

COMMODITY

DAIRY

DESCRIPTION

The British Columbia dairy industry produces over 650 million litres of milk annually, representing a gross farm gate value of over \$500 million. Milk is processed in licensed dairy plants and subsequently sold to consumers and other milk product users. The industry manages about 70,000 milking cows and an equivalent number of dairy replacement animals that are distributed across licensed dairy farms located in seven production regions. Average milking herd size is approximately 135 cows. About 73% of the province's milk is produced in the Fraser Valley, whereas the Okanagan–Shuswap and Vancouver Island regions account for 14% and 9% of total production, respectively. Other smaller production areas include the Bulkley Valley, the Kootenays, the Cariboo and the Peace River.

The B.C. dairy industry is represented by two organizations: the BC Milk Marketing Board (BCMMB) and the BC Dairy Association (BCDA). Each organization serves a separate role in the industry. The *BC Natural Products Marketing Act* gives the BCMMB the authority to ensure that industry is compliant with all legislation and regulations. The BCMMB also manages total BC milk production through producer quota allocations. The BCDA provides a lobbying vehicle for B.C. producers by presenting industry issues and concerns to the provincial government and to federal authorities through its membership in the Dairy Farmers of Canada. The Association also encourages fluid milk consumption through numerous program initiatives.

Under the *BC Milk Industry Act*, dairy farms are subject to regular inspections to ensure that operators work in an environment that promotes safe and clean milk production and handling practices. Farmers must also provide adequate housing and waste handling facilities. The Ministry of Agriculture oversees farm inspection, raw milk handling and milk testing. The *BC Milk Industry Act* also grants authority to the BC Centre for Disease Control (BCCDC), an agency of the Provincial Health Services Authority (PHSA), to inspect dairy processing plants and to conduct finished product evaluations. With respect to federally-licensed dairy plants, inspections are primarily delegated to the Canadian Food Inspection Agency (CFIA).

Cows are milked two to three times per day in automated milking parlour facilities. With the recent popularity and introduction of labour-saving, robotic milking systems into the marketplace, it is possible for cows to be milked more frequently, typically at intervals of approximately six hours. Most milking system packages currently offer technologies that monitor individual cow behaviour around the clock and generate reports that dairy operators use to manage all aspects of milk quality and herd performance. Scheduled servicing of milking equipment performance is critical to efficient operation that minimizes stress on herd health. A series of standard spot checks are conducted at each milking to ensure proper equipment performance and sanitation.

Dairy replacement animals vary in age from birth to about two years. Heifers are typically raised to produce their first calves at ages ranging from 22–26 months. A typical lactating cow, reproductively

managed to give birth every 12–13 months, produces an average of 31–33 litres of milk per day for 10–11 months, after which it is dried off for a rest period of six to eight weeks before giving birth again.

Dairy cows are fed forages such as grass silage, corn silage, hay, and pasture to provide a highly digestible source of fibre, energy and protein. British Columbia producers grow much of their own forages on their own farms or on leased land located nearby. Concentrates in the form of grain mixes are typically purchased and fed at varying amounts according to production levels either through computer feeders or incorporated into a total mixed ration (TMR) diet which includes all necessary forages. Mixes include energy-rich cereal grains such as barley and corn, commercial fats, and high-quality supplements comprising proteins, minerals and vitamins.

In addition to milk production, dairy operations are a major source of meat resulting from animals of all ages being culled and marketed for such reasons as low milk production, poor reproductive performance, and poor body confirmation. Dairy bull calves are typically sold at local auction marts and then transported to veal calf operations or feedlots both within and outside of B.C.

Manure is spread on the farm's own or leased land at agronomic rates to improve soil fertility. Manure must be stored during the winter for a minimum period of approximately six to seven months for most regions of the province.

The commodity fact sheet on forage in this reference guide contains useful related information as well. See also Commodity: Forage

Farm Practices of Particular Interest

Practices for specific farm activities can be found in the Farm Practices section of this reference guide. Farm practices that are of particular interest to dairy production include the following.

Cattle Handling and Transportation

Producers are responsible for ensuring that the behavioural, health and welfare needs of their animals are met. Prompt medical treatment, good housing, and cleanliness all play a role in this goal. Dairy cattle may be handled in a variety of corrals, chutes and squeezes. In 2009, the National Farm Animal Care Council (NFACC) – in cooperation with the Dairy Farmers of Canada (DFC) – published an updated version of the *Code of Practice for the Care and Handling of Dairy Cattle*. Producers are advised to refer to the Code for best management practices in subject areas such as housing, handling facilities, feed and water practices, health and welfare management, transportation, husbandry practices, and euthanasia.

All dairy animal handlers, including producers, livestock transporters and auction mart staff should seek training and certification in best management practices for animal handling and movement. Comprehensive materials are now available through a course entitled Certified Livestock Transport (CLT) which focuses on Canadian Food Inspection Agency regulations, transport laws, livestock handling, animal and handler safety, and accident prevention. CLT certification has become a mandatory prerequisite for the transportation of cattle into certain feedlots and packing plants. It is also a precondition for employment with some trucking companies. Prescribed practices within CLT training materials are expected to become a national standard in the future. Information on CLT courses can be found on the B.C. Farm Animal Care Council's (BCFACC) website.

Producers must incorporate adequate space on their farm properties to accommodate the volume, movement and parking of all vehicles associated with farm activities.

See also Farm Practice: [Animal Care and Handling](#)
[Transportation](#)

Cultivation

Dairy producers normally cultivate part of their farm's land area for annual corn production and for grassland replenishment.

See also Farm Practice: [Cultivation](#)
[Mobile Equipment](#)

Farm Buildings and Equipment

Dairy producers require structures to house livestock; to store feeds, fertilizers and pesticides; to hold wastes; and to protect and maintain machinery and equipment. Some odours can be expected to be generated from buildings that house livestock. More concentrated odours result from manure storage facilities during times of agitation and while spreading waste onto fields. Best manure management practices help to control fly populations, to reduce concentrations of odours, and to ensure maximum utilization of the nutrient value of manure by-products.

See also Farm Practice: [Storage of Hazardous Material](#)
[Ventilation](#)
[Pest Management](#)

Feeding

The majority of forages used by dairy operations are grown, harvested and stored on the farm. Some dairies purchase medium-sized to large-sized square bales of hay from other regions or provinces as sources of high-quality fibre. Concentrates and protein supplements are primarily purchased from local feed companies and kept in large storage bins or commodity sheds. Handling, mixing and provision of specially-formulated rations to animals to satisfy growth and milk production requirements are typically designed and implemented on the farm following regular consultations with qualified feed nutritionists.

See also Farm Practice: [Feeding and Watering](#)
[Stationary Equipment](#)
[Storage of Farm Supplies and Products](#)

Fertilizer Use

Inorganic fertilizers are often stored temporarily until cropping and weather conditions permit field application.

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

Grazing

For dairy farms incorporating grazing practices, cattle can be pastured 24 hours a day throughout the growing season. It is more common, however, to manage cattle on a mixed feeding system in which they graze in fields only during daylight hours. Most producers keep their cattle within buildings year-round.

See also Farm Practice: [Feeding and Watering](#)

Machinery Operation

The operation of equipment for feeding is common practice on dairy farms and usually includes tractors and wagons for loading and mixing, electrically-powered augers for grain bin unloading, and in some cases stationary mechanical systems along feed bunks. It is common for automated systems to run at any time of day, depending on demand. Green feeding requires field equipment to be used to cut forage from a standing crop several times a day to meet the immediate nutritional needs of cows for fresh product. During times of electrical power outage, standby power generation equipment may also be necessary for extended periods.

See also Farm Practice: [Mobile Equipment](#)
[Stationary Equipment](#)
[Feeding and Watering](#)

On-Farm Cooling, Storage, and Equipment Sanitation

Although milk is usually removed from a dairy farm every two days by a licensed bulk milk hauler, each dairy farm should have adequate tank volume for three days of milkings. This additional capacity is necessary should unforeseen circumstances such as inclement weather prevent a tanker from being available at scheduled collection times. Bulk milk tanks must be checked for proper calibration once every five years, must have adequate refrigeration capability to be able to maintain milk temperatures within a range of 1° C to 4° C between milkings, must not allow blended temperatures to exceed 10° C during milking time, and must be capable of reducing the milk temperature to less than 4° C within one hour of the end of milking. Some B.C. dairy farms are licensed to process their own milk on the premises for subsequent sale and distribution to consumers. In such situations, producers must have a strong working knowledge of equipment function, routine and scheduled maintenance procedures, and cleaning and sanitation protocols.

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

Mortalities

Good practices associated with mortality disposal vary, depending on cause of death, local climate and surrounding land use. Dairy producers must ensure that required Specified Risk Materials (SRM) permits are in place if dead animals are moved off the farm of origin.

Specified Risk Materials (SRM) are cattle tissues which may harbour the prions related to bovine spongiform encephalopathy (BSE), also known as mad cow disease. Stringent federal regulations govern all SRM management and are an important part of the food safety system to assure trading partners that Canadian meat products are safe to export.

One important exemption within the federal regulations exists in that they do not apply if the SRM does not leave the farm after an animal dies. The Canadian Food Inspection Agency recommends, however, that producers not apply materials such as compost containing SRM to land that may be grazed by cattle within five years. Similarly, B.C. legislation does not specify requirements or guidelines with respect to SRM management on the farm of origin. The provincial *Agricultural Waste Control Regulation* (AWCR) allows for burial, incineration and composting of animal mortalities on the farm where they died provided that it does not cause pollution.

See also Farm Practice: [Mortality Disposal](#)
[Composting](#)

Waste Products and Manure Handling

Manure is collected and stored or composted until it can be applied to cropland as a fertilizer. Some odours will be generated from waste agitation and land spreading. All wastes and potentially-damaging products must be disposed of in an environmentally sound manner.

See also Farm Practice: [Composting](#)
[Farmstead Refuse](#)
[Fertilizers and Soil Conditioners](#)
[Manure Storage and Use](#)
[Pesticides](#)

Principal and Accessory Buildings

From an operational perspective, principal farm buildings on dairy farms are typically milking facilities, livestock housing barns, holding pens, and feeding areas. Accessory farm buildings may include storages for agricultural wastes, chemicals, compost input materials, compost products, hay, grain, wood waste and silage. Silage can be stored in towers, in horizontal concrete or wood bunkers, and in plastic bags. Other accessory structures could include confined livestock areas, machine sheds, on-farm composting buildings, processing facilities, or direct farm marketing buildings. From a watercourse protection perspective, however, the definition of principal and accessory buildings may differ. For the purposes of determining applicable setbacks from watercourses and property lines, therefore, local government bylaws or the *Guide for Bylaw Development in Farming Areas* should be consulted. Building assessments may need to be conducted on a case-by-case basis if the designation of a building as principal or accessory is unclear.

Legislation

Agricultural producers are expected to follow all legislation that pertains to their farming operations. The *Farm Practices Protection (Right to Farm) Act* stipulates that the farm operation must meet the *Public Health Act*, *Integrated Pest Management Act*, *Environmental Management Act* and the regulations under those Acts. Information on federal and provincial legislation can be found in Appendices B and C.

Acts that pertain to specific farm activities are listed in the farm practices section of this reference guide. Local government bylaws may also apply to some farm practices. Acts that are not referenced elsewhere that are of special interest to dairy producers include the following.

Federal Legislation

The *Fisheries Act* prohibits the discharge of deleterious substances such as fertilizers, manure and pesticides into watercourses.

The *Canadian Agricultural Products Act* and its regulations (*Dairy Products Regulations*) deal with health and safety standards for dairy products, standards for international and interprovincial trade of dairy products, and the administration of analysis, inspection and grading services.

The *Health of Animals Act* addresses diseases that may affect animals or be transmitted to humans. The Act also enables regulatory control of Specified Risk Material (SRM) to prevent its entry into the animal feed system. The enhanced feed ban regulations under this Act stipulate that producers not feed any animal products containing SRM to livestock and that abattoirs properly identify SRM to ensure that it is removed from the feed system.

Provincial Legislation

The *Food Safety Act* regulates animal slaughter and the sale of meat and meat by-products.

The *Milk Industry Act* and its regulations (*Milk Industry Standards Regulation*) govern production, inspections, storage, transportation, processing and sale of milk and milk byproducts. The Act requires that all milk, with the exception of raw milk used in the production of certain specialty cheeses, is pasteurized.

The *Motor Vehicle Act* regulates cattle movement on public roads.

The *Natural Products Marketing Act* provides an opportunity to promote, control and regulate the production, transportation, packing, storage and marketing of milk and milk products in British

Columbia. The Act provides for the existence and constitution of the B.C. Milk Marketing Board and provides the Board powers vested by the Lieutenant Governor in Council.

The *Prevention of Cruelty to Animals Act* protects all animals (other than wild animals not in captivity) from distress during handling or any activities not considered to fall under generally-accepted animal management practices.

Local Government Legislation

Applicable local government legislation may include animal control bylaws and meat inspection bylaws.

Publications

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

British Columbia Agricultural Composting Handbook
British Columbia Environmental Farm Plan Reference Guide
British Columbia Good Agricultural Practices (GAP) Guide
British Columbia Standards for the Design, Fabrication and Installation of Milking and Milk Handling Equipment
Canadian Quality Milk (CQM) in British Columbia
Code of Practice for the Care and Handling of Dairy Cattle
Code of Practice for the Care and Handling of Veal Calves
Control of Insect and Related Pests of Livestock and Poultry in British Columbia
Fly Control Around Buildings
Fly Control for Dairy Barns
Guide for Bylaw Development in Farming Areas
Large Animal Disposal – On-Farm Composting Option, South Coastal Region of BC
Large Animal Disposal – On-Farm Burial Option, South Coastal Region of BC
On-Farm Food Safety
Riparian Management
Siting and Management of Dairy Barns and Operations