23 feet
12 m	40 feet
15 m	50 feet
30 m	100 feet
30.5 m	100 feet
122 m	400 feet
5 kg	11 pounds
50 kg	110 pounds
2 litres	0.5 gallon
5 litres	1.3 gallon
50 litres	13 gallons
100 litre	26 gallons
50 cubic metres	65 cubic yards

Conversions in this table are rounded to a convenient number.  
See Appendix E for exact conversion factor.

Values from tables and examples are not included in Metric Conversions

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## FARMSTEAD

### INTRODUCTION

This chapter discusses farmstead management for protection of the environment. It contains introductory information on the relationship between the farmstead and the environment. It also contains information on environmental concerns, legislation and beneficial management practices related to:

- ◆ Buildings and roads;
- ◆ Farm waste,
- ◆ Chemical fertilizer,
- ◆ Petroleum,
- ◆ Wood residue,
- ◆ Compost,
- ◆ Energy use,
- ◆ Heat production and agricultural boilers; and
- ◆ On-farm processing and sales.

### FARMSTEAD AND THE ENVIRONMENT

The primary role of the farmstead is to be the headquarters for farm production. Most farm construction, handling of wastes from septic and disposal sites, petroleum and wood residue storage, composting, and processing and sales occur in this centralized location.

Many BC agricultural production sites are located in areas that are under intense pressure from non-agricultural activities. Concerns arising from farmsteads often relate to farm buildings and roads. Location, orientation and management of structures can significantly influence environmental impacts. Good site planning and management may also prevent disputes between neighbours.

In addition, a large number of agricultural production sites are located in what is considered to be wildfire interface areas or areas at risk due to flooding caused by heavy rain events. Given the predictions regarding climate change and wildfire and weather event frequency and severity, consideration must also be given to reducing the risks of wildfires and flooding to farmsteads. Location, construction and management of structures and landscaping can significantly influence impacts.

# BUILDINGS AND ROADS



The following discussion on buildings is meant to be general. Specific siting and management practices relating to fertilizers, petroleum, wood residue, livestock, crops and pesticides buildings are found in their respective sections.

## BUILDINGS AND ROADS ENVIRONMENTAL CONCERNS

Environmental concerns related to buildings and roads are:

- ◆ Siting and construction that results in water pollution; or in unacceptable odours to neighbours;
- ◆ Escape of contents from buildings that results in air or water pollution;
- ◆ Impermeable surfaces such as building roofs, roads and yards that result in change of the flow, volumes and direction of runoff causing erosion or downstream flooding;
- ◆ Disruption of riparian vegetation, streams, lakes or wetlands due to stream crossings and bridges that result in impacts to aquatic life, wildlife and water quality.

For information on these concerns:

- ➔ see Impacts on Biodiversity and Habitat, **page 7-7**, refer to Farm Activities and Impacts
- ➔ see Water Quality and Quantity Factors, **page 9-1**, refer to Contaminants and to Overland Flow
- ➔ see Air Quality Factors, **page 10-1**, refer to Contaminants, Dust and Particulates and Odours
- ➔ see Impacts of Agricultural Activities on Greenhouse Gas Emissions, **page 12-6**, and refer to Farm Activities and Impacts

 [FireSmart Canada website](#)

## BUILDINGS AND ROADS LEGISLATION

The following is a brief outline of the main legislation that applies to buildings and roads:

- ➔ see **page A-1** for a summary of these and other Acts and Regulations

### Local Bylaws

The *National Farm Building Code 1995* outlines standards for building construction **and is enforced only where proclaimed by local governments.**

Many local governments have developed Soil Fill and Removal Bylaws, which pertain to the use of materials for preparing building sites and roadways on farmland.

### Farm Bylaws

Farm Bylaws are bylaws that manage or restrict specific farm practices, beyond what could be considered using local government zoning powers. They are meant to ensure that farms can operate while addressing Local Government concerns about nuisance or other factors generally related to intensive agriculture. Farm Bylaws must be approved by the Minister of Agriculture. The communities in which these bylaws exist are called 'regulated communities'. Current regulated communities in BC include City of Abbotsford, Township of Langley, Corporation of Delta and City of Kelowna.



## Agricultural Land Commission Act

The *Agricultural Land Commission (ALC) Act* S.B.C. 2002, c. 36, and *Agricultural Land Reserve (ALR) Regulations* are the legislative framework for the establishment, administration, and procedures of BC's agricultural land preservation program. The ALC Act takes precedence over, but does not replace other legislation and bylaws that may apply to the land. Local and regional governments, as well as other provincial agencies, are expected to plan in accordance with the provincial policy of preserving agricultural land.

The *ALR General Regulation*, B.C. Reg. 171/2002, identifies the procedures for submitting applications and notices of intent.

The *ALR Use Regulation*, B.C. Reg. 30/2019 specifies land uses permitted in the ALR:

- ◆ SECTION 20(1): restricts the use of land within an agricultural land reserve (ALR) to farm uses unless specified by the Act, the *Agricultural Land Reserve Use Regulation* or the Commission.
- ◆ SECTION 20.1(1): restricts the number and size of a residence on agricultural land to one house 500m<sup>2</sup> or less of total floor area.
- ◆ SECTION 20.3(1) – 20.3(6): restricts the removal or placement of fill on agricultural land and describes the requisite notice of intent and soil or fill use application procedures.

Some farm activities that may be governed by the *ALR Use Regulation* #30/2019 include:

- ◆ SECTIONS 6 – 17:
  - Land development works;
  - Soil testing, biosolids, and soil amendments;
  - Cannabis;
  - Horse facilities;
  - Forestry;
  - Farm products and retail sales;
  - Agri-tourism;
  - Alcohol production; and
  - Gathering events.
- ◆ SECTION 18: Guides the use of agricultural land for construction and upgrading of roads.
- ◆ SECTIONS 22 – 27 describe permitted non-farm uses that may be prohibited by local governments. These include:
  - Parks;
  - Keeping of animals (e.g., pet breeding and boarding);
  - Home occupation;
  - Infrastructure (e.g., force mains, pipelines, water lines, dikes, access roads);
  - Aggregate removal (under certain conditions);
  - Producing, storing and applying compost classified as Class A compost under the *Organic Matter Recycling Regulation* is permitted, but may be prohibited, if at least 50% but less than 100% of the compost is used on the agricultural land on which it was produced.
- ◆ SECTIONS 28 – 34 provide guidance and restrictions for residential use in the ALR, including secondary suites, additional residences, agri-tourism accommodation, and tourist accommodation.
- ◆ SECTION 35 describes conditions under which the removal and placement of fill on agricultural land may be permitted.
- ◆ SECTION 36 outlines the types of fill that are prohibited from being placed on agricultural land. These include construction or demolition waste (including rubble, concrete, cement, rebar, drywall, wood waste); asphalt; glass; synthetic polymers; treated wood; and unchipped lumber.

For more information see the following informational bulletins:

-  [IB-04 Cannabis Production in the ALR](#)
-  [IB-05 Residences in the ALR](#)
-  [IB-06 Accommodation for Tourists in the ALR](#)
-  [IB-07 Soil or Fill Uses in the ALR](#)
-  [Policy L-23: Placement of Fill for Soil Bound Agricultural Practices](#)



## Building Act

This Act was introduced in 2015 and replaced the *BC Building Regulation*. The act oversees residential building and plumbing through codes. These codes are largely based on the [National Codes of Canada](#), with a small proportion of variations that are specific to BC.

The act establishes the Province as the sole authority to set building requirements (that is, technical requirements for the construction, alteration, repair, and demolition of buildings) - the objective is to create more consistent building requirements across BC, while still providing local governments with flexibility to meet their needs. It establishes qualification requirements for building officials to improve consistency in how the [BC Building Code](#) is interpreted, applied, and enforced and supports local governments and other local authorities through the implementation of a provincial review process to evaluate innovative building proposals.

It applies in all parts of the Province except the City of Vancouver and federal lands and First Nations Reserves.

For more information consult the [BC Building Act Guide](#).



## Drinking Water Protection Act

This Act and Regulations have requirements regarding the protection of drinking water quality and regulate domestic water systems (those serving **more** than one single-family residence).

- ◆ SECTION 23(1): subject to subsection (3), a person must not (a) introduce anything or cause or allow anything to be introduced into a domestic water system, a drinking water source, a well recharge zone or an area adjacent to a drinking water source, or (b) do or cause any other thing to be done or to occur if this will result or is likely to result in a drinking water health hazard in relation to a domestic water system.



## Environmental Management Act

Under the *Hazardous Waste Regulation* waste oil cannot be applied to land for the purpose of dust suppression.

The *Code of Practice for Agricultural Environmental Management* requires persons to use environmentally responsible and sustainable agricultural practices when carrying out agricultural operations, for the purpose of minimizing the introduction of waste into the environment and preventing adverse impacts to the environment and human health. The AEM Code includes requirements for building setbacks from water sources and property boundaries in Part 4 of the AEM Code.



## Farm Practices Protection (Right to Farm) Act

This Act protects farmers from liability in lawsuits alleging nuisance associated with dust, odour, noise and other disturbances resulting from the farm operation when they meet certain regulatory conditions.



## Riparian Areas Protection Act

The *Riparian Areas Protection Act* creates the authority for government to enact Provincial directives to protect areas that border streams, lakes, and wetlands. The *Riparian Areas Regulation* (RAR) calls on local governments to protect riparian areas during residential, commercial, and industrial development by ensuring that a Qualified Environmental Professional (QEP) conducts a science-based assessment of proposed residential, commercial, and industrial activities in riparian areas.

With this Act, and through the *Riparian Areas Regulation*, local governments in certain regions of the Province are able to protect riparian areas during residential, commercial, and industrial development by ensuring that a Qualified Environmental Professional (QEP) conducts a science-based assessment of proposed activities. This includes residential buildings on land zoned for agricultural purposes. SECTION 12 provides Provincial directives on streamside protection.

The RAR only applies to the residential portion of the farm and only in the southern half of BC. The RAR does not apply to *farm practices* as defined in the *Farm Practices Protection Act*. In some cases, this can lead to the misunderstanding that the RAR does not apply to lands zoned for agriculture, or in the ALR. The RAR does apply to these lands for activities that are not *farm practices*, for example residential construction. It is important to note that local governments have the ability to establish bylaws that apply to agricultural lands, and some have implemented setbacks for agricultural buildings that complement the setbacks designated under RAR.



## Public Health Act

Administered by the Ministry of Health, this Act has a specific prohibition that “a person must not willingly cause a health hazard, or act in a manner that the person knows, or ought to know, will cause a health hazard.” This prohibition would apply to farm practices that may result in a health hazard, such as when nutrients, contaminants or pathogens are discharged to land, water or air so as to pose a public health problem. Any situation that entails a health hazard will enable health officers to investigate using their powers under the Act. Under the *Public Health Act*, the local Health Authority must investigate any health hazard and has authority to order that a person prevent or stop a health hazard, or mitigate the harm or prevent further harm from a health hazard amongst other powers. Similar regulatory provisions exist for addressing health hazards to drinking water supplies under the *Drinking Water Protection Act*.

*Health Hazard Regulation* regulates the distance of wells from possible source of contamination

- SECTION 8 (1) A person who installs a well, or who controls a well installed on or after July 20, 1917, must ensure that the well is located at least:
- (a) 30 m from any probable source of contamination;
  - (b) 6 m from any private dwelling, and;
  - (c) unless contamination of the well would be impossible because of the physical conformation, 120 m from any cemetery or dumping ground.
- (2) A person who controls a well installed before July 20, 1917, must:
- (a) remove any source of contamination within the distances set out in subsection (1), or
  - (b) subject to subsection (3), close the well in accordance with SECTION 6 of the Code of Practice under the *Ground Water Protection Regulation*, B.C. Reg. 299/2004.
- (3) Subsection (2) (b) does not apply to a well located within 6 m of a private dwelling unless it can be shown that the well should be abandoned for a reason other than proximity to a private dwelling.
- (4) A well that does not meet the requirements of this section is prescribed as a health hazard.

The *Sewerage System Regulation* SECTION 3.1(2) requires separation distances from wells to be at least:

- ◆ 15 m from a holding tank.
- ◆ 30 m from a sewerage system.



[Sewerage System Standard Practice Manual](#)



## Water Sustainability Act

*Water Sustainability Act* (WSA) is the principal law for managing the diversion and use of water in British Columbia. The WSA establishes that all water in *streams* and *groundwater* in British Columbia is owned by the Crown on behalf of the residents of the Province.

Under the WSA no person may divert water from a stream or from *groundwater* unless the person holds an authorization or the diversion and use of water is allowed by the Act or under a regulation. An authorization can take the form of a “use approval”, which allows for short term use of water for up to 24 months, or a water licence

which establishes a long term water right. Authorization holders have some responsibilities including the need to pay water fees and rentals and make beneficial use of the water they are authorized to divert, store and use.

In most cases any person who diverts water for use or storage must apply to the Province for the right to use the water and pay an annual rental fee for that use. The requirement for groundwater licensing for non-domestic (e.g., farm or business use) came into force on February 29, 2016 and applies to new groundwater users as well as those who began using groundwater prior to February 29, 2016.

- ◆ SECTION 6: Prohibits diverting water without a licence except in limited circumstances for fire suppression, domestic use and mineral prospecting.
- ◆ SECTION 11: Requires approvals for making changes in and about streams.

The *Water Sustainability Regulation* contains the rules for applications for licensing of surface and groundwater diversions and use, and for “changes in and about a stream.”



## Wildlife Act

The provincial *Wildlife Act* protects wildlife designated under the Act from direct harm, except as allowed by regulation (e.g., hunting or trapping), or under permit. Legal designations such as Endangered or Threatened under the Act increases the penalties for harming a species. The Act also enables the protection of habitat in a Critical Wildlife Management Area.

- ◆ SECTION 6: regulates endangered and threatened species.
- ◆ SECTION 7: makes it an offence to alter, destroy or damage wildlife habitat within a wildlife management area.
- ◆ SECTION 34: makes it an offence to possess, take injure, molest or destroy the nest of an eagle, peregrine falcon, osprey, heron or burrowing owl or the nest of any bird not mentioned above when the nest is occupied by the bird or its egg.



## Fisheries Act

Administered by both Fisheries and Oceans Canada and Environment and Climate Change Canada, this Act is established to manage Canada's fisheries resources, including fish habitat. The Act can also be administered provincially by FLNRORD and ENV. The Act applies to all Canadian waters that contain fish, including ditches, channelized streams, creeks, rivers, marshes, lakes, estuaries, coastal waters and marine offshore areas. It also applies to seasonally wetted areas that provide fish habitat such as shorelines, stream banks, floodplains, intermittent tributaries and privately owned land. The Act includes provisions for stiff fines and imprisonment to ensure compliance.

The purpose of this Act is to provide a framework for (a) the proper management and control of fisheries; and (b) the conservation and protection of fish and fish habitat, including by preventing pollution.

This Act was updated in 2019 and now empowers the Minister to make regulations for the purposes of the conservation and protection of biodiversity.

The definition of fish habitat is: “water frequented by fish and any other areas on which fish depend directly or indirectly to carry out their life processes, including spawning grounds and nursery, rearing, food supply and migration areas.” The quantity, timing and quality of the water flow that are necessary to sustain fish habitat are also deemed to be a fish habitat. Furthermore, serious harm to fish includes the death of fish or any permanent alteration to, or destruction of, fish habitat.

Provisions of the 2019 *Fisheries Act* relevant to agricultural operations include:

- ◆ Protection for all fish and fish habitats;
- ◆ Prohibition against the death of fish or the 'harmful alteration, disruption or destruction of fish habitat';
- ◆ A permitting framework and codes of practice to improve management of large and small projects impacting fish and fish habitat;
- ◆ Protection of fish and/or fish habitats that are sensitive, highly productive, rare or unique; and
- ◆ Consideration for the cumulative effects of development activities on fish and fish habitat.

Specific sections of the Act include:

SECTION 34.2(1) The Minister may establish standards and codes of practice for:

- (a) the avoidance of death to fish and harmful alteration, disruption or destruction of fish habitat;
- (b) the conservation and protection of fish or fish habitat; and
- (c) the prevention of pollution.

SECTION 34.4(1) No person shall carry on any work, undertaking or activity, other than fishing, that results in the death of fish.

SECTION 35 (1) No person shall carry on any work, undertaking or activity that results in the harmful alteration, disruption or destruction of fish habitat.

Every person who contravenes subsection 34.4(1) or 35(1) is guilty of an offence and liable.

Notifying authorities about serious harm to fish or deposit of a deleterious substance:

SECTION 38 (4.1) Every person shall without delay notify an inspector, a fishery officer, a fishery guardian or an authority prescribed by the regulations of a harmful alteration, disruption or destruction of fish habitat that is not authorized under this Act, or of a serious and imminent danger of such an occurrence, if the person at any material time:

- (a) owns or has the charge, management or control of the work, undertaking or activity that resulted in the occurrence or the danger of the occurrence; or
- (b) causes or contributes to the occurrence or the danger of the occurrence.

SECTION 38 (5) If there occurs a deposit of a deleterious substance in water frequented by fish that is not authorized under this Act, or if there is a serious and imminent danger of such an occurrence, and detriment to fish habitat or fish or to the use by humans of fish results or may reasonably be expected to result from the occurrence, then every person shall without delay notify an inspector, a fishery officer, a fishery guardian or an authority prescribed by the regulations.

SECTION 38 (7) As soon as feasible after the occurrence or after learning of the danger of the occurrence, the person shall provide an inspector, a fishery officer, a fishery guardian or an authority prescribed by the regulations with a written report on the occurrence or danger of the occurrence.

 [Complying with the Fisheries Act](#)

## **Species at Risk Act**

This Act has sections that protect listed species, their residence and critical habitat. It applies to federal lands, internal waters (i.e., all watercourses), territorial sea of Canada, and the air space above them.

The provisions of the *Species at Risk Act* (known as the 'safety net') could be invoked on BC crown and private lands using a federal order under the Act if provincial action is not sufficient to protect listed species.

## BUILDINGS AND ROADS BENEFICIAL MANAGEMENT PRACTICES

Comply with applicable buildings and roads related legislation, including the above, and where appropriate, implement the following beneficial management practices to protect the environment.

Many of the following practices can be used on existing buildings and roads and all practices should be considered with new construction. Good site planning and management of structures can significantly reduce environmental impacts and may also prevent neighbour disputes.

## Farm Building Siting

**Existing Building Sites.** Evaluate farm activities to ensure that pollution is not occurring, and to verify that Normal Farm Practices are being followed.

The *Farm Practices Protection Act* defines a normal farm practice as an activity “that is conducted by a farm business in a manner consistent with proper and accepted customs and standards as established and followed by similar farm businesses under similar circumstances.”

When assessing an existing site, the following factors should be considered:

- ◆ Potential for leachate generation and/or runoff from farm building sites.  
➔ see Runoff, **page 9-50**
- ◆ Proximity to sensitive areas (i.e. watercourses, habitat, domestic water sources, areas used for human activities).
- ◆ The implications of climate change (e.g. adapting to future impacts of increased frequency or size of flooding or runoff events).
- ◆ If farm infrastructure is vulnerable to wildfire risks, and if appropriate, use FireSmart practices to make farm building more defensible in the event of a fire.

**New Building Sites.** When selecting a new construction site, implement the following practices:

- ◆ For protection by the *Farm Practices Protection (Right to Farm) Act*, locate on land zoned for agriculture or in the Agricultural Land Reserve;
- ◆ Follow Normal Farm Practices;
- ◆ Locate buildings with probable sources of contamination at least 30 m from a well (*Health Hazards Regulation*), 30 m or more from a water intake used for domestic purposes (suggested);
- ◆ When locating buildings, consider the function of the building and the impact on neighbourings properties and land use;
- ◆ Understand the projected changes in flood risk with a changing climate and locate buildings with past and future water levels in mind;
- ◆ Consider risk of wildfire, and evaluate the potential benefits of building FireSmart buildings (see reference below);
- ◆ Locate buildings using setback identified in Part 4 of the *Code of Practice for Agricultural Environmental Management* or “standards” from watercourses as outlined in the following publications and in Categories 1-4 listed below;
- ◆ **Table 2.1** summarizes the setback distances for each facility Category;
- ◆ In cases where watercourse classification mapping is not available, or in unique situations where setback standards create undue hardship or non-conformance is apparent, consult a qualified environmental professional.

 [FireSmart Manual](#)

 [Agricultural Building Setbacks from Watercourses in Farming Areas](#)

 [Guide for Bylaw Development in Farming Areas](#)

 [Flood Construction Levels and Setbacks for Farm Building Situations](#)

**Natural streams** watercourses that have not been significantly altered by human activity and are predominantly in their natural state

**Channelized streams** permanent or relocated streams that have been dyked, diverted or straightened and carry drainage flows from headwaters or significant sources of groundwater. Reaches of channelized streams may be confined by roads and fences and in many cases can also meander through fields.

Man made channels that divert irrigation water from a stream but return overflow water back to a stream in a manner that allows fish access are classified as channelized streams.

**Constructed ditches** man made drainage channels that carry drainage water from one property but do not carry water from headwaters or significant sources of groundwater. Flows in agricultural constructed ditches may be year round and are not regulated. Constructed ditches may also deliver water for irrigation purposes.

**Constructed channels** man made drainage channels that carry drainage water from more than one property but do not carry water from headwaters or significant sources of groundwater. Flows in agricultural constructed channels may be year round and are not regulated. Constructed channels may also deliver water for irrigation purposes.

**Category 1** facilities are structures, buildings, constructed surfaces, or areas identified by the *Code of Practice for Agricultural Environmental Management* (AEM code) which are considered to pose a high risk for causing pollution. Category 1 facilities include solid agricultural waste field storages with greater than two weeks storage, confined livestock areas with greater than ten agricultural units, and seasonal feeding areas.

- ◆ Category 1 facilities must be set back 30 m from any watercourse

**Category 2** facilities are structures, buildings, constructed surfaces, or areas covered by the AEM Code and other regulations which are considered to pose a slightly lower risk for causing pollution than those in Category 1.

- ◆ Category 2 facilities include:
  - Agricultural by-product storage facilities (e.g., engineered manure pits);
  - Chemical, compost and wood residue storages;
  - On-farm soiless growing media production facilities;
  - Mushroom barns;
  - Temporary field storage, on-ground, under-pen storage;
  - Silos; incinerators; and
  - Petroleum storages.
- ◆ Category 2 facilities must be set back a minimum distance of 15 m from any watercourse

**Category 3** facilities are structures, buildings, constructed surfaces, or areas which are at a higher risk of discharging contaminants than Category 4 buildings, are not identified by the AEM Code. Examples of Category 3 facilities are livestock barns, brooder houses, fur farming sheds, livestock shelters and stables, hatcheries, and milking facilities.

- ◆ Category 3 facilities must be set back 15 m from natural and channelized streams and 5 m from constructed channels and constructed ditches, other than those maintained by municipalities, for which a 7 m setback is required.

**Category 4** facilities are structures, buildings, constructed surfaces, or areas for which a risk of discharging contaminants is not likely or can be easily contained. Examples of Category 4 facilities include greenhouses, machine storages, on-farm processing facilities, direct farm marketing facilities, crop storages, granaries, shelters, hives, machine and equipment storages, cideries, retention and detention ponds, and other impervious surfaces.

- ◆ Category 4 facilities must be setback 15 m from natural streams. For channelized streams, a minimum setback of 10 m up to a maximum of 15 m's required based on two times the channel width measured from the top of bank. A 5 m setback must be left adjacent to constructed channels and constructed ditches other than those maintained by municipalities, for which a 7 m setback is required. Take into account building setback standards as defined above, and implement the following practices when constructing a new building.
- ◆ Locate on a sufficiently large land base to meet setback distances of facilities from property boundaries and consider providing room for expansion.
- ◆ Provide sufficient separation distance from neighbours for dispersion of odour, dust and noise.
- ◆ Favour sites that provide protection from wind by using windbreaks or by taking advantage of terrain
- ◆ Where protection is inadequate, favour sites where improvements can be made by planting windbreaks or constructing screens (these will also reduce noise, odour, and visual impacts an operation may have on adjacent property or occupants; windbreaks also reduce energy loss from buildings and store carbon to help offset climate change).

In areas with higher risks of wildfire, consider leaving a 10 m buffer free of highly combustible vegetation around farm infrastructure.

➔ see Buffers, **page 11-4**

- ◆ Locate structures (buildings, wind break fences, etc.) relative to one another to account for wind-drifted snow.
- ◆ Allow for 'swirl chamber' effects to deposit snow in out-of-the way locations.
- ◆ make long-term plans so that future expansions do not interfere with effective waste cleanup and contaminated runoff control.
- ◆ Comply with local government bylaws and special management areas, if applicable.
- ◆ Locate on an adequately drained site, avoiding areas defined by a suggested one-in-100 year flood recurrence interval.
- ◆ Detain clean runoff from yards, buildings and roads such that peak flow to receiving watercourses is not increased over predevelopment levels.
- ◆ Site farm buildings such as livestock, nursery beds, greenhouses, or storages downslope from wells.
- ◆ Position high-activity buildings and work areas away from neighbouring residences to minimize sight and sound impacts.
- ◆ Avoid sensitive fish and wildlife habitat (e.g., bird nesting, riparian areas, wetlands).

 [Farmstead Planning Canada](#)

 [Plan Farm Buildings as a System](#)

 [Siting and Management of Poultry Barns](#)

 [Siting and Management of Dairy Barns and Operations](#)

 [Agricultural Setbacks from Watercourses in Farming Areas](#)

**TABLE 2.1 Building and Facilities Setbacks from Watercourses for Riparian Protection and Drinking Water Protection in Farming Areas <sup>★ 1 a f</sup>**

Watercourse Type	Category 1	Category 2	Category 3	Category 4
	<ul style="list-style-type: none"> <li>• Confined Livestock Area more than 10 agricultural units <sup>d</sup></li> <li>• Temporary field Storage with greater than 2 weeks storage time</li> <li>• Outdoor agricultural composting</li> <li>• Seasonal feeding (on ground or mobile bins)</li> <li>• Mortalities or processing waste –outdoor composting pile or burial pit</li> </ul>	<ul style="list-style-type: none"> <li>• Confined livestock area less than 10 agricultural units <sup>ldg</sup></li> <li>• Wood residue storage or Use <sup>l</sup></li> <li>• Agricultural By-product Permanent Storage Structure <sup>l</sup></li> <li>• On-ground under pen storage or temporary field storage of less than 2 weeks of by-products <sup>l</sup></li> <li>• Composting structure <sup>l</sup> (agricultural by-products, mortalities or processing waste)</li> <li>• Incinerator <sup>lh</sup> (mortalities, solids and semi-solids)</li> <li>• Mushroom barn</li> <li>• On-farm soilless medium production and storage</li> <li>• Silo</li> <li>• Petroleum Storage</li> <li>• Chemical storage (Pesticides and Fertilizer)</li> </ul>	<ul style="list-style-type: none"> <li>• Brooder house</li> <li>• Hatchery</li> <li>• Fur farming shed</li> <li>• Livestock barn</li> <li>• Livestock Shelter</li> <li>• Milking facility</li> <li>• Stable</li> </ul>	<ul style="list-style-type: none"> <li>• Boiler Room</li> <li>• Cidery</li> <li>• Cold Frame</li> <li>• Crop Storage</li> <li>• Detention Pond</li> <li>• Direct Farm Marketing</li> <li>• Granary</li> <li>• Greenhouse</li> <li>• Machinery Storage</li> <li>• On-Farm Processing</li> <li>• On-Farm Product Preparation</li> <li>• Retention Pond</li> <li>• Impervious Surfaces</li> </ul>
Natural Streams Setbacks	30 m	15 m	15 m	15 m
Channelized Streams Setbacks	30 m	15 m	15 m	Twice channel width <sup>b</sup> Minimum of 10 m Maximum 15 m
Constructed Channels and Ditches Setbacks	30 m	15 m	5 m <sup>c</sup>	5 m <sup>c</sup>
Setback to Drinking Water Source	30 m	30 m	30 m	15m <sup>i</sup>

**Notes**

\* Property safety and risk management concerns may require larger setbacks in some instances and will then override the setback standards shown here.

<sup>!</sup> Building and facilities have setbacks identified in the Code of Practice for Agricultural Environmental Management

<sup>a</sup> Setback distances are measured from the top of bank.

<sup>b</sup> Channel width is determined from the top of bank to top of bank.

<sup>c</sup> The minimum building setback distance from a constructed channel or constructed ditch which a municipality is responsible for maintaining is 7 metres.

<sup>d</sup> One agriculture unit is equal to the live weight of 455 kg (1000 lbs) of livestock, poultry or farmed game or any combination equaling this weight.

<sup>e</sup> There is no differentiation between constructed channels and constructed ditches for the purposes of building setbacks, only for drainage maintenance purposes.

<sup>f</sup> The recommended setback from a domestic water intake for all agricultural buildings is 30 m.

<sup>g</sup> The Code of Practice for Agricultural Environmental Management requirement is 5m setback, recommended setback is 15m.

<sup>h</sup> The setback from domestic water for incinerator is 15m.

<sup>i</sup> Probable source of contamination then the separation increases to 30m.

## Farm Building Construction

Whether for livestock or storage purposes, good construction ensures both effective use and low environmental impact from farm structures. Although updating has been discontinued, farm building plans are available at the Ministry of Agriculture, Food and Fisheries office. **Figure 2.1** shows a typical barn wall with environmentally sound construction. For siting, sanitation and waste handling, construct all agricultural buildings using the following beneficial practices:

- ◆ Use the most up-to-date building designs capable of withstanding severe wind events.
- ◆ If using off-farm wastes for fill material, ensure that they do not pollute.
- ◆ Use building layouts that allow for effective and efficient cleanup.
- ◆ For storage buildings containing hazardous materials, ensure that impervious surfaces and continuous sills, even under doorways, are incorporated in construction for containment.
- ◆ Consider dry flood-proofing buildings to create a water-tight structure for storing higher risk materials.
- ◆ Collect and manage roof water when more than a suggested 10% of the site is roofed to avoid significant stormwater flow changes caused by impervious roofing.
- ◆ In high rainfall areas, incorporate eavestroughs to divert roof drainage.
- ◆ Divert drainage away from buildings (requires perimeter drainage), watercourses and wells, and sources of contamination (e.g., manure, compost piles).
- ◆ Install pumping systems to remove water from buildings prone to flood or stormwater inundation.
- ◆ Install gravel splash pads at the base of walls to control roof water erosion.
- ◆ If buildings have galvanized metal roofing, ensure the roof water (which could contain zinc levels toxic to fish) is directed away from watercourses.
- ◆ Have the roof water infiltrate the soil to allow the soil to tie up the zinc.
- ◆ Ensure that separate drainage systems are not cross-connected during construction.
- ◆ Install back-flow prevention devices on all water supply lines used for medicated livestock watering, mixing pesticides, fertilizers or potentially harmful cleaning products.
- ◆ Extend concrete foundation walls at least 300 mm (suggested) above grade line to discourage rodents and water from entering buildings.
- ◆ Insulate the roof and perimeter walls of all heated or cooled buildings, apply an appropriate vapour barrier and seal all window, door and other openings to minimize energy loss.
- ◆ Keep buildings and heating, cooling and ventilation systems in proper repair.

 [Farm Building Structures Factsheet](#)

 [Canadian Farm Buildings Handbook \(1988\)](#)

 [Placement of Fill or Removal of Soil: Construction of a Single Family Residence](#)

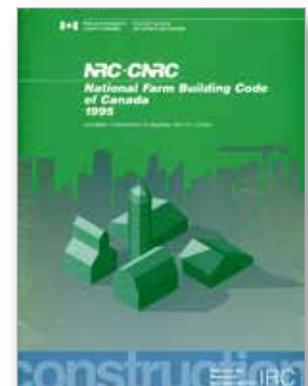
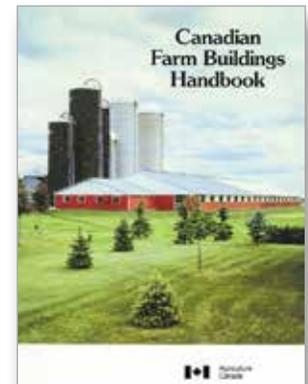
 [Placement of Fill for Soil-Bound Agricultural Activities](#)

 [National Farm Building Code of Canada \(1995\) \(This is only available in hard copy by order\)](#)

Note: The farm building requirements related to fire protection, structural design and dangerous goods are being discussed for publication in the 2020 editions of the *National Building Code* and *National Fire Code*. The fire and structural requirements in the *National Farm Building Code* have not been reviewed or revised since the 1995 edition and are increasingly in conflict with the latest edition of the Codes.

 [FireSmartCanada Resources Library](#)

 [Extreme Weather Event Preparedness and Mitigation \(Cowichan Valley Pilot Project Lessons for all BC Regions\)](#)



**Building Drains.** Buildings are often fitted with perimeter drains and downspouts to divert clean roof water away from the foundation. If a layout contains drains that collect contaminated water (e.g., manure), test that the drains are not cross connected (put an 'ENV-approved dye' such as a water fluorescein into the contaminated drains and check that it does not exit at a clean water outlet).

**Building Ventilation.** Ventilation systems remove dust, gases and odours from buildings. In buildings where dust and odour levels are high, hoods on sidewall exhaust fans direct discharges downward toward the ground. The use of chimney fans may also be beneficial. Install hoods, protective flaps or louvers on ventilation ports to prevent the entry of rain and snow, reduce energy loss from buildings, as well as to ensure predictable exhaust rates. Vegetative filters intercept odour and dust laden exhaust when they are placed around buildings or near discharge points. Extreme heat waves can be hard on livestock housed in barns; proper ventilation plays a critical role in preventing livestock heat stress that may result from extreme weather patterns. Proper ventilation has added importance for preventing livestock heat stress resulting from climate change.

- see Indoor Poultry and Livestock Housing, **page 3-2**, and refer to Vegetative Filters,
- see Buffers, **page 11-4**

-  [Ventilation of Agricultural Systems website](#)
-  [Agricultural Building Ventilation Systems](#)
-  [Minimizing the Chances of Ventilation Disasters](#)
-  [Ventilation of the Milking Complex](#)
-  [Housing for Healthier Calves](#)
-  [Potato Storage Ventilation](#)
-  [Ventilation Best Practices Handbook](#)
-  [Management of Confined Spaces in Agriculture - WorkSafeBC](#)

**Leachate.** Some buildings will have products stored or used that could be leached to groundwater.

- see Leachate, **page 9-58**

**Water Supply.** Some buildings will require water to be supplied to them.

- see Water Supply, **page 9-5**

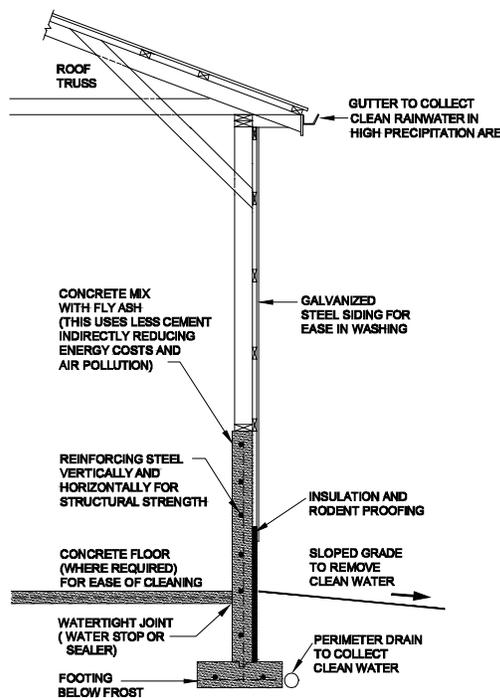


FIGURE 2.1 Environmentally Sound Building Construction

## Farm Roads

Farm roads to buildings or fields may affect the natural water flow from fields and surrounding areas thereby negatively impacting nearby watercourses. Implement the following practices to minimize the impact of roads to watercourses:

- ◆ Locate culverts to allow for controlled drainage of runoff to reduce erosion (the risk of concentrated water flow causing soil erosion increases as the slope and length of a road increases).
- ◆ Consider the potential for changes in runoff and flooding with climate change when locating farm roads.
- ◆ Construct roads to follow contours - the risk of soil erosion increases when roads are constructed along a slope rather than across a slope except for short lengths, grades should not exceed 10 percent (suggested) i.e., 1 m fall for 10 m of road length. Steeper grades may require water bars or frequent culvert installations.
- ◆ Transport materials such as manure and pesticides well back from watercourses in case accidental spills occur.
- ◆ Plan the farm so that an egress (secondary access or exit) is integrated into the site.
- ◆ Ensure that farm access points are accessible to emergency vehicles by designing driveways that are wide enough and not encumbered by overhanging structures or vegetation.
- ◆ Have all weather roads so emergency vehicles can access farm buildings.
- ◆ Construct permanent farm roads with compacted, well-drained gravel or other suitable material.
- ◆ Consider the use of pervious surfacing to minimize surface runoff.
- ◆ Keep hard-surface areas to a minimum to reduce surface runoff.
- ◆ Limit wood residue use on roads.  
→ see Wood Residue, **page 2-40**
- ◆ If using off-farm wastes for road construction ensure they are acceptable and do not pollute (for example the use of broken concrete or ground asphalt would be acceptable). For more information see your local government soil fill and removal bylaw.
- ◆ Locate and elevate road beds, when appropriate, to function as berms and flood protection barriers.
- ◆ Use dust suppression agents such as water and wetting agents, calcium chloride or lignosulfonates.
- ◆ Used or waste oil is not allowed to be used as a dust suppressant.

### REPORTING REQUIREMENT

Under the ***Spill Reporting Regulation***, chemical spills must be reported **immediately** to the Provincial Emergency Program (EMP) at **1-800-663-3456** (24hr service) if they exceed the amounts set forth in the Spill Reporting Regulation Factsheet:

[https://www2.gov.bc.ca/assets/gov/environment/air-land-water/spills-and-environmental-emergencies/docs/materials/fact\\_sheet\\_spill\\_reporting.pdf](https://www2.gov.bc.ca/assets/gov/environment/air-land-water/spills-and-environmental-emergencies/docs/materials/fact_sheet_spill_reporting.pdf)

## Buildings and Roads Near Water

Farm buildings and roads, and the management of water can have impacts on surface water and groundwater if not managed properly.

**Adjacent Watercourses.** Watercourses and water used for domestic purposes are protected under various environmental laws.

- ◆ Site and construct farm buildings and roads so as not to negatively impact fish and wildlife habitat, and water quality and quantity.
  - ◆ Select areas that reduce or avoid the risk of water contamination by using sufficient setbacks, buffers, or berms.
  - ◆ Do not allow runoff that contains manure, fertilizer, pesticide, soil or salts used as dust suppressing agents that is harmful to fisheries resource to enter a watercourse.
- see Farm Building Siting, **page 2-8**
- see Buffers, **page 11-4**
- see Changes In and About a Stream, **page 7-17**
- and see Runoff, **page 9-50**

**Runoff.** Runoff is the overland flow of water (also known as stormwater) from rainfall, melting snow and ice, or excess irrigation. Wells and groundwater can become contaminated either by direct entry of runoff into the well or by entry along the well casing. Control and collect all runoff that becomes contaminated on the farm. Runoff should also be prevented from running into potential sources of contamination (e.g., manure storages, compost piles, stored silage, feed bunkers, confined livestock areas) that could form leachate, or pick up nutrients and then runoff into watercourses. Link runoff water storage to irrigation or stock water systems to make beneficial use of surplus water with more unpredictable precipitation patterns.

Land covered by farm structures (e.g., barns, greenhouses) or impermeable surfaces (e.g., roads, yards) reduces the capability of a site to allow precipitation to infiltrate. This results in increased water leaving the farm through drainage systems (surface channels, tiles and ditches) during peak rainfall periods. This increased peak flow has the potential to cause flooding and erosion leading to the discharge of unacceptable levels of suspended solids.

→ see Runoff, **page 9-50**

**Groundwater.** Determine soil permeability and groundwater levels at construction sites. Environmental problems can be avoided by selecting a site with permeability characteristics suitable for controlling leaching into groundwater.

→ see Leachate, **page 9-57**

Wells provide a pathway for contaminants to groundwater either by direct entry, or by entry from outside the well along the well casing.

→ see Water Supply, **page 9-5**

## Stream Crossings

Be sure to refer to the *Water Sustainability Act* to determine if the work being undertaken requires a “notification” or a “change approval” under the Act.

 [Water Licences and Approvals BC](#)

 [Changes in and About a Stream: \(FrontCounterBC Application Portal\)](#)

Whenever a stream crossing is constructed or used for vehicles or livestock, it must not negatively impact fish, fish habitat, or other wildlife.

Implement the following practices for stream crossings:

- ◆ Before construction seek either a 'notification' or 'approval' from the Ministry of Forests, Lands, Natural Resource Operations & Rural Development (FLNRORD).
- ◆ Be at a right angle to stream flow and at the narrowest section possible.
- ◆ Have stream culverts sized to allow for safe fish passage and to carry anticipated 100 year peak flow at a minimum (suggested) and integrate climate change projections into stream culvert sizing decisions (encouraged).
- ◆ Not damage fish habitat nor create blockages for fish passage (e.g., clear-span bridges are more "fish-friendly" than culverts).
- ◆ The following best management practices are required for instream or bed-level crossings:
  - before construction seek the appropriate 'notification' or 'approval' from FLNRORD;
  - not restrict water flow and allow unrestricted fish passage;
  - prevent and control sediment discharge into the stream;
  - be managed to discourage livestock loitering in or near watercourses;
  - if water quality is impacted by vehicle or livestock crossing, install a hard surface (such as adding gravel or concrete to a silty stream bottom).

➔ see **Changes In and About a Stream, page 7-17**

 [Changes in and About a Stream: FrontCounterBC application site](#)

 [Bridge Construction \(as it relates to constructed ditches\)](#)

 [Culvert Installation in Constructed Ditches](#)

## Land Clearing and Development

Land clearing and development has the potential to alter the quality and quantity of surface and groundwater flows, quality of air, and fish and wildlife habitat. Clearing land can also significantly reduce the carbon-storage potential and increase greenhouse gas emissions.

Care should be taken to plan any land clearing or development to minimize disruption of natural processes. Once disrupted, these important processes and habitats are difficult, expensive and often impossible to restore. In the Farm Bylaws regulated communities of the City of Kelowna, City of Abbotsford, Township of Langley, and Corporation of Delta, additional farm-side vegetative buffers may be required.

➔ see **Chapter 7, Biodiversity**

 [Guide to Edge Planning](#)

Monitor and document impacts to help assess the need for change. Consider using alternative production systems, such as agroforestry, that can retain some of the natural features of undeveloped land.

➔ see **Chapter 7, Biodiversity**

➔ see **Chapter 9, Water**

➔ see **Chapter 10, Air**

➔ see **Chapter 11, Stewardship Areas**

➔ see **Chapter 12, Climate Change**

 [Landscaped Buffer Specifications](#)

Before undergoing land clearing and development proactively, confirm presence of listed species through the Conservation Data Center. Recovery action plans, critical habitat designations and suggested beneficial management practices have been developed for each species and if you have listed species present, you will need to undertake appropriate mitigation.

In the case where there are Species at Risk on the farm property, care must be taken to ensure that farm development and activities are done with appropriate mitigation for that species.

Information on listed species is available through:

-  [Conservation Data Centre](#)
-  [BC Ecosystems Explorer](#)
-  [EFP Biodiversity Guide](#)
-  [Riparian Area Management Field Workbook](#)
- ➔ See **Chapter 7: Biodiversity**

## Adjacent Land Development

Neighbouring land uses may have a negative impact on agricultural operations. Incompatible uses may include both industrial and residential development. Select new farm production sites with such influences in mind. On existing sites, scheduling activities, such as manure spreading, to avoid times when outdoor recreational activities are occurring will minimize neighbourhood disputes. On occasions where timing conflicts cannot be avoided, open communication often helps to improve understanding and acceptance.

-  [Guide to Edge Planning](#)
-  [Farm Practices in BC website](#)

## Odour Considerations

Odour emissions from intensive production facilities (e.g. livestock or mushroom) may have a negative impact if they are sited near populated or sensitive areas. When designing and siting production facilities it is important to consider the following when predicting the frequency and intensity of odours on surrounding areas and neighbours:

- ◆ site specific climate conditions (temperature, moisture, humidity, wind speed, wind direction, etc.);
- ◆ topography of the site;
- ◆ management practices (manure storage and agitation practices, dust management and manure spreading technologies);
- ◆ the potential of contaminants associated with odours to contaminate watercourses or impact neighbouring properties;
- ◆ the use of odour reducing tools (i.e., windbreaks, vegetative buffers, biofilters and bioscrubbers).

➔ See Odour, **page 10-17**

## Treated Wood Products

Treated wood is often used to prevent infestation by pests and to slow decay. Properly applied and cured water-based preservatives, such as chromated copper arsenic, do not present a significant leaching problem. Oil-based preservatives, such as creosote, leach out of wood more readily and may cause problems. Wood posts treated with registered preservatives are not considered "hazardous waste" under the *Hazardous Waste Regulation* of the *Environmental Management Act*. For treated wood disposal.

→ see Farm Refuse Disposal, **page 2-23**

The pollution potential posed by treating wood or by using treated material can be minimized by implementing the following practices:

- ◆ Avoid erecting posts in watercourses.
- ◆ Use old treated materials near watercourses – freshly treated materials are more likely to leach.
- ◆ If wood is to be treated on the farm, ensure that mixing, treatment, and application sites are located far from watercourses and not susceptible to spills, leaching or runoff.

## Abandoned Farm Sites and Farmland

Both the building sites and associated fields on farms that are no longer maintained, taken out of production or abandoned, can become an environmental concern. Implement the following practices:

- ◆ Cap abandoned water wells.
- ◆ Ensure adequate control measures are in place to prevent pests and weeds from multiplying and affecting neighbouring farms.
- ◆ Remove feed sources to avoid attracting wildlife and rodents.
- ◆ Clean up all products that may cause pollution.
- ◆ Fence off abandoned storages to avoid safety hazards.
- ◆ Empty manure and fuel storage facilities.
- ◆ Decommission manure storage facilities.
- ◆ Minimize the threat of invasive species and noxious weeds.
- ◆ Properly dispose of pesticides and fertilizers.

→ see Pesticide and Pesticide Container Disposal, **page 5-29**

# FARM WASTE



This section discusses wastes generated on the farm but not addressed by the *Code of Practice for Agricultural Environmental Management*. This includes onsite sewage wastes and refuse but not manure, crop residues or mushroom media.

## FARM WASTE ENVIRONMENTAL CONCERNS

Primary environmental concerns related to farm wastes are:

- ◆ septic absorption field failure that results in pollution of water;
- ◆ materials and leachate released from on-farm refuse disposal sites that results in air or water pollution, or in attraction of wildlife;
- ◆ carcass disposal.

For information on these concerns:

- ➔ see Impacts on Biodiversity and Habitat, **page 7-7**, refer to Impacts of Agriculture on Biodiversity and Habitat
- ➔ see Soil Quality Factors, **page 8-1**, refer to Contaminants
- ➔ see Water Quality and Quantity Factors, **page 9-1**, refer to Contaminants, and to Solids
- ➔ see Mortality Disposal, **page 3-49**

## FARM WASTE LEGISLATION

The following is a brief outline of the main legislation that applies to farm wastes.

- ➔ see **page A-1** for a summary of these and other Acts and Regulations



### Agricultural Land Commission Act

The *Agricultural Land Commission (ALC) Act* S.B.C. 2002, c. 36, and *Agricultural Land Reserve (ALR) Regulations* are the legislative framework for the establishment, administration, and procedures of BC's agricultural land preservation program. The ALC Act takes precedence over, but does not replace other legislation and bylaws that may apply to the land. Local and regional governments, as well as other provincial agencies, are expected to plan in accordance with the provincial policy of preserving agricultural land.

The *ALR Use Regulation*, B.C. Reg. 30/2019 specifies designated land uses permitted in the ALR. These include:

- ◆ SECTION 7: The use of agricultural land for storing and applying biosolids and soil amendments, other than compost

The use of agricultural land for producing, storing and applying compost if, in the case of:

- (a) Compost classified as Class A compost under the *Organic Matter Recycling Regulation*, all of the compost produced, stored and applied is used on the agricultural land on which it was produced, or
- (b) Any other compost, the compost is from agricultural by-products that were produced for a farm use.

SECTION 27 describes permitted non-farm uses that may be prohibited by local governments. This includes:

- (4) Producing, storing and applying compost classified as Class A compost under the *Organic Matter Recycling Regulation* is permitted, but may be prohibited, if at least 50% but less than 100% of the compost is used on the agricultural land on which it was produced.

SECTION 36 outlines the types of fill that are prohibited from being placed on agricultural land. These include construction or demolition waste (including rubble, concrete, cement, rebar, drywall, wood waste); asphalt; glass; synthetic polymers; treated wood; and unchipped lumber.

For more information see the following informational bulletins:

 [IB-07 Soil or Fill Uses in the ALR](#)



## Drinking Water Protection Act

This Act and Regulations have requirements regarding the protection of drinking water quality and regulate domestic water systems (those serving **more** than one single-family residence).

- ◆ SECTION 23(1): subject to subsection (3), a person must not (a) introduce anything or cause or allow anything to be introduced into a domestic water system, a drinking water source, a well recharge zone or an area adjacent to a drinking water source, or (b) do or cause any other thing to be done or to occur if this will result or is likely to result in a drinking water health hazard in relation to a domestic water system.



## Environmental Management Act

This Act regulates all wastes disposed from farm and farm house operations.

- ◆ SECTIONS 14 AND 15: allow for the authorization of waste discharges, including household and other general refuse, to a site, such as an approved landfill.

The *Code of Practice for Agricultural Environmental Management* requires persons to use environmentally responsible and sustainable agricultural practices when carrying out agricultural operations, for the purpose of minimizing the introduction of waste into the environment and preventing adverse impacts to the environment and human health. The AEM Code includes requirements for building setbacks from water sources and property boundaries.

The AEM Code defines agricultural by-products as manure, soiled animal bedding, spoiled feed or silage, vegetative debris, composting process products, mushroom-growing substrate, and soilless media. The AEM Code also covers carcass disposal, semi-solid waste, solid waste, wastewater, and processing waste.

The *Hazardous Waste Regulation*, the *Waste Discharge Regulation* and the *Open Burning Smoke Control Regulation* have disposal provisions for specific wastes.



## Public Health Act

Administered by the Ministry of Health, this Act has a specific prohibition that “a person must not willingly cause a health hazard, or act in a manner that the person knows, or ought to know, will cause a health hazard”. This prohibition would apply to farm practices that may result in a health hazard, such as when nutrients, contaminants or pathogens are discharged to land, water or air to pose a public health problem.

Any situation that entails a health hazard will enable health officers to investigate using their powers under the Act. Under the *Public Health Act*, the local Health Authority must investigate any health hazard and has authority to order that a person prevent or stop a health hazard, or mitigate the harm or prevent further harm from a health hazard amongst other powers. Similar regulatory provisions exist for addressing health hazards to drinking water supplies under the *Drinking Water Protection Act*.

*Health Hazard Regulation* regulates the distance of wells from possible source of contamination

- SECTION 8 (1) A person who installs a well, or who controls a well installed on or after July 20, 1917, must ensure that the well is located at least:
- (a) 30 m from any probable source of contamination,
  - (b) 6 m from any private dwelling, and
  - (c) Unless contamination of the well would be impossible because of the physical conformation, 120 m from any cemetery or dumping ground.
- (2) A person who controls a well installed before July 20, 1917, must:
- (a) Remove any source of contamination within the distances set out in subsection (1), or
  - (b) Subject to subsection (3), close the well in accordance with SECTION 6 of the *Code of Practice under the Ground Water Protection Regulation*, B.C. Reg. 299/2004.
- (3) Subsection (2) (b) does not apply to a well located within 6 m of a private dwelling unless it can be shown that the well should be abandoned for a reason other than proximity to a private dwelling.
- (4) A well that does not meet the requirements of this section is prescribed as a health hazard.
- ◆ *The Sewerage System Regulation* SECTION 3.1(2) requires separations distances (as defined in the [Sewerage System Standard Practice Manual](#)) from wells to be at least:
    - 15 m from a holding tank,
    - 30 m from a sewerage system.

## Fisheries Act

Administered by both Fisheries and Oceans Canada and Environment and Climate Change Canada, this Act is established to manage Canada's fisheries resources, including fish habitat. The Act can also be administered provincially by FLNRORD and ENV. The Act applies to all Canadian waters that contain fish, including ditches, channelized streams, creeks, rivers, marshes, lakes, estuaries, coastal waters and marine offshore areas. It also applies to seasonally wetted areas that provide fish habitat such as shorelines, stream banks, floodplains, intermittent tributaries and privately owned land. The Act includes provisions for stiff fines and imprisonment to ensure compliance.

The purpose of this Act is to provide a framework for (a) the proper management and control of fisheries; and (b) the conservation and protection of fish and fish habitat, including by preventing pollution.

This Act was updated in 2019 and now empowers the Minister to make regulations for the purposes of the conservation and protection of biodiversity.

The definition of fish habitat is: "water frequented by fish and any other areas on which fish depend directly or indirectly to carry out their life processes, including spawning grounds and nursery, rearing, food supply and migration areas". The quantity, timing and quality of the water flow that are necessary to sustain fish habitat are also deemed to be a fish habitat. Furthermore, serious harm to fish includes the death of fish or any permanent alteration to, or destruction of, fish habitat.

Provisions of the *2019 Fisheries Act* relevant to agricultural operations include:

- ◆ Protection for all fish and fish habitats;
- ◆ Prohibition against the death of fish or the 'harmful alteration, disruption or destruction of fish habitat';
- ◆ A permitting framework and codes of practice to improve management of large and small projects impacting fish and fish habitat;
- ◆ Protection of fish and/or fish habitats that are sensitive, highly productive, rare or unique; and
- ◆ Consideration for the cumulative effects of development activities on fish and fish habitat.

Specific sections of the Act include:

SECTION 34.2(1) The Minister may establish standards and codes of practice for:

- (a) the avoidance of death to fish and harmful alteration, disruption or destruction of fish habitat;
- (b) the conservation and protection of fish or fish habitat; and
- (c) the prevention of pollution.

SECTION 34.4(1) No person shall carry on any work, undertaking or activity, other than fishing, that results in the death of fish.

SECTION 35 (1) No person shall carry on any work, undertaking or activity that results in the harmful alteration, disruption or destruction of fish habitat.

Every person who contravenes subsection 34.4(1) or 35(1) is guilty of an offence and liable

Notifying authorities about serious harm to fish or deposit of a deleterious substance:

SECTION 38 (4.1) Every person shall without delay notify an inspector, a fishery officer, a fishery guardian or an authority prescribed by the regulations of a harmful alteration, disruption or destruction of fish habitat that is not authorized under this Act, or of a serious and imminent danger of such an occurrence, if the person at any material time:

- (a) Owns or has the charge, management or control of the work, undertaking or activity that resulted in the occurrence or the danger of the occurrence; or
- (b) Causes or contributes to the occurrence or the danger of the occurrence.

SECTION 38 (5) If there occurs a deposit of a deleterious substance in water frequented by fish that is not authorized under this Act, or if there is a serious and imminent danger of such an occurrence, and detriment to fish habitat or fish or to the use by humans of fish results or may reasonably be expected to result from the occurrence, then every person shall without delay notify an inspector, a fishery officer, a fishery guardian or an authority prescribed by the regulations.

SECTION 38 (7) As soon as feasible after the occurrence or after learning of the danger of the occurrence, the person shall provide an inspector, a fishery officer, a fishery guardian or an authority prescribed by the regulations with a written report on the occurrence or danger of the occurrence.

## FARM WASTE BENEFICIAL MANAGEMENT PRACTICES

Comply with applicable farm waste related legislation, including the above, and where appropriate, implement the following beneficial management practices to protect the environment.

### Farm Sewerage Systems

**Siting and Construction.** Construction of domestic sewerage systems from farm residences, barns and other structures are regulated by the Ministry of Health including septic tanks, adsorption fields and residential lagoon systems. All new and existing systems must function so as not to create a health hazard. Registered Onsite Wastewater Practitioners must be consulted if repairs or new construction are anticipated.

Separation from wells must be at least:

- ◆ 15 m from a holding tank (*Public Health Act*)
- ◆ 30 m from a sewerage system (*Public Health Act*)

**Maintenance.** Efficient operation of the disposal system depends primarily on maintenance of the septic tank. Periodically remove solids that accumulate in the tank to prevent them from reaching the field and causing system failure. Owners are required to maintain sewerage systems (including solids removal from the tank) according to maintenance plans as determined by a qualified professional.

 [Septic Savvy: How to care for your Residential Septic System](#)

 [Sewerage System Standard Practice Manual](#)

**Outhouses.** If in building toilets are impractical, portable toilets or outhouses can be used. These types of toilets are commonly used for harvest and field workers. Toilets need to be located and maintained (clean, supplied with paper towel, toilet paper and soap) so that their use is encouraged and field urinating and defecating is discouraged. Outhouses or pit toilets can cause an environmental or health hazard if improperly constructed or sited. Check with the local health authority to determine what standards or guidelines for outhouses exist in the region.

**Wastewater.** Waste wash and fuming water generated from rinsing produce, cleaning, handwashing etc. contain pathogens and need to be collected in a way to control the spread of contamination into ground or surface water. Direct discharge of waste water on the ground is to be avoided.

## Farm Refuse Disposal Sites

Implement the following practices for approved on-farm disposal sites:

- ◆ **Do not** locate the site:
  - On sandy or gravelly soils or in gullies;
  - In areas of high groundwater or on a flood plain.
- ◆ **Do** locate the site:
  - At least 120 m from any well (*Health Hazards Regulation*) and down slope of any well;
  - 30 m or more (suggested) from any watercourse.
- ◆ **Do** manage the site to:
  - Protect watercourses and groundwater;
  - Avoid wildlife attraction and wind dispersal (bury and cover wastes) avoid burying organic materials; organic decomposition can release methane, a powerful greenhouse gas;
  - Separate livestock mortalities (use a different site).
- ◆ Record locations, amount, and type of material in on-farm disposal sites.

## Farm Refuse Disposal

**Material Disposal.** When purchasing, consider products that contribute to a lower impact on the environment during production, packaging, marketing and shipping. Also consider products that can be reused or recycled.

When disposing of farm waste, use permitted landfills or where they are available, waste disposal services. Untreated wood products may be reused or burnt; paint can be returned to a Product Care Depot.

 <http://www.productcare.org/>

**Plastics Disposal.** Plastic wastes are not exempted by the *Code of Practice for Agricultural Environmental Management*, and disposal practices must therefore comply with the *Environmental Management Act*. Wherever possible, reuse or return all waste plastics to depots for recycling. The Recycling Council of BC has a hotline to answer questions about recycling in BC 1-800-667-4321. Properly dispose of plastics that have contained or contacted toxic materials. → see Pesticide Container Disposal, **page 5-29**

Implement the following practices for waste plastics:

- ◆ Reuse plastics where possible:
    - Reuse plant pots and bedding containers (thoroughly clean and disinfect to avoid plant disease transfer);
    - Replace non-recyclable or difficult to remove plastic products such as plant clips and twine with biodegradable materials;
    - Use refillable containers;
    - Clean and reuse waste sheet plastic for other purposes, such as coverings.
  - ◆ Recycle plastics where possible:
    - Grind up waste polystyrene for use as a potting soil amendment;
    - Separate plastic products from plant debris and clean before recycling or taking to an approved landfill;
    - Use a roller or baler to compress waste plastics into smaller volumes for easier handling;
    - Encourage suppliers to accept the return of waste plastics.
  - ◆ If recycling or reusing plastics is not an option:
    - Do not burn on-farm due to the release of hazardous gasses.
- ➔ see Open Burning, **page 10-5**
- **Do not bury plastics on farm property.**
  - An alternative disposal method is to use an approved landfill.

**Treated Wood Disposal.** Implement the following practices for disposal of treated wood material, such as pallets, boards, or posts (note that waste wood products treated with registered wood preservatives are not “hazardous waste” under the *Hazardous Waste Regulation* of the *Environmental Management Act*):

- ◆ Reuse treated wood products for other applications such as landscape construction.
- ◆ Dispose of treated wood products at an approved landfill.
- ◆ Obtain an authorization permit from ENV to bury the material on a farm property.

**DO NOT burn treated wood materials on the farm.** High-temperature burning at an approved incineration facility is the only environmentally safe way to burn such materials. To reduce the use of treated wood products, investigate alternatives such as metal, concrete, or recycled plastic posts.

➔ see Treated Wood Products, **page 2-18**

**Machinery and Equipment Disposal.** When possible reuse or recycle machinery components; otherwise dispose of such products to recyclers. If spent machinery remains on the property, remove potential damaging fluids (e.g., refrigerants, oils, fuels, antifreeze) and safely dispose. Send batteries, tires and oils to collection depots for recycling.

**Metal Disposal.** Most suppliers of commercial products stored in metal drums and cans accept the return of these containers. Recycling options also currently exist for most types of metal containers. An alternative disposal method is to use an approved landfill – **do not bury metal on a farm property.**

**Rockwool Disposal.** Rockwool is an inert, non-polluting, non-degradable soilless medium manufactured from lava rock for use in greenhouse and nursery production. Implement the following beneficial management practices:

- ◆ Reuse rockwool where possible.
- ◆ Rotate crops to reduce or eliminate the risk of pathogens – rockwool slabs can function effectively for three to four years without replacement if handled carefully and if sterilized between crops.
- ◆ Recycle rockwool where possible.
- ◆ Do not store product for long periods or in anticipation of recycling.
- ◆ Where rockwool is disposed of use an approved landfill – **do not bury rockwool on a farm property.**
- ◆ In some cases, rockwool may be used as a soil amendment to improve soil structure and to allow any residual nutrients to be taken up by crops:
  - consult ENV if use of rockwool as a soil amendment is being considered.

**Ash Disposal.** Ash from auxiliary fuel fired refuse incinerators that serve industrial, recreational or camp operations in remote areas can be land filled or used as a soil conditioner by farms or ranches. If used as a soil amendment, prior testing for heavy metals is recommended.

- ◆ Contact ENV to see if this type of ash disposal or use is appropriate.

## Animal Health Care Products Disposal

The use of medication in livestock production is common practice. Dispose of spent medicines, empty containers and other medical items in an acceptable manner. Implement the following practices:

- ◆ Consult your veterinarian about the proper and safe disposal of spent medicines and/or see if they can be returned.
- ◆ Package medical waste equipment that has the potential to puncture within a rigid container, and discard with household waste if permitted.
- ◆ Follow suppliers' or manufacturers' instructions for disposal of syringes, medications, outdated medical supplies and other items.
- ◆ Contact ENV when disposal quantities are in excess of 5 kg or 5 litres.

# CHEMICAL FERTILIZER



## CHEMICAL FERTILIZER ENVIRONMENTAL CONCERNS

Primary environmental concerns related to chemical fertilizer are:

- ◆ Fertilizer receiving, storing and dispensing where:
  - Spills or fires result in soil, water or air pollution gas emissions result in air pollution or contribute to climate change;
  - Leachates result in water pollution.
- ➔ see **Chapter 6**, Nutrient Application, for information on fertilizer use

For information on these concerns:

- ➔ see Impacts on Biodiversity and Habitat, **page 7-8**, refer to Farm Activities and Impacts
- ➔ see Soil Quality Factors, **page 8-2**, refer to Contaminants
- ➔ see Water Quality and Quantity Factors, **page 9-1**, refer to Contaminants
- ➔ see Air Quality Factors, **page 10-1**, refer to Contaminants

## CHEMICAL FERTILIZER LEGISLATION

The following is a brief outline of the main legislation that applies to chemical fertilizers.

- ➔ see **page A-1** for a summary of these and other Acts and Regulations



### Agricultural Land Commission Act

The *Agricultural Land Commission (ALC) Act* S.B.C. 2002, c. 36, and *Agricultural Land Reserve (ALR) Regulations* are the legislative framework for the establishment, administration, and procedures of BC's agricultural land preservation program. The ALC Act takes precedence over, but does not replace other legislation and bylaws that may apply to the land. Local and regional governments, as well as other provincial agencies, are expected to plan in accordance with the provincial policy of preserving agricultural land.

The *ALR Use Regulation*, B.C. Reg. 30/2019 specifies designated land uses permitted in the ALR. These include:

#### SECTION 7:

- ◆ The use of agricultural land for storing and applying biosolids and soil amendments, other than compost.
- ◆ The use of agricultural land for producing, storing and applying compost if, in the case of:
  - Compost classified as Class A compost under the *Organic Matter Recycling Regulation*, all of the compost produced, stored and applied is used on the agricultural land on which it was produced, or
  - Any other compost, the compost is from agricultural by-products that were produced for a farm use.

SECTION 27: describes permitted non-farm uses that may be prohibited by local governments. This includes:

- (4) Producing, storing and applying compost classified as Class A compost under the *Organic Matter Recycling Regulation* is permitted, but may be prohibited, if at least 50% but less than 100% of the compost is used on the agricultural land on which it was produced.

SECTION 36: Outlines the types of fill that are prohibited from being placed on agricultural land. These include construction or demolition waste (including rubble, concrete, cement, rebar, drywall, wood waste); asphalt; glass; synthetic polymers; treated wood; and unchipped lumber.

For more information see the following informational bulletins:

 [IB-07 Soil or Fill Uses in the ALR;](#)



## Drinking Water Protection Act

This Act and Regulations have requirements regarding the protection of drinking water quality and regulate domestic water systems (those serving **more** than one single-family residence).

- ◆ SECTION 23(1): subject to subsection (3), a person must not (a) introduce anything or cause or allow anything to be introduced into a domestic water system, a drinking water source, a well recharge zone or an area adjacent to a drinking water source, or (b) do or cause any other thing to be done or to occur if this will result or is likely to result in a drinking water health hazard in relation to a domestic water system.



## Environmental Management Act

The *Spill Reporting* Regulation requires spills of a polluting substance be reported immediately to the Provincial Emergency Program (PEP) at

1-800-663-3456 (24 hour service). Report spills of fertilizer greater than 50 kg or 50 litres.

### REPORTING REQUIREMENT

Under the ***Spill Reporting*** Regulation, chemical spills must be reported **immediately** to the Provincial Emergency Program (EMP) at **1-800-663-3456** (24hr service) if they exceed the amounts set forth in the Spill Reporting Regulation Factsheet:

[https://www2.gov.bc.ca/assets/gov/environment/air-land-water/spills-and-environmental-emergencies/docs/materials/fact\\_sheet\\_spill\\_reporting.pdf](https://www2.gov.bc.ca/assets/gov/environment/air-land-water/spills-and-environmental-emergencies/docs/materials/fact_sheet_spill_reporting.pdf)

Fertilizers are included in the definition of nutrient sources in the *Code of Practice for Agricultural Environmental Management*.

→ see **Chapter 6**, Nutrient Application, for information on the use of nutrient sources.



## Public Health Act

Administered by the Ministry of Health, this Act has a specific prohibition that “a person must not willingly cause a health hazard, or act in a manner that the person knows, or ought to know, will cause a health hazard”. This prohibition would apply to farm practices that may result in a health hazard, such as when nutrients, contaminants or pathogens are discharged to land, water or air so as to pose a public health problem. Any situation that entails a health hazard will enable health officers to investigate using their powers under the Act. Under the *Public Health Act*, the local Health Authority must investigate any health hazard and has authority to order that a person prevent or stop a health hazard, or mitigate the harm or prevent further harm from a health hazard amongst other powers. Similar regulatory provisions exist for addressing health hazards to drinking water supplies under the *Drinking Water Protection Act*.

The *Health Hazard Regulation* regulates the distance of wells from possible source of contamination

- SECTION 8 (1) A person who installs a well, or who controls a well installed on or after July 20, 1917, must ensure that the well is located at least:
- (a) 30 m from any probable source of contamination,
  - (b) 6 m from any private dwelling, and
  - (c) Unless contamination of the well would be impossible because of the physical conformation, 120 m from any cemetery or dumping ground.
- (2) A person who controls a well installed before July 20, 1917, must:
- (a) Remove any source of contamination within the distances set out in subsection (1), or
  - (b) Subject to subsection (3), close the well in accordance with section 6 of the *Code of Practice under the Ground Water Protection Regulation*, B.C. Reg. 299/2004.
- (3) Subsection (2) (b) does not apply to a well located within 6 m of a private dwelling unless it can be shown that the well should be abandoned for a reason other than proximity to a private dwelling.
- (4) A well that does not meet the requirements of this section is prescribed as a health hazard.

SECTION 11 Mandatory reporting of health hazards

- (11) If a prescribed person becomes aware that a prescribed health hazard exists or may exist, the person must promptly report the following information, to the extent of his or her knowledge, to a prescribed person:
- (a) The nature of the health hazard, including its location and cause or source;
  - (b) The identity of persons involved in causing or responding to the health hazard;
  - (c) The persons who may be adversely affected by the health hazard;
  - (d) Prescribed information;
  - (e) Any other relevant information requested by the person to whom the report is made.

## Fisheries Act

Administered by both Fisheries and Oceans Canada and Environment and Climate Change Canada, this Act is established to manage Canada's fisheries resources, including fish habitat. The Act can also be administered provincially by FLNRORD and ENV. The Act applies to all Canadian waters that contain fish, including ditches, channelized streams, creeks, rivers, marshes, lakes, estuaries, coastal waters and marine offshore areas. It also applies to seasonally wetted areas that provide fish habitat such as shorelines, stream banks, floodplains, intermittent tributaries and privately owned land. The Act includes provisions for stiff fines and imprisonment to ensure compliance.

The purpose of this Act is to provide a framework for (a) the proper management and control of fisheries; and (b) the conservation and protection of fish and fish habitat, including by preventing pollution.

This Act was updated in 2019 and now empowers the Minister to make regulations for the purposes of the conservation and protection of biodiversity.

The definition of fish habitat is: "water frequented by fish and any other areas on which fish depend directly or indirectly to carry out their life processes, including spawning grounds and nursery, rearing, food supply and migration areas". The quantity, timing and quality of the water flow that are necessary to sustain fish habitat are also deemed to be a fish habitat. Furthermore, serious harm to fish includes the death of fish or any permanent alteration to, or destruction of, fish habitat.

Provisions of the 2019 *Fisheries Act* relevant to agricultural operations include:

- ◆ Protection for all fish and fish habitats;
- ◆ Prohibition against the death of fish or the 'harmful alteration, disruption or destruction of fish habitat';
- ◆ A permitting framework and codes of practice to improve management of large and small projects impacting fish and fish habitat;
- ◆ Protection of fish and/or fish habitats that are sensitive, highly productive, rare or unique; and
- ◆ Consideration for the cumulative effects of development activities on fish and fish habitat.

Specific sections of the Act include:

SECTION 34.2(1) The Minister may establish standards and codes of practice for:

- (a) The avoidance of death to fish and harmful alteration, disruption or destruction of fish habitat;
- (b) The conservation and protection of fish or fish habitat; and
- (c) The prevention of pollution.

SECTION 34.4(1) No person shall carry on any work, undertaking or activity, other than fishing, that results in the death of fish.

SECTION 35 (1) No person shall carry on any work, undertaking or activity that results in the harmful alteration, disruption or destruction of fish habitat.

Every person who contravenes subsection 34.4(1) or 35(1) is guilty of an offence and liable.

Notifying authorities about serious harm to fish or deposit of a deleterious substance:

SECTION 38 (4.1) Every person shall without delay notify an inspector, a fishery officer, a fishery guardian or an authority prescribed by the regulations of a harmful alteration, disruption or destruction of fish habitat that is not authorized under this Act, or of a serious and imminent danger of such an occurrence, if the person at any material time.

- (a) Owns or has the charge, management or control of the work, undertaking or activity that resulted in the occurrence or the danger of the occurrence; or
- (b) Causes or contributes to the occurrence or the danger of the occurrence.

SECTION 38 (5) If there occurs a deposit of a deleterious substance in water frequented by fish that is not authorized under this Act, or if there is a serious and imminent danger of such an occurrence, and detriment to fish habitat or fish or to the use by humans of fish results or may reasonably be expected to result from the occurrence, then every person shall without delay notify an inspector, a fishery officer, a fishery guardian or an authority prescribed by the regulations.

SECTION 38 (7) As soon as feasible after the occurrence or after learning of the danger of the occurrence, the person shall provide an inspector, a fishery officer, a fishery guardian or an authority prescribed by the regulations with a written report on the occurrence or danger of the occurrence.

- (a) Owns or has the charge, management or control of the work, undertaking or activity that resulted in the occurrence or the danger of the occurrence; or
- (b) Causes or contributes to the occurrence or the danger of the occurrence.

SECTION 38 (5) If there occurs a deposit of a deleterious substance in water frequented by fish that is not authorized under this Act, or if there is a serious and imminent danger of such an occurrence, and detriment to fish habitat or fish or to the use by humans of fish results or may reasonably be expected to result from the occurrence, then every person shall without delay notify an inspector, a fishery officer, a fishery guardian or an authority prescribed by the regulations.

SECTION 38 (7) As soon as feasible after the occurrence or after learning of the danger of the occurrence, the person shall provide an inspector, a fishery officer, a fishery guardian or an authority prescribed by the regulations with a written report on the occurrence or danger of the occurrence.

## CHEMICAL FERTILIZER BENEFICIAL MANAGEMENT PRACTICES

Comply with applicable chemical fertilizer related legislation, including the above, and where appropriate, implement the following beneficial management practices to protect the environment.

➔ see **Chapter 6**, Nutrient Application, for information on fertilizer use

### Chemical Fertilizer Handling Storage and Disposal

When handling, storing and disposing of chemical fertilizers implement the following practices:

- ◆ Locate away from yard drain inlets, ditches, wells and watercourses:
  - At least 30 m from wells (*Health Hazards Regulation*);
  - To meet the Agriculture Building Setback Standards (suggested).
- ➔ see Farm Building Siting, **page 2-8**
  - 30 m or more from a water intake used for domestic purposes (suggested).
- ◆ Locate handling and storage areas above the 100-year flood level (suggested) or the flood level expected based on climate change projections.
- ◆ Clean up fertilizer spills as soon as possible.

Dry fertilizer is very soluble and should be stored under cover to prevent any water contact. Liquid fertilizers should be stored in watertight containers with secondary containment. Check storage tanks for both liquid and gaseous fertilizers every day for leaks. Liquid and gaseous storage tanks should be protected from collision.

In the event of anhydrous ammonia leak, the tank and surrounding area should be showered with water. This water should be prevented from entering a watercourse as it will contain ammonia.

Store chemical fertilizers, pesticides and fuel in separate facilities to avoid cross-contamination and unpredictable chemical reactions. Keep oxidizing fertilizers (e.g., ammonium nitrate) away from any fuel or source of open flame or spark. Buy only the amounts you need to avoid storing large amounts of fertilizer. If you must store fertilizers for longer periods of time, size facilities appropriately. Construct a storage facility such that it can be locked and have an impermeable floor with leachate and spill collection. Clearly label all containers.

Implement the following practices for unwanted, unused, old, wrongly formulated, or spoiled fertilizer:

- ◆ Do not bury unwanted or spilled fertilizers on your property.
- ◆ Spread unused product on alternative sites or crops in amounts that ensure efficient nutrient utilization.
- ◆ Add small amounts to materials that are to be composted.

### Chemical Fertilizer Spills

Fertilizer spills larger than 50 kg or 50 litres must be reported in accordance with the *Spill Reporting Regulation*. If a fertilizer spill occurs implement the following practices:

- ◆ Use berms or containment to prevent spread.
- ◆ Clean up sites by removing both fertilizer and soil that contains excess nutrients and manage the same as liquid or solid fertilizer.

## REPORTING REQUIREMENT

Under the ***Spill Reporting Regulation***, fertilizer spills larger than 50 kg or 50 L must be reported **immediately** to the Provincial Emergency Program (PEP) at **1-800-663-3456** (24hr service).

## Chemical Fertilizer Contingency Plan

Develop a contingency plan when storing any amount of fertilizer. The plan should provide a timely and effective response to emergencies involving the unexpected release of fertilizer products into the environment, from:

- ◆ Accidental spills, such as when transporting, storing, dispensing or applying.
- ◆ Release due to building fires or natural events, such as forest fires, floods, or earthquakes.
- ◆ Release due to vandalism.
- ◆ Application errors, such as applying too much fertilizer.

 [Emergency Plan Template for Farms](#)

 [Emergency Management Plan for SmallBC Farms](#)

# PETROLEUM



## PETROLEUM ENVIRONMENTAL CONCERNS

Primary environmental concerns related to petroleum are:

- ◆ Receiving, storing, dispensing and using petroleum products where spills or fires result in soil, water, air or habitat pollution.
- ◆ Gas emissions from storage that result in air pollution.
- ◆ Disposal of used oils that results in soil, water, air or habitat pollution.
- ◆ Internal combustion engine-driven pumps that result in water pollution.
- ◆ Petroleum losses from gas emissions or used oil disposal that increase the level of greenhouse gas emissions.

For information on these concerns:

- ➔ see Impacts on Biodiversity and Habitat, **page 7-7**, refer to Farm Activities and Impacts
- ➔ see Soil Quality Factors, **page 8-1**, refer to Contaminants, and to Micronutrients and Metals
- ➔ see Water Quality and Quantity Factors, **page 9-1**, refer to Contaminants, and to Micronutrients and Metals
- ➔ see Air Quality Factors, **page 10-1**, refer to Contaminants
- ➔ see Climate Change Mitigation Best Management Practices, **page 12-9**

## PETROLEUM LEGISLATION

The following is a brief outline of the main legislation that applies to petroleum products.

- ➔ see **page A-1** for a summary of these and other Acts and Regulations

### Local Bylaws

*The National Farm Building Code 1995* outlines standards for above ground fuel tanks storing more than 100 litres and **is enforced only where proclaimed by local government.**

- ◆ SECTION 3.1.4: requires equipment being fueled and the above ground fuel storage tanks be at least 12 m from any other building or property line. Fuel storages must be located outdoors or in buildings used only for the purpose of fuel storage.



### Drinking Water Protection Act

This Act and Regulations have requirements regarding the protection of drinking water quality and regulate domestic water systems (those serving **more** than one single-family residence).

- SECTION 23 (1): Subject to subsection (3), a person must not
- (a) Introduce anything or cause or allow anything to be introduced into a domestic water system, a drinking water source, a well recharge zone or an area adjacent to a drinking water source, or
  - (b) Do or cause any other thing to be done or to occur if this will result or is likely to result in a drinking water health hazard in relation to a domestic water system.

The *Spill Reporting Regulation* requires spills of a polluting substance be reported immediately to the Provincial Emergency Program (PEP) at **1-800-663-3456** (24 hour service). Report spills of petroleum or lubricants greater 100 litres.

Under the *Hazardous Waste Regulation* waste oil cannot be applied to land for the purpose of dust suppression.



## Public Health Act

Administered by the Ministry of Health, this Act has a specific prohibition that “a person must not willingly cause a health hazard, or act in a manner that the person knows, or ought to know, will cause a health hazard”. This prohibition would apply to farm practices that may result in a health hazard, such as when nutrients, contaminants or pathogens are discharged to land, water or air so as to pose a public health problem. Any situation that entails a health hazard will enable health officers to investigate using their powers under the Act. Under the *Public Health Act*, the local Health Authority must investigate any health hazard and has authority to order that a person prevent or stop a health hazard, or mitigate the harm or prevent further harm from a health hazard amongst other powers. Similar regulatory provisions exist for addressing health hazards to drinking water supplies under the *Drinking Water Protection Act*. SECTION 11: requires the reporting of any health hazard to a prescribed person (a health hazard may be the escape of toxic substances)

*Health Hazard Regulation* regulates the distance of wells from possible source of contamination

- SECTION 8 (1) A person who installs a well, or who controls a well installed on or after July 20, 1917, must ensure that the well is located at least:
- (a) 30 m from any probable source of contamination,
  - (b) 6 m from any private dwelling, and
  - (c) Unless contamination of the well would be impossible because of the physical conformation, 120 m from any cemetery or dumping ground.
- (2) A person who controls a well installed before July 20, 1917, must:
- (a) Remove any source of contamination within the distances set out in subsection (1), or
  - (b) Subject to subsection (3), close the well in accordance with section 6 of the *Code of Practice under the Ground Water Protection Regulation*, B.C. Reg. 299/2004.
- (3) Subsection (2) (b) does not apply to a well located within 6 m of a private dwelling unless it can be shown that the well should be abandoned for a reason other than proximity to a private dwelling.
- (4) A well that does not meet the requirements of this section is prescribed as a health hazard.



## Environmental Management Act

- ◆ The *Spill Reporting Regulation* requires spills of a polluting substance be reported immediately to the Provincial Emergency Program (EMP) at **1-800-663-3456** (24 hour service)

### REPORTING REQUIREMENT

Under the *Spill Reporting Regulation*, chemical spills must be reported **immediately** to the Provincial Emergency Program (EMP) at **1-800-663-3456** (24hr service) if they exceed the amounts set forth in the Spill Reporting Regulation Factsheet:

[https://www2.gov.bc.ca/assets/gov/environment/air-land-water/spills-and-environmental-emergencies/docs/materials/fact\\_sheet\\_spill\\_reporting.pdf](https://www2.gov.bc.ca/assets/gov/environment/air-land-water/spills-and-environmental-emergencies/docs/materials/fact_sheet_spill_reporting.pdf)

## Fisheries Act

Administered by both Fisheries and Oceans Canada and Environment and Climate Change Canada, this Act is established to manage Canada's fisheries resources, including fish habitat. The Act can also be administered provincially by FLNRORD and ENV. The Act applies to all Canadian waters that contain fish, including ditches, channelized streams, creeks, rivers, marshes, lakes, estuaries, coastal waters and marine offshore areas. It also applies to seasonally wetted areas that provide fish habitat such as shorelines, stream banks, floodplains, intermittent tributaries and privately owned land. The Act includes provisions for stiff fines and imprisonment to ensure compliance.

The purpose of this Act is to provide a framework for (a) the proper management and control of fisheries; and (b) the conservation and protection of fish and fish habitat, including by preventing pollution.

This Act was updated in 2019 and now empowers the Minister to make regulations for the purposes of the conservation and protection of biodiversity.

The definition of fish habitat is: "water frequented by fish and any other areas on which fish depend directly or indirectly to carry out their life processes, including spawning grounds and nursery, rearing, food supply and migration areas". The quantity, timing and quality of the water flow that are necessary to sustain fish habitat are also deemed to be a fish habitat. Furthermore, serious harm to fish includes the death of fish or any permanent alteration to, or destruction of, fish habitat.

Provisions of the *Fisheries Act* relevant to agricultural operations include:

- ◆ Protection for all fish and fish habitats
- ◆ Prohibition against the death of fish or the 'harmful alteration, disruption or destruction of fish habitat'
- ◆ A permitting framework and codes of practice to improve management of large and small projects impacting fish and fish habitat
- ◆ Protection of fish and/or fish habitats that are sensitive, highly productive, rare or unique; and
- ◆ Consideration for the cumulative effects of development activities on fish and fish habitat

Specific sections of the Act include:

SECTION 34.2(1) The Minister may establish standards and codes of practice for:

- (a) The avoidance of death to fish and harmful alteration, disruption or destruction of fish habitat;
- (b) The conservation and protection of fish or fish habitat; and
- (c) The prevention of pollution.

SECTION 34.4(1) No person shall carry on any work, undertaking or activity, other than fishing, that results in the death of fish.

SECTION 35 (1) No person shall carry on any work, undertaking or activity that results in the harmful alteration, disruption or destruction of fish habitat.

Every person who contravenes subsection 34.4(1) or 35(1) is guilty of an offence and liable.

Notifying authorities about serious harm to fish or deposit of a deleterious substance:

SECTION 38 (4.1) Every person shall without delay notify an inspector, a fishery officer, a fishery guardian or an authority prescribed by the regulations of a harmful alteration, disruption or destruction of fish habitat that is not authorized under this Act, or of a serious and imminent danger of such an occurrence, if the person at any material time.

- (a) Owns or has the charge, management or control of the work, undertaking or activity that resulted in the occurrence or the danger of the occurrence; or
- (b) Causes or contributes to the occurrence or the danger of the occurrence.

SECTION 38 (5) If there occurs a deposit of a deleterious substance in water frequented by fish that is not authorized under this Act, or if there is a serious and imminent danger of such an occurrence, and detriment to fish habitat or fish or to the use by humans of fish results or may reasonably be expected to result from the occurrence, then every person shall without delay notify an inspector, a fishery officer, a fishery guardian or an authority prescribed by the regulations.

SECTION 38 (7) As soon as feasible after the occurrence or after learning of the danger of the occurrence, the person shall provide an inspector, a fishery officer, a fishery guardian or an authority prescribed by the regulations with a written report on the occurrence or danger of the occurrence.

## Migratory Birds Convention Act

This Act prohibits the deposit of oil or waste oil onto any area frequented by migratory birds. This Act protects migratory birds and their eggs and nests.

- ◆ SECTION 51: prohibits the deposit of substance(s) harmful to migratory birds in any area frequented by migratory birds, or in a place where the substance(s) can enter these areas. The *Migratory Birds Regulations* under this Act also has sections of importance.
- ◆ SECTION 6: no person shall: disturb, destroy or take a nest, egg, nest shelter, eider duck shelter or duck box of a migratory bird without permit.
- ◆ SECTION 24(1): any person may, without a permit, use equipment, other than an aircraft or firearms, to scare migratory birds that are causing, or a likely to cause damage to crops or other property (other control measures require a permit).

## PETROLEUM BENEFICIAL MANAGEMENT PRACTICES

Comply with applicable petroleum related legislation, including the above and where appropriate, implement the following beneficial management practices to protect the environment.

### Petroleum Storage

**Mobile Fuel Storage.** Jerry cans, drums and truck-box fuel tanks are commonly used in farm operations. Implement the following practices:

- ◆ Do not fill beyond their safe filling level.
- ◆ Keep drums upright and secure during transport.
- ◆ Avoid dispensing from horizontal drums.
- ◆ Have secondary containment for truck box fuel tanks that are removed from the truck or trailer and operated in a fixed location for any length of time.
- ◆ Carry a fuel spill cleanup kit.



**Stationary Fuel Storage.** Implement the following practices for all tanks (refer to **Figure 2.2**, for aboveground tank illustration):

- ◆ Locate tanks away from yard drain inlets, ditches, wells and watercourses:
  - At least 30 m from wells (*Health Hazards Regulation*);
  - To meet the Agriculture Building Setback Standards (suggested);
    - ➔ see Farm Building Siting, **page 2-8**
  - 30 m or more from a water intake used for domestic purposes (suggested).
- ◆ Support tanks on non-combustible material (e.g., metal).
- ◆ Construct storage tanks in accordance with accepted engineering practices.
- ◆ Size spill containment to hold a single tank's volume plus 10%, or, for multiple tanks, the largest tank's volume plus 10%.
- ◆ Use an anti-siphoning device in tank discharge lines or self-closing nozzles.
- ◆ Ensure no drips, leaks or overflow occurs when receiving or dispensing fuel.
- ◆ Use bumper guards to protect tanks from direct collision by vehicles.
- ◆ Ensure that a fuel spill cleanup kit is readily available.

ENV recommends that underground fuel storage tanks have:

- ◆ Secondary containment for all tanks and piping (i.e., double-wall).
- ◆ Corrosion protection for all steel tanks and piping.
- ◆ A leak detection system.
- ◆ An overfill protection device for the tank.
- ◆ A self-closing nozzle on the dispensing line.
- ◆ Ensure no drips, leaks or overflow occurs when receiving or dispensing fuel.
- ◆ Use bumper guards to protect tanks from direct collision by vehicles.
- ◆ Ensure that a fuel spill cleanup kit is readily available.

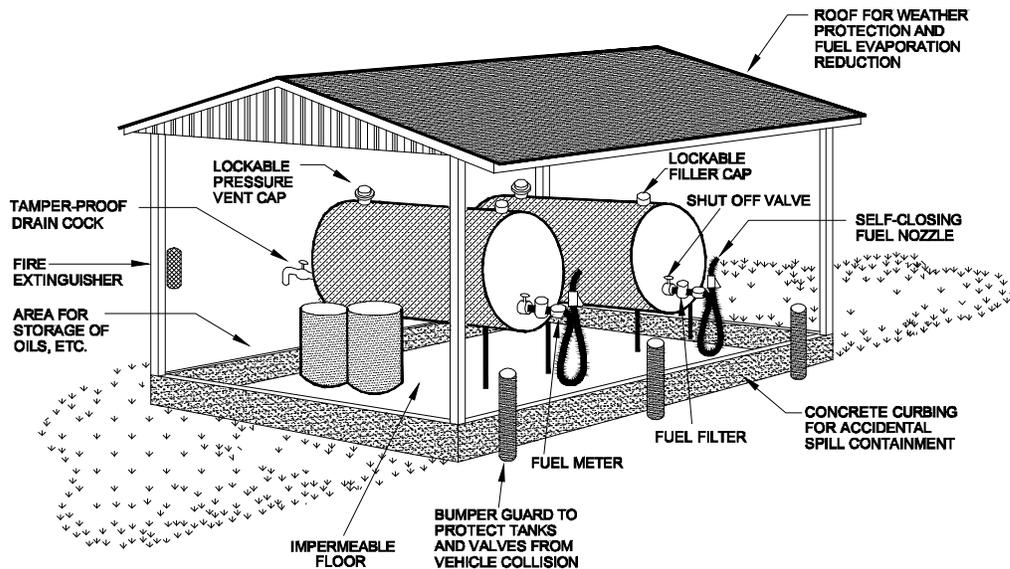


FIGURE 2.2 A Well-Planned Above Ground Fuel Storage Facility

## VOC Emission Reduction from Fuel Evaporation

Fuel evaporation during storage results in volatile organic compound (VOC) emissions and is an environmental concern. Evaporation from aboveground tanks is due to heating of the tank by the sun which causes the fuel to volatilize and vent to the atmosphere. Underground tanks have lower evaporation losses. Implement the following beneficial management practices to reduce the release of VOCs into the atmosphere:

- ◆ Construct an improved fuel storage facility.
  - ◆ Dispose of used or unwanted petroleum in a timely manner.
  - ◆ Minimize fuel evaporation from fuel storage, refer to **Table 2.2**, next page:
    - Paint fuel storage a light colour (e.g., white or silver);
    - Build fuel storage tanks below ground;
    - When possible shade tanks or build a covered storage facility.
  - ◆ Contain gases by using a pressure release valve vent cap that allows tank pressure to build up slightly before emissions are released.
  - ◆ To estimate fuel losses from fuel storage refer to:
    -  [Farm Storage and Handling of Petroleum Products](#)
    -  [A Field Guide to Fuel Handling, Transportation & Storage](#)
- ➔ see Petroleum Storage, **page 2-35**

## Used Oil Disposal

When installing or retrofitting fuel storage facilities follow the fuel loss beneficial management practices that are outlined in **Table 2.2**.

Improper disposal of spent or used oils can cause an environmental concern. The best alternative is to return oil to an approved recycling centre. Under the *Environmental Management Act*, all vendors of petroleum products are required to accept the return of waste oil from customers. Safely recover and store waste petroleum products and return them periodically to the supplier or a depot for recycling. Do not apply used oil to roads for dust suppression (*Hazardous Waste Regulation*).

- ➔ see Farm Roads, **page 2-14**

**TABLE 2.2****Fuel Loss Beneficial Management Practices****1. Paint the Tank**

The use of reflective paint (white or silver) will reduce losses by up to 40% over a dark tank. A coat of paint will also reduce rusting of the tank.

**2. Use a Pressure Vent Cap**

Direct venting of the tank fumes are restricted until a slight pressure has built up in the tank. Losses are reduced further by 50%. A painted and pressure-vented tank has 75% less evaporation losses than a dark tank. These two improvements should be considered standard for all farm fuel tanks, especially gasoline storage tanks.

**3. Shade the Tank**

A painted and pressure-vented tank in the shade further reduces losses by over 40%. A simple roof over the tank will provide complete shading. The cover will also reduce weathering of hoses and valves, provide storage for lubricants and solvents and provide cover from the weather while refuelling.

**4. Use a Double-walled Tank**

While more expensive than other tanks, when replacing a tank, consider a double-walled tank for spill containment and reduced evaporation losses

## Petroleum Spills

Be prepared to handle spills by having a petroleum spill cleanup kit when transporting, storing or dispensing fuels. Such a kit includes containers for contaminated waste and absorbent materials such as clay, kitty litter or sawdust and a means, such as shovel, to collect contaminated material.

Report any petroleum spill to the nearest Medical Health Officer located at the nearest Regional Health Unit, as required by the *Public Health Act*.

### REPORTING REQUIREMENT

Under the ***Spill Reporting Regulation***, petroleum spills over 100 litres must be reported **immediately** to the Provincial Emergency Program (PEP) at **1-800-663-3456** (24hr service).

Contact the Pollution Prevention Program of the regional ENV office for assistance in remediation or disposal options regardless of the extent of the contamination.

Petroleum spills of less than 100 L do not require reporting but do need to be managed to minimize environmental impacts. If a petroleum spill can be contained and there is no danger of the spilled product leaching into a watercourse, the contaminated soil may remain in place or be moved to a safer area and spread. Soil microbes will break down the petroleum product and decontaminate the soil over time (i.e., bioremediation).

If a spill takes place in a public area such as a highway, call the local police and contact the 24-hour Provincial Emergency Program at **1-800-663-3456**.

**Stationary Engines.** Internal combustion engines located near watercourses create a potential for contamination. To minimize this possibility, use secondary containment for the engine and its fuel tank, such as a metal pan large enough to capture fuel spills from the fuel system.

Note: small quantities of petroleum products can cause extensive water pollution.

## Petroleum Contingency Plan

Develop a contingency plan when storing quantities of petroleum products. The plan should provide a timely and effective response to emergencies involving the release of petroleum products into the environment, from:

- ◆ Accidental spills, such as when transporting, storing, applying or dispensing.
- ◆ Release due to building fires or natural events, such as forest fires, floods, or earthquakes.
- ◆ Release due to vandalism.

 [Contingency Plan – Template for On-Farm Planning](#)

 [Emergency Plan – Template for Farms](#)

 [Emergency Management Plan – for Small BC Farms](#)

# WOOD RESIDUE



For the purpose of this publication, the definition of wood residue is the one given in the AEM Code under the *Code of Practice for Agricultural Environmental Management*:

Wood residue **includes** hog fuel, mill ends, wood chips, bark and sawdust;

- ◆ Wood residue means any wood or wood product that is chipped or ground (e.g., hog fuel, mill ends, wood chips, bark and sawdust):
  - Originates from wood processing, land clearing activities, if the majority of the greenery is removed and no soil is present, or trimming or pruning activities;
  - Not treated or coated with chemicals, including preservatives, glues, paints, varnishes, oils or finishing materials;
  - Does not contain a foreign substance harmful to humans, animals or plants when combusted;
  - Has not been exposed to salt water, and
  - Has not been used or recovered from construction or demolition activities.

## WOOD RESIDUE ENVIRONMENTAL CONCERNS

The environmental hazards associated with the use and storage of wood residue are easily overlooked as wood is a natural material. The process of wood residue decay accelerates significantly when wood is ground or chipped.

Primary environmental concerns related to wood residue are:

- ◆ The handling and use of wood residue where direct deposit into watercourses results in pollution of water or habitat loss; or application onto soil results in pollution of the soil; or storage results in pollution of air.
- ◆ The formation of wood residue leachate that enters watercourses or domestic water sources and results in pollution of water and fish kills.

For information on these concerns:

- ➔ see Impacts on Biodiversity and Habitat, **page 7-7**, refer to Farm Activities and Impacts
- ➔ see Soil Quality Factors, **page 8-1**, refer to Carbon-to-Nitrogen Ratio, to Contaminants, and to pH
- ➔ see Water Quality and Quantity Factors, **page 9-1**, refer to Contaminants, and to Micronutrients and Metals
- ➔ see Air Quality Factors, **page 10-2**, refer to Dust and Particulates, and to Open Burning

## WOOD RESIDUE LEGISLATION

The following is a brief outline of the main legislation that applies to wood residue.

- ➔ see **page A-1** for a summary of these and other Acts and Regulations



## Agricultural Land Commission

The *Agricultural Land Commission (ALC) Act* S.B.C. 2002, c. 36, and *Agricultural Land Reserve (ALR) Regulations* are the legislative framework for the establishment, administration, and procedures of BC's agricultural land preservation program. The ALC Act takes precedence over, but does not replace other legislation and bylaws that may apply to the land. Local and regional governments, as well as other provincial agencies, are expected to plan in accordance with the provincial policy of preserving agricultural land.

The *ALR Use Regulation*, B.C. Reg. 30/2019 specifies land uses permitted in the ALR.

- ◆ SECTION 20.3(1) – 20.3(6): restricts the removal or placement of fill on agricultural land and describes the requisite notice of intent and soil or fill use application procedures.
- ◆ SECTION 36: outlines the types of fill that are prohibited from being placed on agricultural land. This includes construction or demolition waste (including rubble, concrete, cement, rebar, drywall, wood waste); asphalt; glass; synthetic polymers; treated wood; and unchipped lumber.

For more information see the following informational bulletins:

 [IB-07 Soil or Fill Uses in the ALR](#)



## Drinking Water Protection Act

This Act and Regulations have requirements regarding the protection of drinking water quality and regulate domestic water systems (those serving **more** than one single-family residence).

- ◆ SECTION 23(1): subject to subsection (3), a person must not (a) introduce anything or cause or allow anything to be introduced into a domestic water system, a drinking water source, a well recharge zone or an area adjacent to a drinking water source, or (b) do or cause any other thing to be done or to occur if this will result or is likely to result in a drinking water health hazard in relation to a domestic water system



## Environmental Management Act

SECTION 6 of this Act covers Waste Disposal:

- 6(1) For the purposes of this section, “the conduct of a prescribed industry, trade or business” includes the operation by any person of facilities or vehicles for the collection, storage, treatment, handling, transportation, discharge, destruction or other disposal of waste in relation to the prescribed industry, trade or business.
- (2) Subject to subsection (5), a person must not introduce or cause or allow waste to be introduced into the environment in the course of conducting a prescribed industry, trade or business.

The Act has four Regulations which covers wood residue use on farms.

*Code of Practice for Agricultural Environmental Management; Antisapstain Chemical Waste Control Regulation; Code of Practice for Soil Amendments; and Waste Discharge Regulation*

The *Code of Practice for Agricultural Environmental Management* states that:

- ◆ SECTION 17(3): wood residue stored in a permanent structure, or as temporary field storage, or applied to land in a layer 30 cm deep or more must be 30 m from a drinking water source, 15 m from a watercourse, and must not be located on the property boundary.
- ◆ SECTION 17(4): wood residue applied to land in a layer less than 30 cm deep must be 30 m from a well or diversion point, and 3 m from watercourses and any other drinking water source.
- ◆ SECTION 45: wood residue may only be stored in a permanent storage structure or as temporary field storage for up to 12 months.
- ◆ SECTION 46: wood residue storage and application must meet the following criteria:
  - Wood residue is not stored on or land applied to areas that are prone to seasonal flooding or in areas with standing water.
  - Wood residue, leachate, contaminated runoff solid and dust do not escape.
  - Leachate must not escape from the storage and that runoff is diverted away from the storage.
- ◆ SECTION 47(2): wood residue may only be used as plant mulch, component of growing media, soil conditioner, ground cover, on-farm access ways, livestock bedding, for composting with agricultural by-products and in areas where livestock, poultry or farmed game are confined or exercised, as fuel for wood-fired boilers.
- ◆ SECTION 47(1): wood residue may not be used for the construction of berms, as an envelope for tile drains, as fill, or to create an access way through a watercourse.

If wood residue is stored in a permanent storage structure in an area categorized as a vulnerable aquifer recharge area, the following sections apply:

- ◆ SECTION 23: a person who uses a modified or new permanent storage structure in a vulnerable aquifer recharge area must ensure that there is a protective base under the storage structure.
- ◆ SECTION 22: the protective base must regularly maintained and assessed for leaks, taking corrective action if necessary and documenting said corrective action.

If wood residue is stored in the field, the following sections may apply:

- ◆ SECTION 25(1): a person who uses temporary field storage in a high precipitation area must cover the stored materials between October 1 and April 1 of the following year.
- ◆ SECTION 25(2): a person who uses temporary field storage for 2 weeks or more in a vulnerable aquifer discharge area must not locate the storage directly on or over coarse textured soil.

The *Antisapstain Chemical Waste Control Regulation* prohibits the use of wood residues containing antisapstain chemicals from being used as mulch or as fuel in wood-burning appliances.

- ◆ SECTION 2(C): a person shall not introduce into the environment emission to the air consisting of combustion products of antisapstain chemicals and their by-products.
- ◆ SECTION 11: trim ends, broken lumber, chips, sawdust, planer shavings and other wood residue resulting from processing and handling of wood following its treatment with antisapstain chemicals.
  - (a) Shall not be provided to a person for use as mulch or for burning in a residential fireplace, stove or other burning device other than an incinerator permitted under paragraph (b),
  - (b) Shall be incinerated only in a hog fuel burning incinerator, or other incineration device, that is designed:
    - (i) To burn the wood residue at a minimum combustion temperature of 900°C, and
    - (ii) For gases in the combustion zone to have a minimum residence time of one second, and
  - (c) If the antisapstain chemical is a chlorophenol, shall not be provided to a person for the purpose of supplying digesters in pulp manufacturing processes.

The *Code of Practice for Soil Amendments* regulates the storage, application and use of industrial residues of wood (as defined).

- ◆ SECTION 8: if more than 5 m<sup>3</sup> of soil amendments are to be applied to a site in a year, before applying the soil amendment, the discharger must have a land application plan.

The *Waste Discharge Regulation* exempts the use of industrial wood residue as a soil conditioner or ground cover in non-agricultural operations from SECTIONS 6(2) and 6(3) of the Act under certain conditions:

- (6) The use of industrial wood residue as a soil conditioner or ground cover in non-agricultural operations is exempt from SECTION 6(2) and 6(3) of the Act if:
  - (a) Less than 100 m<sup>3</sup>/year is spread on a single property, and
  - (b) It is applied in accordance with good agronomic practices.

The *Waste Discharge Regulation* allows the use of wood residue:

- ◆ SECTION 3(5):
  - As a plant mulch or in residential gardens.
  - As foundation material for animal bedding.
  - As sports areas (such as riding arenas).



## Public Health Act

This Act has conditions under the *Health Hazards Regulation*:

- ◆ SECTION 8: separation distance from wells to be at least 30 m from any probable source of contamination (probable source of contamination could include wood residue leachate).



## Fisheries Act

Administered by both Fisheries and Oceans Canada and Environment and Climate Change Canada, this Act is established to manage Canada's fisheries resources, including fish habitat. The Act can also be administered provincially by FLNRORD and ENV. The Act applies to all Canadian waters that contain fish, including ditches, channelized streams, creeks, rivers, marshes, lakes, estuaries, coastal waters and marine offshore areas. It also applies to seasonally wetted areas that provide fish habitat such as shorelines, stream banks, floodplains, intermittent tributaries and privately owned land. The Act includes provisions for stiff fines and imprisonment to ensure compliance.

The purpose of this Act is to provide a framework for (a) the proper management and control of fisheries; and (b) the conservation and protection of fish and fish habitat, including by preventing pollution.

This Act was updated in 2019 and now empowers the Minister to make regulations for the purposes of the conservation and protection of biodiversity.

The definition of fish habitat is: "water frequented by fish and any other areas on which fish depend directly or indirectly to carry out their life processes, including spawning grounds and nursery, rearing, food supply and migration areas". The quantity, timing and quality of the water flow that are necessary to sustain fish habitat are also deemed to be a fish habitat. Furthermore, serious harm to fish includes the death of fish or any permanent alteration to, or destruction of, fish habitat.

Provisions of the *Fisheries Act* relevant to agricultural operations include:

- ◆ Protection for all fish and fish habitats;
- ◆ Prohibition against the death of fish or the 'harmful alteration, disruption or destruction of fish habitat';
- ◆ A permitting framework and codes of practice to improve management of large and small projects impacting fish and fish habitat;
- ◆ Protection of fish and/or fish habitats that are sensitive, highly productive, rare or unique; and
- ◆ Consideration for the cumulative effects of development activities on fish and fish habitat.

Specific sections of the Act include:

SECTION 34.2(1) The Minister may establish standards and codes of practice for:

- (a) The avoidance of death to fish and harmful alteration, disruption or destruction of fish habitat;
- (b) The conservation and protection of fish or fish habitat; and
- (c) The prevention of pollution.

SECTION 34.4(1) No person shall carry on any work, undertaking or activity, other than fishing, that results in the death of fish.

SECTION 35 (1) No person shall carry on any work, undertaking or activity that results in the harmful alteration, disruption or destruction of fish habitat.

Every person who contravenes subsection 34.4(1) or 35(1) is guilty of an offence and liable.

Notifying authorities about serious harm to fish or deposit of a deleterious substance:

SECTION 38 (4.1) Every person shall without delay notify an inspector, a fishery officer, a fishery guardian or an authority prescribed by the regulations of a harmful alteration, disruption or destruction of fish habitat that is not authorized under this Act, or of a serious and imminent danger of such an occurrence, if the person at any material time.

- (a) Owns or has the charge, management or control of the work, undertaking or activity that resulted in the occurrence or the danger of the occurrence; or
- (b) Causes or contributes to the occurrence or the danger of the occurrence.

SECTION 38 (5) If there occurs a deposit of a deleterious substance in water frequented by fish that is not authorized under this Act, or if there is a serious and imminent danger of such an occurrence, and detriment to fish habitat or fish or to the use by humans of fish results or may reasonably be expected to result from the occurrence, then every person shall without delay notify an inspector, a fishery officer, a fishery guardian or an authority prescribed by the regulations.

SECTION 38 (7) As soon as feasible after the occurrence or after learning of the danger of the occurrence, the person shall provide an inspector, a fishery officer, a fishery guardian or an authority prescribed by the regulations with a written report on the occurrence or danger of the occurrence.

## WOOD RESIDUE BENEFICIAL MANAGEMENT PRACTICES

Comply with applicable wood residue related legislation, including the above, and where appropriate, use the following beneficial management practices to protect the environment.

### Wood Residue Storage

When storing wood residue implement the following practices:

- ◆ Locate storage area away from drain inlets, ditches, wells and watercourses.
  - At least 30 m from wells (*Health Hazards Regulation*);
  - To meet the Agriculture Building Setback Standards (suggested);  
→ see Farm Building Siting, **page 2-8**
  - 30 m or more from a water intake used for domestic purposes.
- ◆ Store to prevent leachate entering surface or groundwater by:
  - Covering piles to reduce leachate (in high precipitation areas, cover wood residue between October 1<sup>st</sup> and April 1<sup>st</sup>);
  - Using impermeable surfaces to prevent leaching into soil and groundwater;
  - Collect or contain leachate with berms.
- ◆ Use appropriate construction or adequate buffer to keep wood residue from blowing onto watercourses and neighbours.  
→ see Buffers, **page 11-4**

## Wood Residue Use

Appropriate agricultural uses of wood residue are restricted to plant mulch, animal bedding, groundcover, farm access ways and fuel for boilers. When using wood residue, implement the following practices:

- ◆ Do not place directly into surface water.
- ◆ The use of wood residue to create access ways across streams or across ditches is not permitted under the *Environmental Management Act*.
- ◆ Use adequate buffers between areas receiving wood residue and watercourses to prevent leachate contamination.
  - ➔ see Buffers, **page 11-4**
- ◆ Do not apply wood waste to a depth of greater than 15 cm per year in outdoor areas (suggested).
- ◆ Limit the total depth of wood residue applied outdoors to no greater than 30 cm total (suggested).
- ◆ Do not use wood residue that may contain antisapstain chemicals, wood preservatives, or fire retardation chemicals.
  - Wood residue containing these chemicals can affect livestock, wildlife and fish that come into contact with the treated wood residue or leachate.
- ◆ To reduce the risk of causing pollution, utilize sawdust from weathered wood residue or from less toxic softwood tree species such as spruce, pine or fir, or from hardwoods.
  - Avoid using the bark of softwood trees, wherever possible, since they contain more resinous ingredients than heartwoods or sapwoods (resinous ingredients have a higher risk of producing toxic leachate).
  - Use weathered wood residue with low bark content near sensitive areas (the production of leachate declines as wood residue ages).
- ◆ Apply only to soils having a carbon-nitrogen ratio (C:N) of 30:1 or lower.
- ◆ Do not bury wood residue; decomposition without oxygen releases methane, a powerful greenhouse gas.
- ◆ Do not shred wood residue unless necessary (shredding increases surface area, resulting in more rapid decomposition, generating more toxic leachate).
- ◆ Collect all leachate that poses the potential to pollute surface water or groundwater.
  - ➔ see Wood Residue Leachate Control, **page 2-47**
- ◆ Use alternative materials where polluting wood residue leachate cannot be collected.
- ◆ Buy only as much as you need for your farm's activities.

 [Farm Practice: Woodwaste](#)

 [Woodwaste Use in Agriculture](#)

 [Woodwaste Use – Precautions to Horse Owners](#)

 [Guidelines on Storage, Use & Disposal of Wood Residue for the Protection of Fish & Fish Habitat in British Columbia](#)

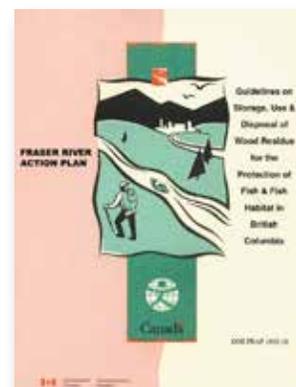
 [Agricultural Land Commission Policy L-23: Placement of Fill for Soil Bound Agricultural Activities](#)

**Livestock Bedding.** Sawdust and shavings can be excellent wood-based beddings. Implement the following additional practice:

- ◆ Monitor the Carbon-to-Nitrogen ratio (C:N) of soil receiving bedding (repeated applications of bedding may result in a C:N shift that could reduce crop growth in time).

**Drainage Systems.** Implement the following additional practice:

- ◆ Do not use wood residue as a substitute for drain rock around drainage piping.



**Riding Arenas and Turnout Paddocks.** Implement the following additional practices:

- ◆ Ensure that drainage systems under wood residue riding arenas and turnout paddocks do not discharge into any ditch, creek, stream, or pond.
- ◆ Do not use wood residue as landfill to level a site (apply clean fill for leveling purposes before laying down any wood residue).
- ◆ Use alternative footing materials, such as sand, if the wood residue stipulations within the *Code of Practice for Agricultural Environmental Management* cannot be met.

**Crop Mulches.** Implement the following additional practices:

- ◆ Minimize the depth and width of mulch around plants.
- ◆ Limit the application of wood residue mulches in combination with nitrogen application to prevent crop “burning” and nutrient loss as wood residue begins to degrade.
- ◆ Do not irrigate with water containing wood residue leachate if the water contacts the crop.
- ◆ Use other materials such as compost or clean chopped straw if runoff or drainage containing wood residue leachate cannot be handled in an environmentally sound manner.

**On-Farm Access Ways.** Implement the following additional practices:

- ◆ Do not use wood residue simply as a fill material.
- ◆ The use of wood residue to create access ways across streams or across ditches is not permitted under the *Environmental Management Act*.
- ◆ Use other products, such as geotextiles with gravel and sand on roadways, if runoff or drainage containing wood residue leachate cannot be handled in an environmentally sound manner.

**Cranberry Berms.** Do not use wood residue for the construction of berms.

**Nursery Bedding Material.** Implement the following additional practice:

- ◆ For the preparation of nursery beds, use geotextile fabrics either alone or in combination with sand and gravel as alternatives to wood residue.

**Fuel for Boilers.** *The Code of Practice for Agricultural Environmental Management* has requirements for using wood as a fuel for boilers.

➔ see Heat Production and Agricultural Boilers, **page 2-54**

**Open Burning.** Before burning wood residue material, ensure that alternative end uses such as bedding, mulch material, or compost feedstock have been considered.

➔ see Open Burning, **page 10-23**

## Wood Residue Leachate Control

Wood residue leachate is generated by water moving through wood residue and is characterized by a dark colour, "oily" sheen and a foul odour. Varying amounts of leachate are produced in almost all situations where wood residue is used. Areas of the Province with higher precipitation are more prone to leachate generation. Irrigation has a similar effect. Surface runoff from wood residue can carry toxic leachate to adjacent fish-bearing streams or to ditch water that enters fish-bearing watercourses. Prevent leachate from entering watercourses or domestic water supplies.



The impacts of wood residue on the environment will be minimized when it is used on well-drained upland sites with medium-textured soils and a deep water table. Leachate detoxification occurs at sites by natural attenuation in the soil. Fine-textured soils have a high ability to attenuate leachate, but restricted infiltration may reduce the amount of attenuation since more runoff is likely to occur. On rapidly drained sites with coarse-textured soils, limit the amounts of wood residue to account for the sites lower absorption and degradation capacity. On poorly drained sites where the water table is near the surface, some form of drainage system may be needed to collect and treat leachate.

→ see Contaminant Leaching in Soil, **page 8-15**

**Limiting Leachate.** Limiting use of wood residue to only that which is absolutely necessary reduces leachate production. Limit contact time between leaching waters and wood residue. Reducing the thickness of applied wood residue, covering stored wood residue, and diversion of uncontaminated runoff to prevent infiltration are all effective means of reducing leachate production.

Leachate Collection, Treatment and Use.

→ see Leachate, **page 9-54** for collection and treatment and use.

# COMPOST



## COMPOST ENVIRONMENTAL CONCERNS

Primary environmental concerns related to compost are:

- ◆ Storing, handling and processing raw materials that results in soil, water or air pollution.
- ◆ Disposal of leachate that results in soil, water or air pollution.
- ◆ Odour, particulate and gas emissions from composting that results in air pollution.  
→ see **Chapter 6**, Nutrient Application, regarding compost application to land

For information on these concerns:

- see Soil Quality Factors, **page 8-2**, refer to Contaminants
- see Water Quality and Quantity Factors, **page 9-1**, refer to Contaminants, and to Oxygen Demand
- see Air Quality Factors, **page 10-1**, refer to Contaminants, to Dust and Particulates, and to Odours

## COMPOST LEGISLATION

The following is a brief outline of the main legislation that applies to composting.

- see **page A-1** for a summary of these and other Acts and Regulations

### Farm Bylaws

The City of Abbotsford and Township of Langley have farm bylaws approved by the Minister of Agriculture to regulate mushroom composting operations, and some other composting operations as well. These bylaws require farms to have an enclosed building with all air emissions biofiltered. They also require a storm water management plan and a waste water management plan. Composting must occur on the same parcel as mushroom growing barns are located. Up to 80% of mushroom compost can be sold, and located in Zone A6 100% can be sold.



### Agricultural Land Commission

The *Agricultural Land Commission (ALC) Act* S.B.C. 2002, c. 36, and *Agricultural Land Reserve (ALR) Regulations* are the legislative framework for the establishment, administration, and procedures of BC's agricultural land preservation program. The ALC Act takes precedence over, but does not replace other legislation and bylaws that may apply to the land. Local and regional governments, as well as other provincial agencies, are expected to plan in accordance with the provincial policy of preserving agricultural land.

The ALR General Regulation, B.C. Reg. 171/2002, identifies the procedures for submitting applications and notices of intent.

The ALR Use Regulation, B.C. Reg. 30/2019 specifies land uses permitted in the ALR.

SECTION 20(1): restricts the use of land within an agricultural land reserve (ALR) to farm uses unless specified by the Act, the *Agricultural Land Reserve Use Regulation* or the Commission.

SECTION 20.3(1) – 20.3(6): restricts the removal or placement of fill on agricultural land and describes the requisite notice of intent and soil or fill use application procedures.

Some farm activities that may be governed by the *ALR Use Regulation #30/2019* include:

SECTIONS 6 – 17:

- ◆ Land development works.
- ◆ Soil testing, biosolids, and soil amendments.

SECTIONS 22 – 27: describes permitted non-farm uses that may be prohibited by local governments. These include:

- ◆ Producing, storing and applying compost classified as Class A compost under the *Organic Matter Recycling Regulation* is permitted, but may be prohibited, if at least 50% but less than 100% of the compost is used on the agricultural land on which it was produced.

SECTION 36: outlines the types of fill that are prohibited from being placed on agricultural land. These include construction or demolition waste (including rubble, concrete, cement, rebar, drywall, wood waste); asphalt; glass; synthetic polymers; treated wood; and unchipped lumber.

For more information see the following informational bulletins:

 [IB-07 Soil or Fill Uses in the ALR](#)



## Drinking Water Protection Act

This Act and Regulations have requirements regarding the protection of drinking water quality and regulate domestic water systems (those serving **more** than one single-family residence).

- ◆ SECTION 23(1): subject to subsection (3), a person must not (a) introduce anything or cause or allow anything to be introduced into a domestic water system, a drinking water source, a well recharge zone or an area adjacent to a drinking water source, or (b) do or cause any other thing to be done or to occur if this will result or is likely to result in a drinking water health hazard in relation to a domestic water system.



## Environmental Management Act

This Act has three Regulations that address composting activities on farms. In general, industrial and commercial composting processes fall under the *Organic Matter Recycling Regulation* and the product may be distributed as a compost, whereas on-farm composting of agricultural by-products falls under the *Code of Practice for Agricultural Environmental Management*.

The *Code of Practice for Agricultural Environmental Management* defines an agricultural composting process distinct from that described in the *Organic Matter Recycling Regulation*, where agricultural by-products, wood residue, mortalities, or processing wastes are mixed or layered and managed to decompose anaerobically with either periodic turning or forced aeration. If distributed by an operation, products of an agricultural composting process may not be described as compost or composted (SECTION 43).

- ◆ SECTION 17: composting structures must be 30 m away from drinking water sources and 15 m away from watercourses, whereas outdoor composting piles must be 30 m away from both drinking water sources and watercourses.
- ◆ SECTION 40: agricultural composting processes must ensure that:
  - All leachate is collected and contained, as well as contaminated runoff and solids.
  - Runoff is diverted away from compost piles.
  - If leachate, contaminated runoff and solids do escape, that they do not enter a watercourse, cross a property boundary or go below the water table; and that.
  - Air contaminants do not cross a property boundary.
  - Composting is carried out in a manner that deters the attraction and access of domestic pets, wildlife, and vectors.

- ◆ SECTION 41: a person who carries out a composting process in a structure must ensure that the structure has a protective base and that the protective base is maintained so it does not leak.
- ◆ SECTION 42: requirements for outdoor composting piles:
  - The pile is not located in an area with standing water, saturated soil and/or that is susceptible to seasonal flooding.
  - The pile is monitored and that composting records, such as material source, temperature, and location are kept.
  - The pile is not left for more than 12 months.
  - No additional pile is erected in the same location for 3 years.
- ◆ SECTION 43 of the AEM Code requires those who distribute the product of agricultural composting to:
  - If distributing 5 m<sup>3</sup> or less of a product of agricultural composting, keep records of the volume distributed, the date of distribution and type of by-product distributed.
  - If distributing 5 m<sup>3</sup> or more of a product of agricultural composting, ensure each distribution has a receipt that is signed by the receiver which shows the volume and type of material distributed, the date of distribution, and the name and business contact information of the receiver.
- ◆ If in a vulnerable aquifer recharge area, SECTION 22 requires the protective base of permanent composting structures be assessed every 6 months for leakage, taking any corrective action necessary to stop the leak. Records must be kept of the assessment and any corrective actions taken.

See Schedule B Vulnerable Aquifer Recharge Areas

- ◆ If in a high-precipitation area (greater than 600 mm precipitation from October 1 to April 30), SECTION 25 requires outdoor composting piles be covered from October 1 to April 1 and if stored for longer than 2 weeks, the pile must not be situated on coarse-textured soil.

See Appendix B High Precipitation Areas of BC

The *Organic Matter Recycling Regulation* has requirements related to composting that affect operation, product quality and land application. This regulation does not apply to an agricultural composting process except in the case where the compost input materials are not all derived from agricultural by-products. In this case OMRR Class A compost criteria would need to be met in order to be allowed within the ALR.

The *Mushroom Compost Facilities Regulation* pertains to all composting associated with mushroom production. It regulates air and water discharges and has many specifications for production of mushroom media. Mushroom producers must also adhere to Farm Bylaws if they are operating within either the City of Abbotsford or the Township of Langley → See **page 2-49**.



## Public Health Act

This Act prohibits activities that may cause a health hazard:

Administered by the Ministry of Health, this Act has a specific prohibition that “a person must not willingly cause a health hazard, or act in a manner that the person knows, or ought to know, will cause a health hazard.”

This prohibition would apply to farm practices that may result in a health hazard, such as when nutrients, contaminants or pathogens are discharged to land, water or air so as to pose a public health problem. Any situation that entails a health hazard will enable health officers to investigate using their powers under the Act. Under the *Public Health Act*, the local Health Authority must investigate any health hazard and has authority to order that a person prevent or stop a health hazard, or mitigate the harm or prevent further harm from a health hazard amongst other powers. Similar regulatory provisions exist for addressing health hazards to drinking water supplies under the *Drinking Water Protection Act*.

The Act also has conditions under the *Health Hazards Regulation*:

- ◆ SECTION 8(1): separation distance from wells to be at least 30 m from any probable source of contamination (probable source of contamination could include compost materials and leachate).

## Fisheries Act

Administered by both Fisheries and Oceans Canada and Environment and Climate Change Canada, this Act is established to manage Canada's fisheries resources, including fish habitat. The Act can also be administered provincially by FLNRORD and ENV. The Act applies to all Canadian waters that contain fish, including ditches, channelized streams, creeks, rivers, marshes, lakes, estuaries, coastal waters and marine offshore areas. It also applies to seasonally wetted areas that provide fish habitat such as shorelines, stream banks, floodplains, intermittent tributaries and privately owned land. The Act includes provisions for stiff fines and imprisonment to ensure compliance.

The purpose of this Act is to provide a framework for (a) the proper management and control of fisheries; and (b) the conservation and protection of fish and fish habitat, including by preventing pollution.

This Act was updated in 2019 and now empowers the Minister to make regulations for the purposes of the conservation and protection of biodiversity.

The definition of fish habitat is: "water frequented by fish and any other areas on which fish depend directly or indirectly to carry out their life processes, including spawning grounds and nursery, rearing, food supply and migration areas". The quantity, timing and quality of the water flow that are necessary to sustain fish habitat are also deemed to be a fish habitat. Furthermore, serious harm to fish includes the death of fish or any permanent alteration to, or destruction of, fish habitat.

Provisions of the 2019 *Fisheries Act* relevant to agricultural operations include:

- ◆ Protection for all fish and fish habitats;
- ◆ Prohibition against the death of fish or the 'harmful alteration, disruption or destruction of fish habitat';
- ◆ A permitting framework and codes of practice to improve management of large and small projects impacting fish and fish habitat;
- ◆ Protection of fish and/or fish habitats that are sensitive, highly productive, rare or unique; and
- ◆ Consideration for the cumulative effects of development activities on fish and fish habitat.

Specific sections of the Act include:

SECTION 34.2(1) The Minister may establish standards and codes of practice for:

- (a) The avoidance of death to fish and harmful alteration, disruption or destruction of fish habitat;
- (b) The conservation and protection of fish or fish habitat; and
- (c) The prevention of pollution.

SECTION 34.4(1) No person shall carry on any work, undertaking or activity, other than fishing, that results in the death of fish.

SECTION 35 (1) No person shall carry on any work, undertaking or activity that results in the harmful alteration, disruption or destruction of fish habitat.

Every person who contravenes subsection 34.4(1) or 35(1) is guilty of an offence and liable.

Notifying authorities about serious harm to fish or deposit of a deleterious substance:

SECTION 38 (4.1) Every person shall without delay notify an inspector, a fishery officer, a fishery guardian or an authority prescribed by the regulations of a harmful alteration, disruption or destruction of fish habitat that is not authorized under this Act, or of a serious and imminent danger of such an occurrence, if the person at any material time .

- (a) Owns or has the charge, management or control of the work, undertaking or activity that resulted in the occurrence or the danger of the occurrence; or
- (b) Causes or contributes to the occurrence or the danger of the occurrence.

SECTION 38 (5) If there occurs a deposit of a deleterious substance in water frequented by fish that is not authorized under this Act, or if there is a serious and imminent danger of such an occurrence, and detriment to fish habitat or fish or to the use by humans of fish results or may reasonably be expected to result from the occurrence, then every person shall without delay notify an inspector, a fishery officer, a fishery guardian or an authority prescribed by the regulations.

SECTION 38 (7) As soon as feasible after the occurrence or after learning of the danger of the occurrence, the person shall provide an inspector, a fishery officer, a fishery guardian or an authority prescribed by the regulations with a written report on the occurrence or danger of the occurrence.

## COMPOST BENEFICIAL MANAGEMENT PRACTICES

Comply with applicable composting related legislation, including the above, and where appropriate, use the following beneficial management practices to protect the environment.

→ see **Chapter 6**, Nutrient Application, regarding compost application to land

### Compost Handling and Storage

**Production Site.** The primary consideration when siting a compost production area is the prevention of water pollution. Some situations may require distances greater than those specified in legislation.

→ see Farm Building Siting, **page 2-8**

Potential odour nuisance complaints or other conflicts with neighbours, such as noise impacts, may be reduced by using the following practices:

- ◆ Locate buildings according to the Agriculture Building Setback Standards (suggested).  
→ see Farm Building Siting, **page 2-8**
- ◆ Locate buildings and operations as far as possible from rural residences or residential areas.
- ◆ Take advantage of unique topography or microclimate conditions that could affect odour impacts.
- ◆ Site buildings and operations so that prevailing winds transport odours away from rural residences or residential areas.
- ◆ Keep compost material indoors or covered whenever possible.
- ◆ Organize activities in accordance with weather situation.
- ◆ If handling material with high odour potential, ensure fast processing with sufficient absorbent bulk material.
- ◆ Try to avoid compost activities on weekends or in evening hours.
- ◆ Good housekeeping at the site can substantially reduce odour potential.
- ◆ Barriers such as trees or natural mounds are not effective to control odour. They are, however, visual screenings.
- ◆ Log your activities and weather daily. Consult your records in case of complaints to correct future activities.

**Materials Storage.** To avoid runoff and odour problems, store raw materials and finished compost under cover. Storage areas can be a simple, open structure with a roof. A concrete push wall could be added at one end to aid in the handling of materials with a front-end loader. Organic materials, if not handled carefully, may begin to decompose while in storage.

If the product is stored directly on the ground rather than on a raised concrete pad, divert runoff from the area.

→ see Runoff, **page 9-50**

**Compost Facility.** Composting is a method of recycling organic matter into stable organic material that can serve as a nutrient source or soil conditioner. The composting process should promote aerobic decay of organic materials while preventing the escape of potentially harmful gases and liquids. An effectively managed setup will produce temperatures high enough to destroy disease organisms contained in the plant material.

Design buildings used for composting to provide adequate ventilation. Improper design will lead to moisture condensation and accelerated deterioration of the structure. Choose building techniques and products to withstand the aggressive corrosion caused by condensates of dissolved ammonia and reduced sulfur compounds that develop in most composting operations. The pH of those condensates can change between 5.5 to 8.0 during the process.



Good housekeeping practices, including frequent cleanup of spilled materials, will reduce the potential for odour problems.

-  On-Farm Composting in British Columbia
-  Recycling Council of BC Factsheets

## Compost Leachate Control

During decomposition of organic materials, nitrate-nitrogen, ammonia and organic compounds are produced. If water passes through compost materials, runoff carrying these compounds will be generated, causing risks to surface water and groundwater. Covering stored compost raw materials and finished compost, and diversion of uncontaminated runoff to prevent infiltration, are all effective means of reducing leachate production.

→ see Leachate, **page 9-57**

In areas receiving high precipitation, composting on bare ground without cover is not recommended. Significant leaching from compost piles will occur, transporting organic and nutrient contaminants into the soil. These contaminants will slowly move down through the soil and may contribute to groundwater pollution. Therefore, composting in high precipitation areas should be conducted under cover, on impervious surfaces with leachate collection.

In low rainfall areas, compost may be produced outside on uncovered concrete slabs, as shown in **Figure 2.3**, below. Collect, store, and recycle or apply all runoff to land. → see Runoff, **page 9-50**

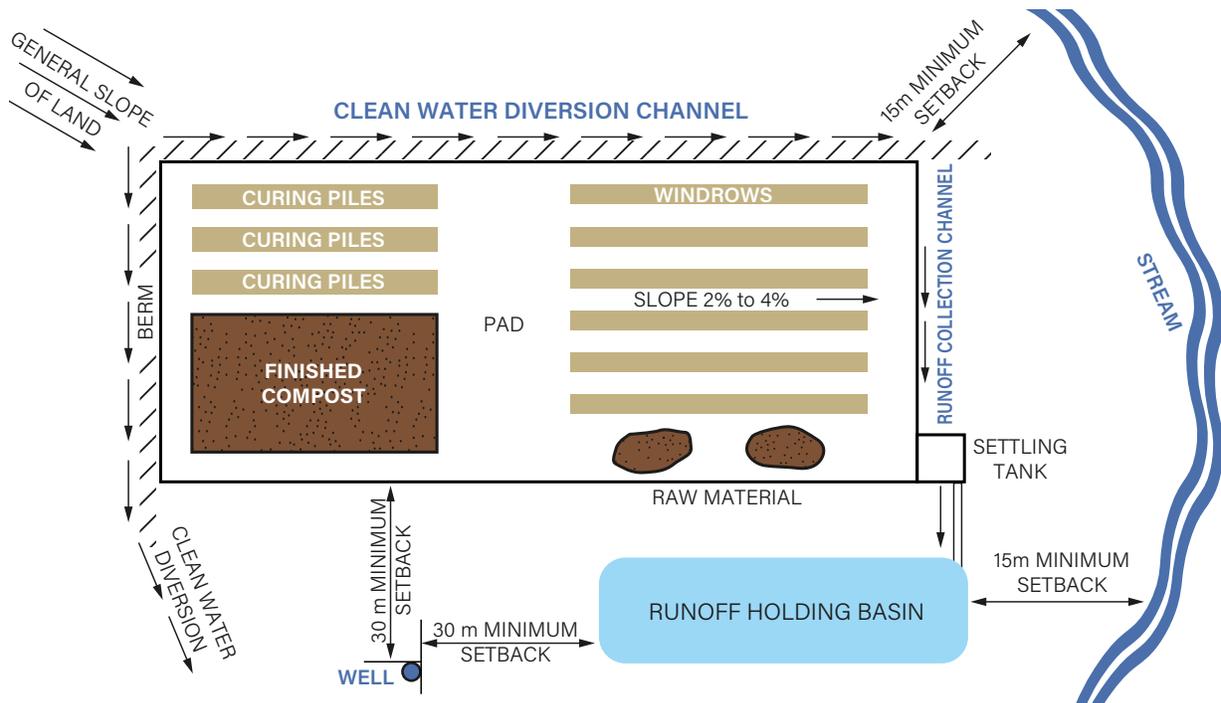


FIGURE 2.3 A Well-Planned Outdoor Composting Facility

## Composting Odour Control

Most odour-related composting issues are related to sulphur components and small chain VOCs. Ammonia is often a lesser odour concern but can be a health concern for farm workers. Composting results in the release of large amounts of moisture and ammonia. If ammonia and other gases are released at unacceptably high levels, it may be necessary to enclose the composting facility completely and incorporate air emissions treatment systems.

Odour control starts with feedstock preparation: fast processing (mixing with bulking agents), control of moisture content and porosity, and an appropriate carbon to nitrogen ratio (C:N). Excessive ammonia release is often the result of imbalanced C:N ratios. The production of sulphur components and odorous organic components is often the result of high moisture and the lack of oxygen during the composting process. Too little biological activity is often the result of excessive porosity or lack of moisture.

Biofilters are typically the most effective ways of controlling odour emissions where emissions are collected from the compost operation. The combination of scrubbers with biofilters should be considered where those emissions contain elevated levels of ammonia.

→ see Indoor Poultry and Livestock Housing, **page 3-5**

Ensuring compost piles are aerated, by regular turning or by forced or passive aeration will reduce production of in-acceptable odours. However, odour emissions can only be reduced but not avoided. Organizing the activities in accordance with the weather is, therefore, an important operational strategy to reduce odour impact beyond the property lines.

Operators must not rely on buffers for the abatement of odours. However, they are a visual screen that help to reduce the complaints from perceived odour.

→ see Buffers, **page 11-4**

## Composting Noise Control

Grinding of raw ingredients, mixing of products and turning of compost piles can all generate significant amounts of noise. To reduce noise impacts on neighbours consider the timing of the operations. Also establish and maintain an adequate buffer between compost operations and neighbours to keep noise from causing a nuisance.

→ see Buffers, **page 11-4**

## Composting Fly Control

Elimination of fly breeding sites is the only effective means of preventing buildup of flies. An effective program must include proper storage and disposal management practices. Part of such a program also includes the management of compost at moistures that are less than optimum for breeding. Insecticidal baits and sprays – supplemented by biological control agents, sticky traps, and electrocuting devices – provide only localized and temporary fly control if proper management of breeding sites is not in place.

 [Compost Facility Requirements Guidelines](#)

 [Management of Flies in Layer Barns](#)

## Mushroom Media

Implement the general composting practices outlined above and use specific mushroom media practices.

→ see Mushroom, **page 4-23**

## Composting Livestock Mortalities

Implement the general composting practices outlined above and use specific livestock mortality practices.

→ see Livestock Mortality Disposal, **page 3-49**

## Composting and Greenhouse Gases

The natural result of the composting process is the release of carbon dioxide. However, there is also the potential of the emission of much more potent greenhouse gases such as methane and nitrous gas. The emission of these greenhouse gases depend strongly on the extent good management practices are implemented. Generally, composting can result in a net decrease in greenhouse gas emissions if it is returned to the soil as a fertilizer / conditioner to offset other energy intensive soil inputs (e.g., synthetic fertilizers) and by carbon sequestration. For processing very large volumes of organic materials, consider using anaerobic digesters with a methane capture system prior to composting. Decomposition in the absence of oxygen (anaerobic conditions) primarily releases methane that can be used as biofuel on or off-farm. The most easily biodegradable biomass materials are acceptable as feedstocks for anaerobic digestion. Biogas yields are low, and therefore anaerobic digestion is less suitable, for high cellulose material (e.g., woody materials).

# ENERGY USE



## ENERGY USE ENVIRONMENTAL CONCERNS

Primary environmental concerns related to energy use are:

- ◆ excess and inefficient use of energy that results in air pollution, or results in the unnecessary generation of greenhouse gases

For information on these concerns:

- ➔ see Air Contaminants, **page 10-1**, refer to Dust and Particulates and to Volatile Organic Compounds
- ➔ see Climate Change Factors, **page 12-1**, and refer to Agricultural Greenhouse Gases

## ENERGY USE LEGISLATION



### Carbon Tax Act

The *Carbon Tax Act* establishes a carbon tax in BC. Carbon tax is a broad based tax that applies to the purchase or use of fuels, such as gasoline, diesel, natural gas, heating oil, propane, coal, and the use of combustibles, such as peat and tires, when used to produce heat or energy. Carbon tax applies to fuels at different rates depending on their anticipated carbon emissions.

Farmers are required to pay carbon tax on fuel purchased or used for farming operations. However, coloured fuel purchased by a qualifying farmer that is delivered to their farm land is exempt from the carbon tax.

## ENERGY USE BENEFICIAL MANAGEMENT PRACTICES

### Energy Use

Where appropriate, implement the following beneficial management practices to protect the environment.

Purchase energy efficient equipment and use technologies that reduce energy consumption and gas emissions that contribute to climate change. Energy auditing services are valuable in identifying areas where such advantages can be realized. Complete an on-farm energy efficiency assessment using the “Farm Energy Assessment Tool” created by the Climate & Agriculture Initiative BC.

 [http://www.bcagclimateaction.ca/wp/wp-content/media/BC\\_FEA\\_Tool\\_v5.xls](http://www.bcagclimateaction.ca/wp/wp-content/media/BC_FEA_Tool_v5.xls)

**Energy Use in Buildings and Yards.** For energy efficiency in and around buildings, implement the following practices:

- ◆ Design and construct buildings to take advantage of natural light and the solar energy of the site.
- ◆ Use high efficiency furnaces for space and water heating and replace forced air systems with radiant heating.
- ◆ Retrofit end-of-life atmospheric boilers with condensing over forced draft boilers.
- ◆ Use energy efficient lighting such as fluorescent, LED, sodium, and metal halides.
- ◆ Use high efficiency electric motors.
- ◆ Use control systems such as temperature, humidity and light sensors, variable speed fans, timers, and dimmers that fine-tune energy input at required times and amounts.
- ◆ Use zone controls to limit lighting, ventilation, heating and cooling only to areas in active use.
- ◆ Use insulation, vapour barriers, weather stripping, window glazing and caulking in heated and cooled buildings.
- ◆ Insulate heat distribution pipes, hot water tanks, refrigerated tanks or walk-in coolers.
- ◆ Enclose and insulate curtain openings on barns.
- ◆ Use levels of insulation, vapour barriers and weather stripping in heated and cooled buildings that take local climatic conditions into account.
- ◆ Design livestock ventilation systems using appropriate minimum winter and maximum summer ventilation rates.
- ◆ Use heat exchangers on ventilated buildings (especially in colder climates).
- ◆ Install condensers on boilers or refrigeration units and reuse energy to pre-heat water or for other heating needs.
- ◆ Install fans to circulate air and reduce temperature layering.
- ◆ Use directed lighting in areas that require focussed tasks to be accomplished.
- ◆ Use renewable sources of energy such as wind, solar, geothermal, biomass where economical.  
→ see Climate Change Mitigation, **page 12-7**
- ◆ Establish shelterbelts and windbreaks around farm buildings to conserve heat and improve energy efficiency.
- ◆ Use geexchange reservoirs for heating and cooling baseloads.  
→ see Buffers, **page 11-4**
- ◆ In greenhouses, use retractable curtains to shade crops at peak solar input (crop dependent) and to minimize heat loss at night.
- ◆ In greenhouses, use a thermal storage unit to capture excess daytime heat resulting from carbon dioxide generation for use during night time heating.
- ◆ In greenhouses, stage supplemental lighting to make maximum use of natural light.
- ◆ Where used, have heating and ventilation systems fully interlocked.
- ◆ Isolate and disable any boilers, compressors and hot water tanks when not in use for extended periods and maintain pressures at optimal levels.
- ◆ Do not heat stock water above 58°C, reduce hot water tank set points to between 55 and 60°C, and reduce air temperatures in office and workspaces when not in use.
- ◆ Conduct routine inspections and complete regular maintenance on all heating, cooling, compression and ventilation systems – ensure motors, fan blades and belts are clean and in good working order.

**Energy Use in Field Operations.** For field operations implement the following practices:

- ◆ Use appropriately sized equipment such that surplus power is not used when not needed.
- ◆ Convert or replace gas or diesel-powered equipment to electric or biofuels.
- ◆ Replace petroleum-powered PTO equipment or generators with electric power when practical.
- ◆ Use fuel efficient tractors, trucks, and stationary equipment.
- ◆ Use appropriate fuels for different seasons.
- ◆ Avoid extended engine idling.
- ◆ Match tractor power to expected loads by “gearing up – throttling down”.
- ◆ Maintain all powered equipment as recommended by the manufacturer.
- ◆ Minimize the number of passes over a field by carrying out multiple operations at the same time.
- ◆ Minimize mechanical trimming and leaf thinning in orchards and vineyards to reduce equipment use and fuel consumption.
- ◆ Use no-till or reduced tillage practices.
- ◆ Use radial tires on all powered mobile equipment.
- ◆ Keep tires at recommended inflation pressures.
- ◆ Ballast tractors for optimum match of wheel slip, horsepower, and speed.
- ◆ Use efficient irrigation and watering systems to reduce pumping energy.

 [Pumping Livestock Water – It’s all about energy choices!](#)

 [Energy Free Water Fountains](#)

 [Saving Energy on Your Farm: Resources and Factsheets, including the BC Farm Energy Assessment Tool](#)

**Energy Use in Crop Drying and Feed Processing.** For crop drying and feed processing facilities implement the following practices:

- ◆ Use fuel efficient dryers and electrically efficient motors.
- ◆ Use automatic controls on low temperature aeration drying or monitor drying conditions frequently.
- ◆ Use continuous drying systems where possible.
- ◆ Monitor moisture content of materials while drying so that excessive drying is avoided.

# HEAT PRODUCTION AND AGRICULTURAL BOILERS



## HEAT PRODUCTION AND AGRICULTURAL BOILER ENVIRONMENTAL CONCERNS

Primary environmental concerns related to heat production with boilers are:

- ◆ Release of particulate matter from biomass fired boilers.
- ◆ Release of particulates and other harmful air contaminants (sulphur oxides and nitrogen oxides) from the burning of fossil fuels in boilers which can result in:
  - Health risks from inhaling the particulate;
  - Visual impairments from the emissions and due to the formation of smog;
  - Environmental impacts.
- ◆ Emission of carbon dioxide (CO<sub>2</sub>) from fossil fuel fired boilers which contributes to climate change.
- ◆ The combustion of biomass is considered to be carbon neutral.

For information on these concerns:

- ➔ see Air Contaminants, **page 10-1**
- ➔ see Climate Change Factors, **page 12-1**

## HEAT PRODUCTION AND AGRICULTURAL BOILER LEGISLATION

The following is a brief outline of the main legislation that applies to heat production and agricultural boilers.

- ➔ see **page A-1** for a summary of these and other Acts and Regulations

### Local Bylaws

Regional and municipal governments can pass bylaws to control emissions from boilers.



#### Environmental Management Act

Under the *Environmental Management Act*, local governments may be delegated authority to manage air quality within their boundaries (e.g., Metro Vancouver). Local and regional governments can pass bylaws that regulate emissions from industrial, commercial and industrial sources, through permits, compliance promotion and enforcement.

The *Code of Practice for Agricultural Environmental Management* requires persons to use environmentally responsible and sustainable agricultural practices when carrying out agricultural operations for the purpose of minimizing the introduction of waste into the environment and preventing adverse impacts to the environment and human health. The AEM Code includes requirements for building setbacks from water sources and property boundaries.

The AEM Code regulates emissions from biomass fueled boilers used in agricultural production under Division 2:

- ◆ Registration requirements for boilers and heaters are described in SECTION 4 and 5.
- ◆ Division 2: contains emissions requirements for boilers and heaters:
  - SECTION 9: regulates types of acceptable fuel;
  - SECTION 10: outlines acceptable opacity of emissions;
  - SECTION 11: regulates particulate matter limits;
  - SECTIONS 12-14: provides directives around taking corrective action and record-keeping requirements.

 [BC Ministry of Environment and Climate Change Strategy Agricultural Boiler Registration, Output Capacity, and Emissions](#)

The *Code of Practice for Agricultural Environmental Management* and the *Metro Vancouver Agricultural Boilers Emission Regulation Bylaw No. 1098* are harmonized with respect to boiler emission limits, registration, monitoring and reporting and allowable fuel types. If you are located in Metro Vancouver, please refer to:

 [Metro Vancouver Bylaw No. 1098](#)

The AEM Code as well as the *Metro Vancouver Agricultural Boilers Emission Regulation Bylaw* defines biomass used for boiler fuel as:

- ◆ Agricultural fuel products, including agricultural pellets, manure pellets, corn kernels, corn stalks, seed hulls or wood or wood products;
- ◆ But does not include any raw manure; paper or paper product; wood or wood product that has been treated with glue, paint or preservative, that contains a toxic substance or is salt laden.

**Emissions Standards:** Traditional fuel sources for boilers include natural gas, heating oil and propane. Due to rising fuel costs, these fuel sources were replaced by biomass and subsequently new regulations that set standards for air emissions from agricultural boilers were implemented. In 2018, the amendments to the AEM Code were introduced to establish consistent rules for all boilers used in agriculture. The AEM Code as well as the *Agricultural Boilers Emission Regulation Bylaw* defines biomass used for boiler fuel as:

- ◆ Agricultural fuel products, including agricultural pellets, manure pellets, corn kernels, corn stalks, seed hulls or wood or wood products;
- ◆ But does not include any raw manure; paper or paper product; wood or wood product that has been treated with glue, paint or preservative, that contains a toxic substance or is salt laden.

The *Code of Practice for Agricultural Environmental Management* sets emission standards for biomass boilers used in agriculture. These limits are seen in **Table 2.3** next page. The limits are consistent with Metro Vancouver's Bylaw No. 1098.

TABLE 2.3 Emissions Regulation Limits for Boilers and Heaters Fuelled by Biomass		
Capacity of Boiler or Heater	Emission Standards	
	Particulate Matter Limit	Opacity Limit
Greater than 3 MW	35 mg/m <sup>3</sup>	10%
Less than or equal to 3 MW	50 mg/m <sup>3</sup>	10%
less than or equal to 1 MW		20%

Any person who is operating a boiler or heater for agricultural purposes is required to register with the BC Ministry of Environment and Climate Change Strategy or, if located in Metro Vancouver, with Metro Vancouver before the boiler or heater is used.

This can be done by following the online registration guide found at:

- ◆ If located in BC, outside of Metro Vancouver:
  -  [Agricultural Boilers in BC](#)
- ◆ If located in Metro Vancouver:
  -  [Agricultural Boilers in Metro Vancouver](#)

If a boiler or heater is connected to a single stack and the combined capacity is:

- ◆ >1 MW, then requirements for biomass boilers and heaters over 1 MW applies.
- ◆ >3 MW, then requirements for biomass boilers and heaters over 3 MW applies.

Table 2.4 below will help to determine the boiler output.

TABLE 2.4	Boiler Capacity Conversion to Megawatts
Boiler capacity information may be found on the boiler nameplate (metal tag attached to the boiler), or from the boiler manufacturer.	
Reporting Capacity in megawatts (MW)*:	
_____ GJ/hr x 0.2778 = _____ MW	
_____ MMBTU/hr x 0.2931 = _____ MW	
_____ Boiler BHP x 0.009803 = _____ MW	
Example: The boiler plate indicates energy input of 400 BHP: Therefore 400 BHP x 0.009803 = 3.9212 MW.	
*GJ – Gigajoules, MMBTU – Millions of British Thermal Units, BHP – Boiler Horse Power	

## HEAT PRODUCTION AND AGRICULTURAL BOILER BENEFICIAL MANAGEMENT PRACTICES

**Emissions Reduction:** Comply with applicable emissions related legislation, including the above, and where appropriate, implement the following beneficial management practices to protect the environment.

- ◆ Use energy management systems that ensure optimization of temperature and humidity.
- ◆ Implement emission control devices on biomass burners.
- ◆ Ensure biomass fuels have optimum moisture content.
- ◆ Use boilers with low particulate generation.
- ◆ Install flue condensers or other technology to recover boiler heat.
- ◆ Implement a maintenance program for solid fuel boilers and all heating system components.
- ◆ Use appropriately sized and efficiently operated heating plants for greenhouse and other production facilities.
- ◆ Use clean burning material in burners to ensure a clean burn and maximize energy generation.
- ◆ Separate out and do not burn contaminated biomass, such as treated wood.
- ◆ Establish and maintain adequate windbreak and shelterbelt buffers around farm buildings and livestock facilities to improve energy efficiency and sequester carbon.
  - ➔ see Buffers, **page 11-4**
- ◆ Maximize the use of on-farm renewable energy, such as wind or solar to reduce imported energy needs.
  - ➔ see Climate Change Mitigation, **page 12-7**

# ON-FARM PROCESSING AND SALES



**Farm gate sales** refer to the ability of producers to sell their products directly to consumers from the farm itself, usually through a farm stand.

On-farm **product preparation** refers to the cleaning, sorting, separating, grading, or packing of farm products.

On-farm **processing** refers to processes that include mixing; drying; canning; size reduction; fermentation; and heat, cold, chemical or biological treatment to prepare farm products or value-added products for sale.

➔ see Crop Processing, **page 4-13**, for processing livestock feed

## ON-FARM PROCESSING AND SALES ENVIRONMENTAL CONCERNS

Primary environmental concerns related to on-farm processing are:

- ◆ Disposal of processing wastes, waste product and wash water that results in soil, water or air pollution.
- ◆ Washing or processing crops with poor water quality (e.g., pathogens) that results in food unfit for consumption.

For information on these concerns:

- ➔ see Soil Quality Factors, **page 8-1**, refer to Contaminants, and to Salts
- ➔ see Water Quality and Quantity Factors, **page 9-1**, refer to Contaminants, and to Oxygen Demand
- ➔ see Air Contaminants, **page 10-1**, refer to Dust and Particulates, to Odours, and to Open Burning

## ON-FARM PROCESSING AND SALES LEGISLATION

The following is a brief outline of the main legislation that applies to on-farm processing and sales.

- ➔ see **page A-1** for a summary of these and other Acts and Regulations

### Local Bylaws

Local governments may regulate aspects of on-farm processing and sales that relate to size, setbacks, parking, signage, and hours of operation.



### Agricultural Land Commission Act

The *Agricultural Land Commission (ALC) Act* S.B.C. 2002, c. 36, and *Agricultural Land Reserve (ALR) Regulations* are the legislative framework for the establishment, administration, and procedures of BC's agricultural land preservation program. The ALC Act takes precedence over, but does not replace other legislation and bylaws that may apply to the land. Local and regional governments, as well as other provincial agencies, are expected to plan in accordance with the provincial policy of preserving agricultural land.

The *ALR General Regulation*, B.C. Reg. 171/2002, identifies the procedures for submitting applications and notices of intent.

The *ALR Use Regulation*, B.C. Reg. 30/2019 specifies land uses permitted in the ALR.

- ◆ SECTION 20(1): restricts the use of land within an agricultural land reserve (ALR) to farm uses unless specified by the Act, the *Agricultural Land Reserve Use Regulation* or the Commission

Some farm activities that may be governed by the *ALR Use Regulation* #30/2019 include:

- ◆ SECTION 11: Farm products:

The use of agricultural land for storing, packing, preparing and processing farm products is designated as a farm use and may not be prohibited if at least 50% of the farm product is:

- (a) Produced either on that agricultural land or by an association to which the owner of the agricultural land belongs, or
- (b) Feed required for farm use on that agricultural land.

The use of agricultural land for conducting farm retail sales is designated as a farm use and may not be prohibited if

- (a) All of the farm products offered for sale are produced on that agricultural land, or
- (b) The area used for all retail sales meets both of the following conditions:
  - (i) The total area, both indoors and outdoors, does not exceed 300 m<sup>2</sup>;
  - (ii) At least 50% of that area is limited to the sale of farm products produced either on that agricultural land or by an association to which the owner of the agricultural land belongs.

- ◆ SECTION 13: Alcohol production (beer, cider, spirits, mead, or wine) "ancillary use" means the following activities:

- (a) Processing, storing and retail sales of an alcohol product produced by the alcohol production facility.
- (b) Operating a food and beverage service lounge, if the area of the lounge does not exceed 125 m<sup>2</sup> indoors and 125 m<sup>2</sup> outdoors.
- (c) Selling an alcoholic beverage other than one produced by the alcohol production facility, if the alcoholic beverage is intended to be consumed immediately and is sold.
- (d) Conducting a cooking class, if the class is held in a food premises within the meaning of the *Food Premises Regulation* that has been constructed, and is being operated, in compliance with that regulation.
- (e) Gathering for an event.

The use of agricultural land for constructing, maintaining and operating an alcohol production facility and the use of the facility for ancillary uses are designated as farm uses and may not be prohibited if

- (a) At least 50% of the primary farm product used to make the alcohol product produced each year is harvested from the agricultural land on which the alcohol production facility is located, or
- (b) The agricultural land on which the alcohol production facility is located is more than 2 ha in area and at least 50% of the primary farm product used to make the alcohol product produced each year is:
  - (i) Harvested from that agricultural land, or
  - (ii) Both harvested from that agricultural land and received from a farm operation located in British Columbia that provides that primary farm product to the alcohol production facility under a contract having a term of at least 3 years.

SECTIONS 22 – 27 describe permitted non-farm uses that may be prohibited by local governments. These include:

- ◆ Home occupation;
- ◆ Aggregate removal (under certain conditions);
- ◆ Producing, storing and applying compost classified as Class A compost under the *Organic Matter Recycling Regulation* is permitted, but may be prohibited, if at least 50% but less than 100% of the compost is used on the agricultural land on which it was produced.

For more information see the following policies and informational bulletins:

-  Policy L-01: Farm Product Processing in the ALR
-  Policy L-02: Farm Retail Sales in the ALR
-  IB-01: Slaughter Plants and Handling Red Meat Waste in the ALR



## Drinking Water Protection Act

This Act and Regulations have requirements regarding the protection of drinking water quality and regulate domestic water systems (those serving **more** than one single-family residence).

- ◆ SECTION 23(1): subject to subsection (3), a person must not
  - (a) Introduce anything or cause or allow anything to be introduced into a domestic water system, a drinking water source, a well recharge zone or an area adjacent to a drinking water source, or
  - (b) Do or cause any other thing to be done or to occur if this will result or is likely to result in a drinking water health hazard in relation to a domestic water system.



## Food Safety Act

- ◆ The *Food Safety Act* encompasses the entire spectrum of British Columbia's food industry, from production and processing to retail and food service establishments. The Act is an important part of the legislative framework for food safety in BC. It clarifies the legal responsibility of food establishment operators with respect to the safety of their products; grants inspection and enforcement powers to inspectors; and specifies offences and penalties for infractions.
- ◆ The *Food Safety Act* also gives the Lieutenant Governor in Council the authority to establish regulations governing food production, food sale and the operation of food establishments. However, at present time, the only regulation in place under this Act is the *Meat Inspection Regulation*.
- ◆ The definition of "food establishment" is broad. The Ministry of Health administers the *Food Safety Act* except as it relates to food establishments where animals are slaughtered for food purposes, whereby the Ministry of Agriculture, Food and Fisheries administers it.
- ◆ The *Food Safety Act's Meat Inspection Regulation* authorizes slaughter facilities and associated licensing in BC. There are several classes of meat processing licensing, depending on location, size, and target consumers of the establishments.



## Environmental Management Act

On-farm processing wastes are not regulated by the *Code of Practice for Agricultural Environmental Management*, and may require authorization for introduction of a waste to the environment. The discharge of processing waste may require a permit from ENV.

The *Ozone Depleting Substances and Other Halocarbons Regulation* regulates the servicing of refrigeration equipment and disposal of refrigerant gases.

The *Code of Practice for the Slaughter and Poultry Processing Industries* regulates the disposal of solid and liquid wastes produced by the slaughter industry under the *Waste Discharge Regulation*.



## Public Health Act

This Act prohibits activities that may cause a health hazard:

- ◆ SECTION 15: a person must not willingly cause a health hazard, or act in a manner that the person knows, or ought to know, will cause a health hazard

The Act also has conditions under the *Health Hazards Regulation*:

- ◆ Separation distance from wells to be at least 30 m from any probable source of contamination (probable source of contamination could include processing wastes)

Under the *Food Premises Regulation*, food premises must be connected to a source of potable water and be connected to a waste disposal system, among other requirements. This Regulation applies to any of the roughly 23,000 food premises in B.C. where food intended for public consumption is sold, offered for sale, handled, prepared, packaged, processed, stored, etc.

- ◆ SECTION 4: sets out general construction requirements for food premises
- ◆ SECTION 7: every operator of food premises must immediately notify a health officer of any circumstance that exists in the food premises that may cause a health hazard
- ◆ SECTION 14: sets out processing, storage and display requirements for operators of food premises
- ◆ SECTIONS 23 AND 24: contain food safety management requirements

The *Food Premises Regulation* defines a “food premises” as any place where food intended for public consumption is sold, offered for sale, supplied, handled, prepared, packaged, displayed, served, processed stored, transported, or dispensed. However, premises in which only whole fresh fruits or vegetables are sold or offered for sale are exempt. Therefore, the *Food Premises Regulation* (FPR) only applies if processing occurs. The FPR requires that the construction or renovation plans of a food premises must be approved by a health officer. Specifications regarding potable water, waste disposal, lighting, ventilation, and kitchen equipment are all regulated.

The FPR also requires FOODSAFE training by operators and a permit to operate a food service establishment. Local Health Authorities are responsible for licensing, inspecting, and administering the FOODSAFE education program in their jurisdiction. Food businesses that prepare or serve food for immediate consumption must obtain a Health Operating Permit. An Application for Health Approval will need to be submitted to the local Environmental Health Officer and a food safety and a sanitation plan may be required as well. In addition to FOODSAFE certification, guidelines exist for mobile food premises and guidelines for the sale of foods at temporary markets (farmers markets). These have been developed by the BC Centre for Disease Control (BCCDC) in collaboration with BC Ministry of Health and the Five Regional Health Authorities: Vancouver Coastal, Fraser, Interior, Northern and Vancouver Island.



## Transportation Act

The *Transportation Act* governs subject areas such as signage, safe access and sufficient parking.



## Canada Agriculture Products Act

This Act has conditions under the *Fresh Fruit and Vegetable Regulation* requiring that no stagnant or polluted water is used in the washing or fluming of the produce, and only potable water is used in the final rinsing of the produce to remove any surface contaminant before packing.

The *Consumer Packaging and Labeling Act and Regulations* establishes basic labeling requirements for prepackaged consumer products.



## Food and Drugs Act

The *Food and Drugs Act* covers the sale and marketing of food, drugs and cosmetics in Canada.



## Fisheries Act

Administered by both Fisheries and Oceans Canada and Environment and Climate Change Canada, this Act is established to manage Canada's fisheries resources, including fish habitat. The Act can also be administered provincially by FLNRORD and ENV. The Act applies to all Canadian waters that contain fish, including ditches, channelized streams, creeks, rivers, marshes, lakes, estuaries, coastal waters and marine offshore areas. It also applies to seasonally wetted areas that provide fish habitat such as shorelines, stream banks, floodplains, intermittent tributaries and privately owned land. The Act includes provisions for stiff fines and imprisonment to ensure compliance.

The purpose of this Act is to provide a framework for (a) the proper management and control of fisheries; and (b) the conservation and protection of fish and fish habitat, including by preventing pollution.

This Act was updated in 2019 and now empowers the Minister to make regulations for the purposes of the conservation and protection of biodiversity.

The definition of fish habitat is: "water frequented by fish and any other areas on which fish depend directly or indirectly to carry out their life processes, including spawning grounds and nursery, rearing, food supply and migration areas". The quantity, timing and quality of the water flow that are necessary to sustain fish habitat are also deemed to be a fish habitat. Furthermore, serious harm to fish includes the death of fish or any permanent alteration to, or destruction of, fish habitat.

Provisions of the 2019 *Fisheries Act* relevant to agricultural operations include:

- ◆ Protection for all fish and fish habitats;
- ◆ Prohibition against the death of fish or the 'harmful alteration, disruption or destruction of fish habitat';
- ◆ A permitting framework and codes of practice to improve management of large and small projects impacting fish and fish habitat;
- ◆ Protection of fish and/or fish habitats that are sensitive, highly productive, rare or unique; and
- ◆ Consideration for the cumulative effects of development activities on fish and fish habitat.

Specific sections of the Act include:

SECTION 34.2(1) The Minister may establish standards and codes of practice for:

- (a) The avoidance of death to fish and harmful alteration, disruption or destruction of fish habitat;
- (b) The conservation and protection of fish or fish habitat; and
- (c) The prevention of pollution.

SECTION 34.4(1) No person shall carry on any work, undertaking or activity, other than fishing, that results in the death of fish.

SECTION 35 (1) No person shall carry on any work, undertaking or activity that results in the harmful alteration, disruption or destruction of fish habitat.

Every person who contravenes subsection 34.4(1) or 35(1) is guilty of an offence and liable.

Notifying authorities about serious harm to fish or deposit of a deleterious substance:

SECTION 38 (4.1) Every person shall without delay notify an inspector, a fishery officer, a fishery guardian or an authority prescribed by the regulations of a harmful alteration, disruption or destruction of fish habitat that is not authorized under this Act, or of a serious and imminent danger of such an occurrence, if the person at any material time

- (a) Owns or has the charge, management or control of the work, undertaking or activity that resulted in the occurrence or the danger of the occurrence; or
- (b) Causes or contributes to the occurrence or the danger of the occurrence.

SECTION 38 (5) If there occurs a deposit of a deleterious substance in water frequented by fish that is not authorized under this Act, or if there is a serious and imminent danger of such an occurrence, and detriment to fish habitat or fish or to the use by humans of fish results or may reasonably be expected to result from the occurrence, then every person shall without delay notify an inspector, a fishery officer, a fishery guardian or an authority prescribed by the regulations.

SECTION 38 (7) As soon as feasible after the occurrence or after learning of the danger of the occurrence, the person shall provide an inspector, a fishery officer, a fishery guardian or an authority prescribed by the regulations with a written report on the occurrence or danger of the occurrence.

## Health of Animals Act

*Health of Animals Act* and the *Health of Animals Regulation* covers diseases and toxic substances that may affect animals or that may be transmitted by animals to persons, and the protection of animals.

### ON-FARM PROCESSING AND SALES BENEFICIAL MANAGEMENT PRACTICES

Comply with applicable on-farm processing and sales related legislation, including the above, and where appropriate, implement the following beneficial management practices to protect the environment.

On-farm product preparation, processing and sales can generate wastes and cause impacts which, for regulatory purposes, may not be regarded as agricultural. In such cases, investigate the requirements of the *Environmental Management Act* to ensure that environmental concerns are addressed.

Wastes derived from processing of primary agricultural production (e.g., carrot tops, stems of flowers) should be handled in the same manner as farm wastes. If the wastes can be adequately dealt with by the farming operation, a permit or approval may not be required. It is advisable to contact ENV if there are any questions regarding the handling and disposal of a particular waste material.

Separate approvals are required from both the Ministry of Health and the Canadian Food Inspection Agency contact your Regional Health Authority office for directions on what approvals are required.

### Product Processing and On-Farm Direct Sales Facilities

For all agricultural operations that process product for direct sale, implement the following practices:

- ◆ Locate facilities away from yard drain inlets, ditches, wells and watercourses:
  - At least 30 m from wells (*Health Hazards Act*);
  - To meet the Agriculture Building Setback Standards (suggested);
- ➔ see Farm Building Siting, **page 2-8**
  - At least 30 m from a water intake used for domestic purposes (suggested).
- ◆ Design and manage a facility so that contaminated runoff from parking lots, roofs, and other hard surfaces does not enter watercourses or wells.
- ◆ Have a professional design storage lagoons and tile fields for domestic sewage and register the sewage discharge with Ministry of Environment and Climate Change Strategy or Ministry of Health (*Environmental Management Act*).
- ◆ Recycle containers (e.g., berry flats), wash water, etc. whenever possible but use food safety precautions.

 [Direct Farm Marketing and Agritourism](#)

**Processing Water Quality.** Agricultural operations that process product for direct sale use large volumes of water during processing operations. Implement the following practices to maintain water quality:

- ◆ Ensure water quality for processing, such as washing, meets potable (drinking) water requirements (*Canada Agricultural Products Act*).
- ◆ Organic certification standards may require specific water quality parameters for certified organic practices.
- ◆ Never discharge wash water directly into a watercourse.
- ◆ Never discharge wash water into a domestic sewer system without approval.
- ◆ Dispose of wash water in an environmentally acceptable waste water.

 [BC Irrigation Management Guide](#)

 [BC Sprinkler Irrigation Manual: Irrigation Water Quality](#)

 [Water Quality – Good Agricultural Practices](#)

 [Farm Water Planning Guide](#)

**Drinking Water Quality.** Direct farm markets may provide drinking water to customers. Ensure water quality standards are met by implementing the following monitoring practices:

- ◆ If providing drinking water to the public, ensure water meets drinking water standards (*Drinking Water Protection Regulation*):
  - No detectable fecal coliform bacteria per 100 ml.
  - No detectable *Escherichia coli* per 100 ml.
  - No detectable total coliform bacteria per 100 ml if a single sample is taken in a 30 day period.
  - At least 90% of samples have no detectable total coliform bacteria per 100 ml and no sample has more than 10 total coliform bacteria per 100 ml if more than one sample is taken in a 30 day period.
- ◆ Ensure limits on chemical and physical parameters (such as nitrates and heavy metals) are met.

 [Guidelines for Canadian Drinking Water Quality](#)

 [BC Ministry of Environment and Climate Change Strategy Drinking Water Quality](#)

## Abattoirs

On-farm butchering, and the wrapping, freezing and processing of meat generates environmental concerns. The Province regulates the slaughter of livestock and poultry through the *Meat Inspection Regulation*. The BC Ministry of Environment and Climate Change Strategy has established the *Code of Practice for the Slaughter and Poultry Processing Industries* that addresses discharges to the environment from the slaughter and poultry processing industries. A number of other specific regulations and requirements that apply to abattoirs are administered primarily by the Canadian Food Inspection Agency, BC Ministry of Agriculture, Food and Fisheries, BC Center for Disease Control and the BC Ministry of Health.

 [Meat Inspection Licensing Factsheet](#)

**Composting Processing Wastes.** Some wastes from on-farm processing can be composted. Ensure that composting meets the requirements of the *Organic Matter Recycling Regulation*.

➔ see Compost Legislation, **page 2-44**.

Ensure that the composting methods used minimize greenhouse gas emissions.

Specified Risk Material (SRM) material originates from cattle slaughter and is governed under the federal *Health of Animals Regulations*.

 [Specified Risk Material Transportation and Disposal: Canadian Food Inspection Agency](#)

Food Safety and Inspection Branch has developed a Abattoir Code of Practice for Class A and B slaughter establishments in BC licensed under the *Meat Inspection Regulation*.

The Abattoir Code of Practice emphasizes an outcome-based approach, with specified acceptable outcomes that provide clarity and guidance around achieving regulatory compliance, allowing operators flexibility in achieving compliance, and maintain high food safety standards.

 [Class A & B Licences](#)

 [Class D & E Licences for Rural and Remote Areas](#)

