

Teacher Fast Facts & Vocabulary Support



PROJECT Agriculture
Project-Based Learning and
Teaching Series

Trending Now

How do trends in agriculture affect quality of life?



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Background Fast Facts

The **Fast Facts** that follow can provide you with some additional background related to trends in agriculture, statistics and changing priorities of Canadians. These **Fast Facts** may support class or small group discussions you facilitate with students.



In 2016, dairy production in Canada generated total net farm receipts of \$6.17 billion and generated sales of \$17.7 billion. This dairy production made up 15% of Canadian food and beverage production. The dairy industry is the third most valuable in Canada's agricultural activities and production, following grains and meats.



Canada's dairy farms are spread across the country:

- In 2016, most Canadian dairy farms – about 82% – are found in Ontario and Quebec.
- The Western provinces have about 13% of dairy farms.
- The Atlantic provinces have about 5.5% of Canadian dairy farms.
- There are about 959 600 dairy cows in Canada. The typical Canadian dairy farm has 85 cows. The main breeds of dairy cows are: Holstein (comprising more than 93% of Canadian dairy herds), Ayrshire, Jersey, Brown Swiss, Canadienne, Guernsey, and Milking Shorthorn.



Canada's dairy products are diverse, and range from aged cheddar cheese to specialty cheeses, ice cream, and dairy drinks in addition to table milk, cream, and butter. In 2016, 14% of Canadian plants were owned by the three largest processors in the country – Saputo, Agropur, and Parmalat. These plants process approximately 75% of the milk produced in Canada.

Statistics Canada provides updates of information from their latest census results. This information can reflect current statistics, trends and issues. Consult the *2016 Census of Agriculture* webpage for the latest reports or tools at www.statcan.gc.ca/eng/ca2016.

Detailed information on trends in agricultural and environmental sustainability can be found in *Environmental Sustainability of Canadian Agriculture: Agri-Environmental Indicator Report Series – Report#4 from Agriculture and Agri-Food Canada* at www.agr.gc.ca/eng/science-and-innovation/agricultural-practices/environmental-sustainability-of-canadian-agriculture-agri-environmental-indicator-report-series-report-4/?id=1467307820931.

Another report, *Emerging Food Innovation: Trends and Opportunities* is found at www.agr.gc.ca/eng/industry-markets-and-trade/statistics-and-market-information/by-product-sector/processed-food-and-beverages-sector/trends-and-market-opportunities-for-the-food-processing-sector/emerging-food-innovation-trends-and-opportunities/?id=1449236177345.

➤ In 2016, dairy products shipped from approximately 471 dairy processing plants (270 of which are federally-inspected) were valued at \$17.7 billion, accounting for 15.8% of all processing sales in the food and beverage industry in Canada.

➤ Dairy processing means that the dairy industry is also a secondary industry. A secondary industry uses materials or ingredients made by primary industries. Secondary industries change these materials or ingredients into products. A dairy processing plant is an example of a secondary industry.

➤ In 2016, dairy products shipped from approximately 471 dairy processing plants (270 of which are federally-inspected) were valued at \$17.7 billion, accounting for 15.8% of all processing sales in the food and beverage industry in Canada.

➤ Fluid milk products, which include table milk and fresh cream, represent 28.9% of milk production or 97.8 million kg of butterfat, while manufactured dairy products such as butter, cheese, yogurt and ice cream represent 71.1% of production or 240.2 million kg of butterfat.

➤ The Canadian dairy industry has experienced trends that have affected the way of life of people involved in dairy farming. The **Canadian Dairy Commission** describes changes in farm production:

From 2011 to 2016, the national dairy herd remained fairly stable (-0.6%), while total milk production increased by 8.9%. In the 2011 dairy year total Canadian production was 77.8 million hectolitres while in 2016, it reached 84.7 million hectolitres. These adjustments reflect ongoing restructuring at the farm level.

There are fewer farms but more cows on each farm. Since 2011, the number of cows per farm has risen by about 12.1% and the average Canadian dairy farm now has 85 cows. Better feeding, disease control and genetic advancements have increased the amount of milk produced per cow.


Canadian production of organic milk is increasing steadily in Canada and volume is now 23.8% higher than it was five years ago. The production of certified organic milk is concentrated in the provinces of Quebec, Ontario, Alberta and British Columbia. The 2015-2016 dairy year saw 222 farms produce 1,110,664 hectolitres of organic milk, which represents 1.4% of total Canadian dairy output.

➤ As a key contributor to the Canadian economy in the 2016, dairy production ranked third behind grains, oilseeds and meats in terms of the value of its manufactured shipments. It generated \$6.17 billion in total farm cash receipts.

Statistics Canada provides a detailed report, including charts and maps, on *Human Activity and the Environment: Agriculture in Canada 2014* at www.statcan.gc.ca/pub/16-201-x/16-201-x2014000-eng.htm.

 Canadian dairy producers supply two main markets:

- The fluid milk market, which includes flavoured milks and creams and,
- The industrial milk market which uses milk to make products such as butter, cheese, yogurt, ice cream and milk powders.

 The industry has experienced a 23.1% per cent decline in the number of dairy farms over the past decade, from 14,660 in 2006 to 11,280 in 2016. However, individual farming units have grown in size and have become more effective in operation. From 2007 to 2016, the average production per farm has increased significantly by 38.8%.


 The **Canadian Dairy Commission** also describes a typical dairy farm.


The typical Canadian dairy farm is quite specialized, with most of its revenue coming from milk production and the sale of dairy cattle. It is a family-owned operation with a herd of about 77 Holstein cows. Dairy farm operators typically range in age from 45 to 54.


As farm size increases, operations require more than a single farmer and part-time family help, and the availability of skilled farm labour is an issue in communities across the country. There is a trend for milking facilities to get larger and more automated. Many feature new technology such as rotary parlours, animal identification system and automatic cow-sorting devices. More and more dairy producers use robots to milk cows, the goal of these technologies being to reduce production costs. Producers can save money on labour and can expand without increasing labour requirements.


Originally released in 1990 and updated in 2009, the *Code of Practice for the Care and Handling of Dairy Cattle* was developed by Dairy Farmers of Canada and the National Farm Animal Care Council in collaboration with scientists and government experts and the Canadian Federation of Humane Societies. It is a national guideline to promote sound dairy cattle management and welfare practices through recommendations and requirements for housing, management, transportation, processing and husbandry practices used with dairy cattle.


Information from *Production*: Canadian Dairy Commission online. www.cdc-ccl.gc.ca/CDC/index-eng.php?id=3801


 Although total farm numbers were down from five years earlier, in 2016 Alberta has the second largest number of farms in Canada, following Ontario. In 2016, Alberta had 40 683 farms.


 Alberta also ranked second in terms of both total farm area and field crop area. Canola is the leading field crop by area in 2016, up slightly from 2011, while spring wheat and barley area edged down.

 The dairy industry plays a key role in Alberta. There were 519 dairy farms in Alberta in April 2017.


 In 2014-2015, Alberta's 540 dairy producers shipped 689,862,228 litres of milk, representing 8.57 per cent of Canadian milk production.

 Milk production generated \$588 million in farm cash receipts in 2016. These cash receipts represent the gross income that dairy farmers receive from their production, but do not include their expenses.

 Alberta's dairy producers also have significant impact on the rural economy through the production of other livestock and crops on their operations.

 The number of dairy cows in Alberta decreased 0.8% from 2011 to 80,014 head in 2016, while the number of farms reporting dairy cows declined by 12.6%.

Information from *Alberta has the most beef cattle in Canada and the second largest total farm area*: Statistics Canada online. www.statcan.gc.ca/pub/95-640-x/2016001/article/14808-eng.htm

 While there were fewer dairy cows, this was offset by increased production per animal, attributable to improved animal nutrition, genetics and production practices. Annual milk production in Alberta increased 11.0% to 732.3 million litres from 2011 to 2016.



Vocabulary Support

The **Vocabulary** list provides a starting point for vocabulary that students will find in the student resources or potentially in class discussions. Definitions are embedded in sentences or provided in brackets beside the term.

Some of this vocabulary may be challenging for students. Vocabulary can be explored in advance to support learning of concepts and development of deeper understandings of content. Alternatively, some students may find vocabulary more relevant when explored in context. Add terms that students identify and define through their research to a vocabulary list.

An **acre** is about three-quarters the size of a football field.

Agriculture refers to the practices involved in growing crops and feeding and raising livestock for food and other products.

Agroforestry is the use of trees as shelter to protect soil, water and animals.

Agri-environmental indicators are measurements of important environmental conditions and changes from agricultural activities.

A producer is **certified** when he or she meets requirements, which are sets of rules.

When a product is **certified organic**, it means that it has been grown or made according to strict rules.

A **carousel**, or rotary, milking parlour moves the cows around so that the farmer can stay in one place to attach the milking machine.

Every five years, the government conducts a **census**, which is a survey that gathers information about people living and working in Canada.

Conservation tillage uses special equipment to plant seeds, leaving some of the old crop materials in the soil.

Composting refers to the addition of organic matter to the soil.

A **consumer** is a person who buys goods and services for their own use.

Erosion means that the topsoil needed to grow healthy crops is reduced.

Greenhouse gases are gaseous substances that can trap and hold heat in the atmosphere.

Groundwater is the water that is found underground in the soil or in other ground materials.

In a **herringbone milking parlour**, cows are lined up at an angle. This makes it easier for the milking machine to be attached and the cows to be milked.

When animals are treated **humanely**, they are treated with understanding, respect and caring.

Milk haulers must have a **license**, which gives them official permission from the government, to check the milk and make sure it is safe.

Manure refers to animal excrement that is used for fertilizer.

Methane is the main component of natural gas, and nitrous oxide. If methane leaks into the air, it absorbs the sun's heat.

A **milk hauler** collects the milk in an insulated tanker truck, but also checks and tests it.

Nostalgia is a good feeling a person may have when the past is remembered.

No-till is a method used to plant seeds without disturbing the old crop materials.

Organic food production is based on farming practices that protect the environment and do not use any chemicals.

Agriculture uses water to irrigate crops and feed animals. Some of this water returns to its **original sources**, where the water first came from. These sources can include lakes, rivers and streams.

In a **parallel milking parlour**, cows are lined up in straight rows. The farmer moves from one cow to the next to attach the milking machine and milk the cow.

A **pesticide** is a substance used for destroying insects or other organisms harmful to cultivated plants or to animals.

Pesticide residues are any trace of pesticide left on food.

Radio Frequency Identification, or **RFID**, tags are used to track animals so that if there is a disease outbreak, finding the diseased animals will be simpler.

Raw milk is unprocessed milk.

Regulations are rules that help make sure that animals are treated humanely, with understanding, respect, and caring.

Robotic milking machines are machines controlled by computers that keep track of when each cow is milked.

Shelterbelts are lines of trees that are planted to reduce soil loss and increase soil moisture.

Statistics involves the collection and analysis of data. Statistics can help people to identify trends.

Sustainable agriculture uses farming techniques that protect the environment and the health of communities and animals

Sustainable food processing uses packaging with less waste or reusable materials.

Farmers traditionally used plows to turn over and loosen the soil after the harvest a crop. This is called **traditional tillage** and leaves the soil exposed to wind and rain.

A **trend** is a pattern of change or a movement that occurs over time.

A **voluntary milking system** uses computers and robots so a cow can choose when she wants to be milked.