

# TIPS•FOR•TOURS

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## Cattle Ranch Tour Tips For TEACHERS



This document has been compiled by the  
**British Columbia Agriculture in the Classroom Foundation**

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in cooperation with:

**BC Cattlemen's Association**  
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**and**  
**British Columbia Ministry of Agriculture**

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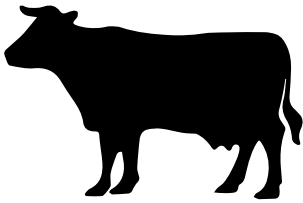
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# Why Choose a Cattle Ranch for a Field Trip?

## Cattle Ranch Tour Topics



A ranch tour provides the opportunity to raise awareness of the role of agriculture and food production in our daily lives.

Agriculture is a business that affects all of us within our communities. During the course of a tour students can begin to understand the multifaceted role of a rancher- in the stewardship of the land and the ranch, in the care and wellbeing of the livestock, in the safe use of machinery and technology, and in the interactive role with the community. Some of the topics that can be introduced are the:

- history of ranching, the ranch family, how ranching has changed, plights and joys of ranching, the ranch lifestyle;
- importance of agriculture in providing diverse career opportunities
- top quality products BC agriculture has to offer, the types of foods produced and the process by which they reach the consumer
- costs of ranching-how a tractor compares to a car
- relationship of ranch animals and crops to the food and food products we use daily (including by-products)
- chemicals used in agriculture both natural and synthetic; their use and handling; chemical costs and alternatives
- safety standards for workers and for food handling and preparation
- weather and seasons - impacts on ranch and production
- problem solving and innovations
- animals on the ranch-their similarities and differences; the variety of crops and types of animals, care of animals, products derived from the ranch
- the role technology has in improving the safety and quality of agriculture and the products it produces.

Farming/ranching is our “bread and butter”. Seeing, breathing and experiencing farming helps all of us see how we are connected in the most basic of all things-food.

## Choosing a Farm

Not all farms are created equal. Some farms may have more emphasis on one subject area than another. Time of year or season will also effect what you see and the availability of staff to assist you in answering your questions. Dairy farms for example are busiest during the spring, summer and early fall months as field work adds to their already busy schedule.

To determine which type of farm and the best time of year to visit review the following:

FARM TYPE	WHAT YOU MAY SEE	FARM AVAILABILITY
DAIRY FARM	Wide range of activities both plant and animal. Use of technology e.g. computers, machinery and a systems approach (milking equipment).	Best time is in Winter.
FRUIT AND VEGETABLE GROWERS	Product on the vine, tree, root. Machinery in use. Some may have a processing plant on-farm.	In Fall during harvest is best but availability may be limited.
SHEEP FARM	Life cycle, animal care, feeding will be highlights. Machinery or technology may not be highly visible although computers will be used for accounting/records.	Spring - (March/April) after lambing.
GOAT FARM (DAIRY)	Similar to a dairy cow operation but with goats. Some may have a processing plant in close proximity to goat operation.	Winter is best.
GREENHOUSE FLOWERS	Check with grower.	
GREENHOUSE VEGETABLES	Check with grower.	Fall or early Spring during or after harvest.
RANCHES	Wide range of activities both plant and animal. Life cycle, animal care, and machinery will be highlights.	Best time is Winter; availability may be limited.

**TIP:** For a list of farm tour locations please visit BC Agriculture in the Classroom at [www.bcaitc.ca](http://www.bcaitc.ca)

# New BC Curriculum Connections

GRADE	SUBJECT	CONTENT CONNECTION
KINDER	Science	<ul style="list-style-type: none"> <li>- Basic needs of animals</li> <li>- Living things make changes to accommodate daily and seasonal changes</li> </ul>
	Social Studies	<ul style="list-style-type: none"> <li>- Relationship between the community and environment</li> </ul>
GRADE 1	Science	<ul style="list-style-type: none"> <li>- Names of local animals</li> <li>- Behavioural adaptations of animals in the local environment</li> </ul>
	Social Studies	<ul style="list-style-type: none"> <li>- Relationship between the community and environment</li> </ul>
GRADE 2	Science	<ul style="list-style-type: none"> <li>- Similarities and differences between offspring and parent</li> <li>- Water sources including local watersheds</li> <li>- Water conservation and the water cycle</li> </ul>
	Social Studies	<ul style="list-style-type: none"> <li>- Diverse features of the environment</li> <li>- Relationship between the community and environment</li> <li>- Aspects of life shared across cultures (family, holidays, food, etc.)</li> </ul>
GRADE 3	Science	<ul style="list-style-type: none"> <li>- Biodiversity in the local environment</li> </ul>
	Careers	<ul style="list-style-type: none"> <li>- Connections to the community</li> </ul>
GRADE 4	Science	<ul style="list-style-type: none"> <li>- Sensing and responding to humans, environment, and animals</li> </ul>
GRADE 5	Science	<ul style="list-style-type: none"> <li>- Basic structures and functions of body systems</li> <li>- Interconnectedness with the environment</li> </ul>
GRADE 6	Science	<ul style="list-style-type: none"> <li>- Basic structures and functions of body systems</li> </ul>
	Physical and Health Education (PHE)	<ul style="list-style-type: none"> <li>- Practices to promote health and well-being; influences on food choices</li> </ul>
	Social Studies	<ul style="list-style-type: none"> <li>- Urbanization and migration of people</li> <li>- Economic policies and resource management</li> <li>- Globalization and trade</li> </ul>
GRADE 7	Science	<ul style="list-style-type: none"> <li>- Organisms have evolved over time</li> <li>- Survival needs</li> </ul>
	Social Studies	<ul style="list-style-type: none"> <li>- Human responses to particular geographic challenges and opportunities</li> </ul>
	Careers	<ul style="list-style-type: none"> <li>- Local and global needs and opportunities</li> <li>- Life and career planning</li> </ul>

# New BC Curriculum Connections

GRADE	SUBJECT	CONTENT CONNECTION
GRADE 8	Science	<ul style="list-style-type: none"> <li>- Characteristics of life</li> <li>- Relationship of microorganisms with living things</li> </ul>
	Social Studies	<ul style="list-style-type: none"> <li>- Human responses to particular geographic challenges and opportunities, including climate, landforms and natural resources</li> </ul>
	Applied Design, Skills and Technologies (ADST)	<ul style="list-style-type: none"> <li>- Food Studies → social factors that influence food choices; variety of eating practices; local food systems</li> <li>- Entrepreneurship/Marketing → role of entrepreneurship in designing and making products/services (branding, pricing, record keeping); difference between consumer wants and needs</li> </ul>
GRADE 9	Science	<ul style="list-style-type: none"> <li>- Sexual reproduction</li> <li>- Matter cycles within biotic and abiotic components of ecosystems</li> </ul>
	Applied Design, Skills and Technologies (ADST)	<ul style="list-style-type: none"> <li>- Food Studies → ethical issues related to food systems</li> <li>- Entrepreneurship/Marketing → flow of goods and services from producer to consumer; identification of a good/service</li> </ul>
	Careers	<ul style="list-style-type: none"> <li>- Factors affecting types of jobs in the community</li> </ul>
GRADE 10	Sciences	<ul style="list-style-type: none"> <li>- DNA structure and function</li> <li>- Patterns of inheritance</li> <li>- Applied genetics and ethical considerations</li> </ul>
	Applied Design, Skills and Technologies (ADST)	<ul style="list-style-type: none"> <li>- Food Studies → simple and complex global food systems; causes and consequences of food contamination outbreaks</li> <li>- Culinary Arts → locally available food products</li> </ul>
GRADE 11	Sciences	<ul style="list-style-type: none"> <li>- Human actions and their impact on ecosystem integrity</li> <li>- Resource stewardship</li> <li>- Water distribution has a major influence on weather and climate</li> <li>- Levels of biotic diversity</li> </ul>
	Social Studies	<ul style="list-style-type: none"> <li>- Global agriculture practices</li> <li>- Demographic patterns of growth, decline and movement</li> </ul>
	Applied Design, Skills and Technologies (ADST)	<ul style="list-style-type: none"> <li>- Food Studies → issues involved with food security; factors involved in the creation of food guides/labelling</li> <li>- Culinary Arts → BC agriculture practices</li> </ul>
GRADE 12	Sciences	<ul style="list-style-type: none"> <li>- Organ systems structure and function/interdependence</li> <li>- DNA/ gene expression</li> <li>- Land use, degradation and management</li> <li>- Conservation of water</li> </ul>
	Social Studies	<ul style="list-style-type: none"> <li>- Global agricultural practices</li> </ul>

# Planning and Arranging a Tour

## Link the Ranch Tour with the Classroom Studies

- Use videos and Agriculture in the Classroom materials to give students some insights as to what they may see during the visit.
- Find out if anyone has a family member who farms. Get them to share their experiences.
- Review *Grow BC* resource to become familiar with the different types of farm productions.
- Have the students prepare some questions ahead of time.
- Worksheet for bus ride-spotting items on the way that relate to agriculture. Compare the terms “farming” and “ranching”. Discover differences and similarities.

## Prior to the Tour

- Book the bus or arrange carpooling.
- Permission slips sent, returned and signed by parent or guardians prior to the event.
- Visit the farm and go over the tour plan if possible.
- Arrange for volunteer supervisors.
- Complete *Information Sharing Form* in this package.
- Bring all required equipment-camera, video, note pads, pencils, first aid kit.

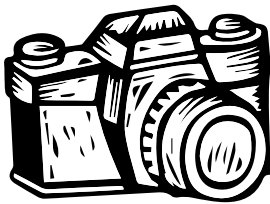
## Last Minute Reminders

- Wear easy to clean warm clothes and wear waterproof footwear for wet weather.
- Use washroom facilities before you leave the school.
- Bring water and a snack or lunch if needed.



# Planning and Arranging a Tour

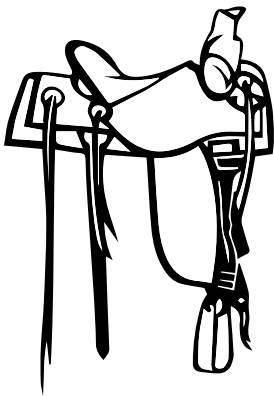
## During the Visit



- Class supervision is necessary during the entire visit. **Ensure that parents agree to stay focused on the tour at all times. The farm tour is educational and not a time to socialize.**
- Follow the rancher's rules for your safety around animals, machinery, equipment and structures. Remember the ranch is a working ranch and like any manufacturing workplace, dangers are possible.
- Avoid loud noises and sudden movements. These will frighten the livestock and potentially create dangers for you and reduce production for the rancher.
- Always be on the lookout for potential hazards. What may seem obvious to the rancher as a danger, may not be to you and your group.
- Students or teacher/supervisor may want to collect memories.
  1. Take pictures for school displays. Remember some pictures, drawings or stories written by the children may be appreciated by the farmer too.
  2. Record audio/video: must have permission to film farm premises.
  3. Samples of feed, hay (with permission from rancher). Bring plastic grocery bags.

# Planning and Arranging a Tour

## What to do After the Visit



- Use the notes, pictures, samples collected and make illustrated big books.
- Library display of ranching and related books.
- Career day-listing and outlining all the various careers- invite professionals to the class.
- Theme week or skit to share with a wider audience within the school.
- In-depth research of some of the issues revealed during the ranch visit.
- Art display of ranch sights and activities.
- Poster contest of what ranching is all about or where beef comes from.
- Arrange for an “adoption”-follow the growth of a beef calf from birth to her first calf.
- Use Agriculture in the Classroom lesson plans where available.
- Take a product, e.g. a hamburger, and determine all the job related activities.
- Create a board game with issues and dangers concerning the rancher’s operation.
- Create a model of the ranch.
- Consider entering agriculture models and issues in Science Fairs.
- Chronicle a week in the life of a rancher.
- Consider incorporating *“Four Seasons on a Cattle Ranch”* - grades 4/5 or *“Cow folks in Kindergarten”* available at [www.bcaitc.ca](http://www.bcaitc.ca).
- Compile a catalogue of (cattle) products or create a sales flyer advertising things a rancher might need.
- Collect recipes for a (beef) cookbook. Try one of the recipes with the class.
- Research why people need iron.
- Find out how many famous stories, riddles, sayings have farm terms in them, e.g. Jack and the Beanstalk; “Don’t cry over spilt milk”, “A bull in a china shop”.

## Planning and Arranging a Tour

**Did you know that one of the ingredients in rubber tires is stearic acid which helps the rubber hold its shape. Stearic acid is a beef by-product.**

- Below is a list of some products that can contain beef byproducts:

Candies

Chewing gum

Cookies

Gelatin in Salads

Ice Cream

“Light” products

Marshmallows

Yogurt

Boots

Candles

Cosmetics

Crayons

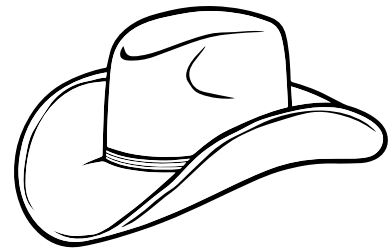
Detergents

Fabric softeners

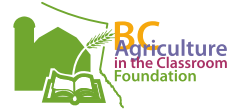
Floor wax

Glue

Toothpaste



# Information Sharing Form



## ➔ *Teacher to Farmer - for the teacher to fill out.*

### Before the Tour

- Pre-Visit the farm and go over tour plan if possible
- Provide list of participants
- Arrangement of specific activities or achievement of specific goals

### Things the Farmer Needs to Know

Teachers name \_\_\_\_\_

School name \_\_\_\_\_

Contact number \_\_\_\_\_

Age level of the group \_\_\_\_\_

Number of children and supervisors (does not include one teacher per class) \_\_\_\_\_

### Children Supervisors

Recommended ratios of children to adults:

**Primary (K-Grade 3):** 6 children to 1 adult

**Intermediate (Grade 4-7):** 10 children to 1 adult

**Secondary (Grade 8-12):** supervisors if any children with special needs or behaviour challenges

Topics the teacher would like introduced \_\_\_\_\_

If there are any special needs children (eg. wheel chair accessibility) or children with allergies (eg. hay allergies)

What are the hours, days or months that the visit is preferred \_\_\_\_\_



## ➔ *Farmer to Teacher - for the farmer to fill out.*



### Things the teacher needs to know

Name of farm \_\_\_\_\_

Contact name \_\_\_\_\_

Contact number \_\_\_\_\_

Type of farm \_\_\_\_\_

What specific limitations are there (eg. they must be gone by 2 pm end of shift) \_\_\_\_\_

Appropriate clothing (eg. closed tow shoes, no flip flops, no heels, etc.) \_\_\_\_\_

Restriction on group sizes. If they will need to be divided into supervised smaller groups \_\_\_\_\_

Any monetary charges for visit or for snacks \_\_\_\_\_

Contract required: Yes  No

### Location of the farm

- Provide a map with a clearly marked route. Indicate distance from the school.
- The type of parking facilities and distance to the assembly area. Is there capacity fro cars (carpooling) or buses.
- Where to assemble upon arrival

# Evaluation Form



Please fill out this evaluation for the farm tour you participated in today. Thank you.

Send completed form to: \_\_\_\_\_

This program increased my students understanding and appreciation of agriculture and farming.

Strongly Disagree  Disagree  Neutral  Agree  Strongly Agree

This program helped my students understand where their food comes from and/or gain an understanding of how food is produced.

Strongly Disagree  Disagree  Neutral  Agree  Strongly Agree

This program is a valuable curricular-linked learning experience for my students.

Strongly Disagree  Disagree  Neutral  Agree  Strongly Agree

I will use the resources provided to me from the tour.

Strongly Disagree  Disagree  Neutral  Agree  Strongly Agree

I would recommend this tour to another school/teacher.

Strongly Disagree  Disagree  Neutral  Agree  Strongly Agree

I would consider taking part in another farm tour in the future.

Strongly Disagree  Disagree  Neutral  Agree  Strongly Agree

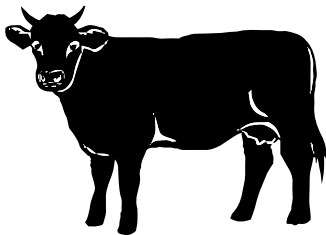
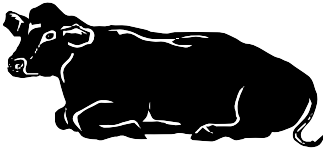
Please provide feedback on the tour, presenter, resources, or other elements you have identified that you would like to see AITC address for the future:

School Name: \_\_\_\_\_ Farm Name: \_\_\_\_\_

Teacher Name: \_\_\_\_\_ Farm Contact: \_\_\_\_\_

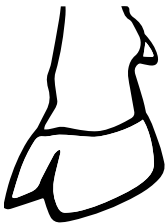
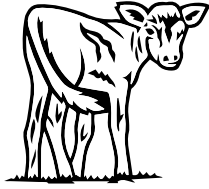
Number/Grade of students: \_\_\_\_\_ Type of tour \_\_\_\_\_  
(dairy, ranch, greenhouse):

## Related Beef Facts



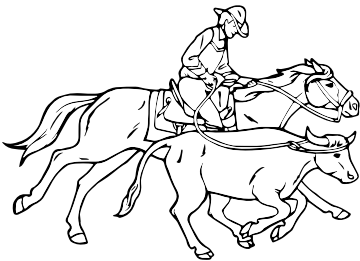
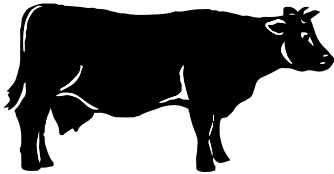
- All cows are female. The mother cow is called the dam.
- A female that has not calved is called a heifer.
- Males are called bulls. The father is called the sire.
- A castrated male is called a steer.
- The most common breeds are the Hereford, Angus, Simmental, and Charolais.
- Cattle see in black and white, not colour.
- Cattle have difficulty judging distances.
- Cattle have extremely sensitive hearing and can detect sounds that people can't hear. They soon learn the sound of the tractor or voice that feeds them.
- Cattle like to be treated quietly and calmly.
- Cattle require clean and dry environments in which to sleep, eat and bear their young. For beef cattle this is generally outdoors.
- Cattle have adapted well to their environment and show little change from season to season. Extra hair growth occurs for winter and is shed in spring. The new growth is short and much cooler. Cattle stay warmer when they are dry and clean because a clean dry coat has better insulating power.
- BC has a diverse climate from very wet on the south coast to very cold and dry in the north. It also has a diverse topography from mountains to grasslands to deserts. Cattle can adapt to these varying conditions.
- Cattle require fresh, well balanced diets that include forage, grains, minerals, vitamins and water. They prefer to eat all day, and when the rumen is full they'll lie down and chew their cud. During the spring, summer and fall they graze on pastures and rangeland.
- Cows are mammals and like all mammals produce milk for their young.
- The cow must be a mother before she will produce milk.
- When a beef heifer reaches about 15 months of age she is bred. Pregnancy in a cow lasts about 9 months.
- Once a beef cow calves (gives birth) she produces milk to feed the calf. The calf will be weaned between 5-8 months of age. The cow will be bred again for next year's calf.

## Related Beef Facts



- A newborn calf weighs about 45kg and can walk within one hour after birth.
- Heifers-some stay on the ranch to become cows in the herd, some go to other ranches, and some are fed until they are big enough to go to the feed lot. In a feed lot cattle are fed high quality feeds before they become food.
- Bulls-some are used for breeding, some are castrated and sent to the feed lot and some stay on grass until they become food.
- The manure cattle produce contains nutrients. The manure can be applied to the soil as a fertilizer and soil conditioner.
- If cattle get sick they will be treated and may be given antibiotics.
- Antibiotics are medicines that help the cattle fight infections. The rancher works with a doctor (veterinarian) and under their advice will provide medicine to the animal. The farmer or vet will take great care in the amount and way they give medicine to the cow. Antibiotics if not used properly will find their way into the meat.
- To be sure antibiotics do not enter in the meat, all meat carcasses are checked for antibiotics. Ranchers also follow withdrawal times on any antibiotics or medications before the animal is sent for butchering.
- Cattle are built to graze and eat lots of grass. Their cloven hooves provide the traction to walk on pastures, and their large rumens (stomachs) allow them to consume large quantities of grass to digest later when no predators (concerns) are about.
- Cattle usually have their ears pierced with I.D. tags. Each animal has a different number that allows the rancher to track their activities by computer.
- Beef producer supplies to the community:
  1. beef;
  2. beef by-products;
  3. markets (machinery sales, seed/ fertilizer sales, veterinarians, processors, etc.).
- Ranchers grow grass, clover, grains (in the Peace River region), alfalfa (Interior region) to feed their livestock or to sell.

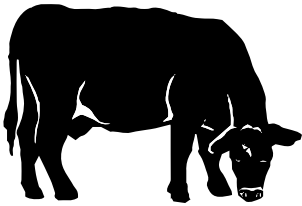
## Related Beef Facts



- A number of people are involved in getting the beef from the ranch to the table:
  1. ranch owner, manager and staff (cowboys, herdsman, field personnel, machinery operators, mechanics and welders);
  2. feedlot operators;
  3. truckers;
  4. equipment dealers;
  5. veterinarians, nutritionists and feed dealers;
  6. irrigation and water works dealers;
  7. stockyard employees;
  8. accountants, bankers, lawyers;
  9. government inspectors and advisors;
  10. industry organizations;
  11. store owners and employees.
- A cow that is milking can eat up to 40kg of grass, forage, and hay a day and drink up to 170L of water a day, especially on hot days. That's over a bathtub full.
- The diet of cattle consists of hay, grass, silage and grain.
- The diet is formulated and fed according to the energy, protein and other nutritional needs of the animal.
- On the top front part of the jaw, cattle have a tough pad of skin instead of teeth. They have 8 incisors on the bottom front and 6 strong molars on the top and bottom of each side to grind their food. Cattle have a total of 32 teeth. Cows use their tongue against the pad to rip the grass.
- Cattle are ruminants and regurgitate their food and chew cud. A cow spends a lot of time eating-up to 8 hours per day.
- Cattle have 4 parts to the stomach-rumen (the largest), reticulum, omasum and abomasum. It is the abomasum that is the most like ours.
- The amount of water required by a cow is affected by her body size, the amount she eats, how fast she grows and how much milk she produces, as well as by salt consumption and outside air temperature.
- Ranching is a way of life. Ranchers work 365 days of the year.



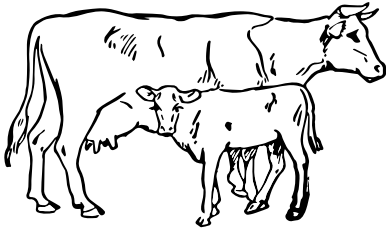
## Related Beef Facts



- Changes from past to present
  1. Past-one farm was often diversified, i.e. had a variety of animals and crops; often only fed the family members or a very small community; work was done by hand, horse or oxen.
  2. Present- mainly one farm, one role; if there is any diversification it may be on a separate farm, run by a manager or other family member; feed a large number of people with the volume produced; use of modern technology and equipment to run the farm. Ranchers are from all cultures.
- Use of biotechnology has improved livestock and crop varieties that are more disease-resistant or of better quality. Biotechnology has improved foods, feeds, fertilizers, disease vaccines and pest control products.
- The Canadian cattle industry has developed a cattle population of the highest genetic level in the world. Due to strict standards for disease control, Canadian cattle are free of all major diseases. Maintaining this record is the responsibility of the Canadian Food Inspection Agency.
- The New World had its first exposure to domestic cattle in 1518, but it wasn't until Samuel de Champlain brought them to Quebec in 1608 that they became an enduring part of North American agriculture.
- By 1660, breeding cows brought from Brittany and Normandy became the basis of the only breed of dairy cow developed in Canada-called appropriately enough - the Canadienne.
- 1884 Milk bottle invented by Dr. Hervey D. Thatcher, Potsdam, New York.
- In the 1890s there were no cars, few telephones and little electricity. Most of the work now done by gasoline and diesel powered equipment was done by the 17,000 horses in use on BC farms in 1894.
- Tractors first appeared in the early 20th century and by 1922 numbered 332. Today there are well over 33,000.



## Related Beef Facts



- Beef Industry Facts

1. Beef production contributes 15% to BC's 1.9 billion dollar agricultural industry.
2. Ranching occurs in almost all regions of the province and provides an important stabilizing influence to many lumber milling and service based rural communities.
3. Fourteen percent of BC's beef is consumed within the province, 67% is sold to Alberta, 19% to other provinces and the US.
4. British Columbia has about 6% of the total number of cows in Canada. Canada has 14.4 million head of cows- 17 million head if yearlings are included in the count.
5. Fifty percent of Canadian beef production is exported, of this 87% goes to the US.
6. Cow/calf production predominates the BC industry based on the abundant forage (range and pasture) resource in BC.

# Glossary

## Amino Acids

Nitrogen containing compounds that are the building blocks from which proteins are made.

## Antibiotics

A class of drug usually produced by living organisms (moulds, bacteria or green plants), which can inhibit or kill undesirable bacteria. Example: penicillin.

## Available protein

The portion of the crude protein that can be used by the animal.

## Average Daily Gain (ADG)

The average daily live weight increase of a growing animal, usually expressed in kg, g or lb. /day.

## Bacteria

Microscopic unicellular organisms found almost everywhere.

## Balanced ration

A 24 hour feed allowance that provides an animal with appropriate amounts and proportions of all nutrients required for a given level of performance.

## Barn

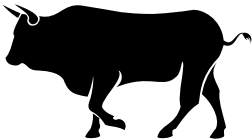
Place where animals, feed and/or machinery may be housed.

## Breed

Variety of animals within a species. To produce offspring.

## Bull

Adult male. Potentially a very strong, dangerous animal needed to be treated with respect and distance.



## By-product

Produced as a result of industrial manufacturing, plant or animal processing. Examples: distillers grains, beet pulp, meat and bone meal, fish meal, leather, medicine, marshmallows, stearic acid.

## Calf

Young cattle that are between 0 and 6 months of age.

## Carbohydrates

Major energy providing substrates including starches, sugars, cellulose and hemicellulose. All carbohydrates contain carbon, hydrogen and oxygen, and are usually divided into two fractions: structural (fiber) and non-structural (sugars and starches).

## Chaff

Husks or other seed coverings and other plant parts separated from seed during harvest or processing.

# Glossary

## Chute

Narrow fenced walkway used to restrain cattle.

## Colostrum

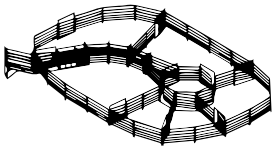
The milk secreted by female mammals for the first few days after giving birth. It is particularly rich in nutrients and antibodies essential for newborn survival.

## Complete feed

A thoroughly blended mixture of different feed ingredients formulated to meet specific nutrient requirements.

## Concentrate

A mixture of different grains fed to the cows in order to meet the animal's nutrient requirements for growth, pregnancy and maintenance.



## Corral

Fenced area used to confine cattle.

## Cow

Mature female cattle that are over 24 months of age and have given birth.

## Dam

Adult female cow. Used only when referring to her calf (e.g. the mother of the calf is the Dam).

## Digestion

The changes that occur to a feed within the animal's digestive tract to prepare it for absorption and use.

## Dry matter

Feed residue left after all moisture has been removed by drying (100% dry matter).

## Energy

A nutrient essential for maintenance, growth, production and reproduction. Energy is required in larger amounts than any other nutrient except water, and is often the limiting factor in livestock production.

## Escherichia coli (E. coli)

E. Coli is of the coliform group, which are organisms associated with the intestinal tract flora.

Presence of coliforms is usually an indication of unsanitary handling or processing procedures.

## Fat (nutrient)

A term used in a general sense to refer to both fats and oils. Fat supplies 2.25 times as much energy as carbohydrates. Both fats and oils share the same general structure and chemical properties, but have different physical properties, i.e., oil is a liquid at room temperature, while fat is a solid.

# Glossary

## Feed additives

Products added to basic feed mixes to improve the rate and/or efficiency of gain, prevent certain diseases, or preserve feeds.

## Feed lot

A place where cattle are housed together and fed a special diet. Most go to slaughter but some go back to the ranch.

## Feed processing

Physical or chemical changes made to feed to make it more nutritious, store easier or make more palatable, e.g. pelleted grain, flattened grain, chopped hay, cubed hay, silage.

## Food-borne illness

The sickness resulting from eating food contaminated with either bacterial toxins or by certain bacteria in the food which can be caused by improper storage, handling or preparation, often resulting in vomiting and/or diarrhea. Information on food safety can be found at [thinkbeef.ca](http://thinkbeef.ca).

## Forage

Plants or plant parts fed to, or grazed by, domestic animals. Forage may be fresh, dry or fermented (pasture, green chop, hay, haylage or silage). Term is often used interchangeably with roughage.



## Grain

Any of the common cereal seeds e.g. oats, barley, wheat.

## Hay

Dried, cut forage packaged in the form of bales that can be small square bales weighing around 35 kg to large 1 tonne round or square bales.

## Heifer

A young cow between the ages of 6 months and 24 months that has not had a calf.

## Metabolism

All of the chemical changes nutrients undergo following absorption from the digestive tract.

## Micronutrient

Any ingredient, such as minerals, or vitamins, added in very small amounts to a ration.

## Microorganism

Any microscopic animal or plant-like organism including bacteria, yeasts, viruses and single-celled algae.

## Milk replacer

A substitute for fresh whole milk, fortified with vitamins, minerals and sometimes antibiotics; used as a nutrient source for young animals.

Minerals required in relatively large amounts by livestock. Includes calcium

# Glossary

## Macro (or major) minerals

(Ca), phosphorus (P), magnesium (Mg), potassium (K), chlorine (Cl), sulphur (S) and sodium (Na).

## Micro (or trace) minerals

Minor mineral elements required in very small amounts in the ration of animals. Includes manganese (Mn), copper (Cu), zinc (Zn), selenium (Se), iron (Fe), cobalt (Co), iodine (I) and fluorine (F).

## Minerals

Inorganic feed elements essential for life.

## Mineral supplement

A rich source of one or more mineral elements.

## Monogastric

An animal having a single or simple stomach system.  
Example: swine.

## Nutrients

Feed components required for the maintenance, production and health of animals (water, carbohydrates, lipids, proteins, minerals and vitamins).

## Nutrient requirements

The minimal amounts of nutrients (energy, protein, minerals and vitamins) necessary to meet an animal's minimal needs for maintenance, growth, reproduction, lactation or work.

## Palatability

The appeal and acceptability of feedstuffs. Affected by the taste, odour, texture and temperature of the feed.

## Pathogen

Any microorganism that can cause disease. Salmonella is always considered a pathogenic microorganism. E. Coli is considered an opportunistic pathogen. It is not always pathogenic, but given the opportunity, it can cause foodborne illness.

## pH

A measure of acidity or alkalinity. Values range from 0 (most acidic) to 14 (most alkaline or basic). A pH value of 7.0 is neutral (neither acidic nor alkaline).

## Pasture

A fenced grass field.

Naturally occurring compounds containing nitrogen,

# Glossary

## Protein

carbon, hydrogen and oxygen, and sometimes sulphur or phosphorus. Proteins are made up of complex combinations of amino acids and are essential for animal growth, production and reproduction.

## Range

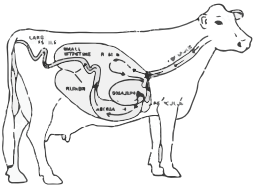
Large tracts of grasslands used for grazing.

## Ration

A diet that may include grains, minerals, vitamins, salt, forages. The 24 hour feed allowance for an individual animal.

## Roughage

A term used to describe a feed high in fibre (greater than 18% crude fibre). Roughage tends to be bulky, coarse, and low in energy. Example: straw.



## Ruminant

A cud-chewing animal having four stomach compartments. The rumen (first stomach), is a major site of microbial fermentation of feeds permitting breakdown of fibre. Examples of ruminants: cattle, sheep, goats.

## Salmonella

A group of organisms named after a U.S. veterinarian, D.E. Salmon. There are over 2,000 species within the genus Salmonella that will infect man. These rod shaped bacteria cause various diseases in man and animals, including typhoid fever and food poisoning.

## Saturated fat

A completely hydrogenated fat. Saturated fats are solid at room temperature. Example: animal tallow.

## Screenings

Screenings: Small, imperfect kernels, broken grains, hulls, weed seeds and other foreign material obtained from the cleaning of grain.

## Silage

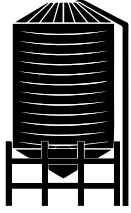
Feed preserved by an anaerobic (no oxygen) fermentation process. Examples: corn silage, haylage, high moisture corn.

## Silage additives

Substances added during the ensiling process to enhance the correct and rapid fermentation of the feed.

Structure used to store forage. Stores it in a manner that

# Glossary



<b>Silo</b>	prevents spoilage over long periods of time.
<b>Sire</b>	Adult male. Only used when referring to a calf's father.
<b>Steer</b>	A castrated bull.
<b>Sweet feed</b>	A commercial feed sweetened with molasses to improve palatability.
<b>Teats</b>	Nipples on the udder. The baby calf nurses by instinct.
<b>Tie stalls</b>	Stalls or beds where an animal is designated to and cannot roam free.
<b>Total mixed ration (TMR)</b>	All ration ingredients, including roughages, mixed mechanically to provide one homogenous mixture. TMRs are used in large dairy or beef feedlot operations.
<b>Udder</b>	The part of the cow that produces milk (mammary gland).
<b>Unsaturated fat</b>	Any fat that is not completely hydrogenated. Unsaturated fats are liquid at room temperature. Examples: corn oil, vegetable oil.
<b>Vitamins</b>	Organic compounds that function as parts of enzyme systems essential for many metabolic functions.



# Support Materials

Support Materials available from:

British Columbia Agriculture in the Classroom  
1767 Angus Campbell Road  
Abbotsford, BC  
V3G 2M3  
[www.bcaitc.ca](http://www.bcaitc.ca)

British Columbia Cattlemen's Association  
#4-10145 Dallas Drive  
Kamloops, BC V2C 6T4  
<https://www.cattlemen.bc.ca/>

Canada Beef  
<https://canadabeef.ca/>