

HISTORY

Cattle for milking, meat, and locomotion accompanied the earliest European settlers to Canada, becoming one of the major economic drivers of Manitoba's rural economy. Herds were present in the Red River Valley by 1824.

Beef cattle have always been an important farm commodity in Manitoba. Early cattle were raised for meat and milk. Manitoba's first cattle count took place in 1881 and totalled 60,000 cattle and calves and expanded rapidly over the following decades. By the 1950s, more breeds of cattle were produced for beef only. In the 1960s and 70s, producers began raising cattle with less fat to meet consumer demand for leaner beef.

A DAY IN THE LIFE OF A BEEF FARMER

Farmers check their cattle every day to keep them healthy. Cattle producers must be efficient to stay in business. This requires proper feeding, care, handling, and health maintenance – which sometimes means treating cattle with medicine. It's important to take care of health problems right away so the sick animal doesn't make the rest of the herd sick, too. A *herd* is a group of cattle that are in the same pen or pasture or on the same farm.

Farmers are busy throughout the year. In winter, they ensure cattle have plenty of feed and shelter from the wind. In calving season, the farmer checks the cows several times a day in case a cow is having trouble giving birth. Baby calves need to be *ear-tagged* and the bull calves may be *castrated*. In the summer, when the cows are in the pasture, the farmer is busy growing hay, barley, and other feed plants for them to eat in winter.

Veterinarians help farmers prevent their cattle from getting sick. They give advice on ways to keep the herd healthy, including vaccination against disease (just like humans). They assess risks

and develop plans to keep the herd healthy. When animals do get sick or injured, farmers call veterinarians.

PRODUCTION

A baby beef animal is called a *calf*. A calf weighs about 40 kg at birth. The calf will try to walk soon after it's born so it can eat. Calves nurse from their mother's udder several times a day. The *udder* is part of the female cow that provides milk for the calf. Calves stop drinking milk when they are about six months old. When calves learn to eat and drink on their own, they are *weaned*. Weaning separates the cow from her calf. The calf usually weighs 227 to 272 kg at weaning. After weaning, they are called *feeder calves*.

Heifers are young females that are not full-grown and have not had calves. When a heifer is bred to a bull and has a calf, she is called a cow. Cows are female breeding animals. Cows are pregnant for nine months: this period is called *gestation*. A heifer will have her first calf at the age of two. Cows can have one calf every 12 months. Some cows give birth to twins and even triplets.

Bulls are males and are used for breeding. *Steers* are males which are neutered, like pets, so they can't reproduce. For this reason, steers are commonly used for meat production. The meat we get from full-grown cattle (about 18 to 24 months old) is called *beef*. A live steer averages about 658 kg and yields 395 kg of edible meat.

In the Canadian beef industry, it takes several steps to get beef from the cattle producer to the consumer:

- 1. The Cow-Calf Farm or Ranch** – Beef production begins at cow-calf operations which raise calves for the industry. Cows are selected for their mothering ability, beef quality, and other desirable traits. Breeding takes place in early summer, and peak calving takes place the following spring.



2. **The Backgrounding Phase** – After weaning, calves are fed diets based on forage plants until their weight increases to about 408 kg. This process is known as *backgrounding*, which helps the cattle grow muscle and bone. During this phase, beef producers take care to provide feeding and bedding areas that are sheltered from the elements and keep the animals comfortable and protected.
3. **The Feeding Phase** – This part of beef production usually takes place at the feedlot, where cattle are brought to a finished weight. In the beginning, a feedlot diet is made up of forages (see below), but shifts to about 80 per cent grain. (This process begins in the backgrounding phase.) Grain is fed to cattle to produce flavourful, tender, marbled beef. Cattle will spend 60 to 120 days at a feedlot before they are sold to processors.

DIET

Cattle eat *forages* such as grasses and legumes, low-quality grains, and other plant products that people cannot eat. Cattle *graze pasture* in the summer. A *pasture* is a field of grasses and other forage plants grown to feed animals. When cattle eat grass, it is called *grazing*.

Cattle eat hay, haylage, silage, and/or standing corn in the winter when grass doesn't grow.

Hay consists of long grasses and other legume plants like alfalfa that have been cut and dried to use as animal feed. June, July, and August are the prime *haying time* on most cattle farms. Farmers cut the grass with big mowers called *swathers* or *haybines*. Farmers can then leave the hay to dry in the field for up to 24 hours if they want to make haylage, or 2 to 3 days if they want to make dry hay.

To make *haylage*, hay with a 25 to 65 per cent moisture level is wound up into large round *bales*, then wrapped in plastic individually or in long tube-like rows. This creates an *anaerobic* (no air) environment which allows *fermentation* to occur. Fermentation increases the nutritional value of the haylage.

To make *dry hay*, hay at about 15 per cent moisture level is bundled into large round bales and stored in barns or rows on nearby fields. The shorter turnaround time between cutting and baling makes haylage much less dependent than hay on the need for good weather for drying. Sometimes cut hay is left un-baled in the field in rows called *swaths* or *windrows*. The cattle will “swath graze” this feed later in the year if snow is not too deep.

Silage is made from corn or barley. To make silage, the whole plant is chopped into small pieces and put into a big pile, then flattened by tractors to squeeze all the air out. This creates

an anaerobic environment where fermentation occurs and increases the nutritional value of the silage. Silage is usually stored by piling it on the ground or a cement pad and covering it in plastic to protect it from weather and animals such as deer, mice, and birds. Silage is useful to farmers because it can be harvested in any weather, as long as its moisture is at the right level. It provides more nutrients per acre than grain, and can be made from crops that are otherwise damaged (ie. by hail or frost). Silage is also nutritious and has a taste that appeals to animals.

Sometimes the corn plants are not cut but left in the field to mature. Then cows graze the mature standing corn plants during the winter months. Corn is a high-energy feed which provides the calories needed by cows during winter. Cows can also be fed plant materials such as seed coats or stems left after crops are harvested, by-products from food and biofuel processing such as distillers' grain or canola meal, and waste food such as damaged carrots or expired frozen French fries.

No matter what type of feed cattle producers plan to use, they will collaborate with a *nutritionist* to make a feeding plan that works best for the farm and the cows.

DIGESTION

A cow is a *ruminant*. A ruminant has a four-chamber stomach which helps them digest the tough, coarse food they eat.

When the cow first eats, it chews the food just enough to swallow it. The food travels to the first two chambers, the small muscular *reticulum* and the large vat-like *rumen*, where it is stored until later when the cow is resting. The rumen contains bacteria that softens the tough food. The reticulum forms the partially digested food into lumps about the size of a tennis ball called *the cud*. The muscles in the reticulum send the cud back to the cow's mouth to re-chew and further break down the tough food. Cows chew their cud from six to eight hours per day. When a cow chews her cud, she looks like she is chewing gum. A cow that is content and healthy is usually chewing cud.

After the cow thoroughly chews the cud, she swallows it again, and it goes into the third chamber called the *omasum*, where water is absorbed. The last chamber, called the *abomasum*, is where digestion occurs.

ANIMAL WELFARE

Canada's beef producers work hard to take care of their animals. The success of the cattle industry depends on cattle that are healthy and well cared-for. The beef cattle industry in Canada follows the *Code of Practice for the Care and Handling of Beef Cattle*. These national guidelines are based on science.

ANTIBIOTICS AND CATTLE

All beef is antibiotic-free. Before beef can be sold, a specified withdrawal time must pass after an animal's last antibiotic treatment to make sure no antibiotic residues remain in the beef. The Canadian Food Inspection Agency regularly tests for these residues.

There are several reasons that antibiotics are used in cattle production:

- **Growth Promotion:** Some antibiotics (called ionophores) improve the growth of cattle. There is no evidence that use of these antibiotics causes increased resistance to antibiotics used in human medicine. Humans don't use ionophore antibiotics.
- **Prevention:** Preventing infection with antibiotics reduces the need for more powerful antibiotics if disease becomes more serious. Preventative antibiotics are also used in human medicine. A farmer needs a veterinarian to provide a prescription to use this medicine, just like humans needs doctors.
- **Treatment and Control of Disease:** Sometimes cattle get sick just like humans. Antibiotics can help stop the spread of disease and help the animal recover.

Antibiotics ensure animal welfare. When prescribed to sick cattle by a veterinarian, antibiotics help animals get better. Using them is humane.

DID YOU KNOW?

One large round bale of haylage or hay is usually enough to feed one cow for about two weeks.

BY-PRODUCTS

Cattle provide us with many by-products. Parts of the cow are used to make products for home, health, food, and industry – although they are considerably less valuable than the primary product, beef.

Different parts of the cattle are used to make different products:

- **Cattle lungs, blood, and glands** are used to make medicines such as BLES lung surfactant for premature babies and heparin for blood clotting.
- **Gelatin**, which is made from cattle bones that are crushed and cooked, is used in products such as ice cream, yogurt, marshmallows, and gummy bears.
- **Cattle hide** is made into leather which is used to make clothing, shoes, sporting goods, gloves, and furniture.
- **Cattle fat** is made into fatty acids which are used to make crayons, tires, paint, shampoo, and cosmetics such as lipstick.

FARMER PROFILE



MELISSA ATCHISON Pipestone, Manitoba

“My family has been ranching for five generations. The thing I love most about ranching is raising cattle in a sustainable way — one that protects and enhances valuable ecosystems like grasslands and wetlands, while providing nutritious food for my family and yours!”

INDUSTRY IN MANITOBA

Production: 1,070,000 head of cattle and calves (2021)

Number of Producers: 6,465 farms (2019)

Value to Economy: \$620,850,000 in cash receipts (2020)

**INDUSTRY IN CANADA**

Production: 1.3 million tonnes annually

Number of Beef Producers: 84,740 on 60,000 farms

Value to Economy: \$18 billion annually, generating 228,000 jobs in Canada exports

**ENVIRONMENT**

Cattle graze on grassland that can't be used for other food production because it's too steep, hilly, dry, rocky, or of poor soil quality for growing crops. Grazing animals on this land more than doubles the area that can be used to produce food in Canada.

Cattle grazing keeps grasslands healthy by reducing weed growth, loosening the soil to allow more oxygen to enter the soil, pruning grass plants to allow more sunlight to reach the soil, and leaving behind manure, which is a natural fertilizer full of plant nutrients.

Healthy grasslands protect habitat for wildlife, have greater biodiversity, protect wetlands, reduce flooding, have minimal soil erosion, and store large amounts of carbon in the soil to offset greenhouse gas (GHG) emissions.

Cattle producers care about the environment and the livestock they work with. As stewards of the environment, producers use *beneficial management practices* (BMPs) to help maintain

or improve the quality of our soil, water, air, and biodiversity resources.

Producers that go above and beyond standard conservation practices are recognized each year by the Canadian Cattlemen's Association with *The Environmental Stewardship Award* (TESA). Cattle producers work hard to maintain our soil and water resources for our children and future farmers.

NUTRITION

Beef is not only delicious, but also provides plenty of high-quality protein for few calories. High-quality protein aids in muscle growth and repair, and has all the essential amino acids your body needs. Beef is one of the best sources of iron: the iron from beef is absorbed better than the iron from plant sources. Beef also contains nine vitamins, including B₁₂, that give you energy and contribute towards a healthy brain, and nine minerals, including zinc and selenium, that help your immune system.

CAREERS

- » Farmer/rancher
- » Geneticist
- » Beef cattle herdsman
- » Animal nutritionist
- » Veterinarian
- » Research/development
- » Breeding technician

Explore the diverse careers in agriculture at [thinkAg](https://www.thinkAg.ca).

Agriculture 
in the **Classroom**
MANITOBA