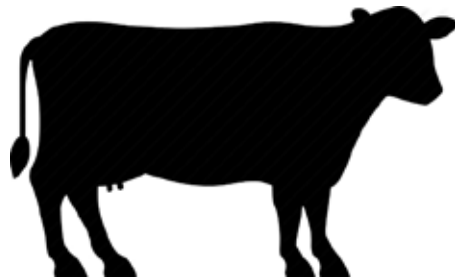


# TIPS•FOR•TOURS

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## Dairy Farm Tour Tips For PRODUCERS



This document has been compiled by the  
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in cooperation with:

**BC Dairy Association**

**British Columbia Investment Agriculture  
and  
British Columbia Ministry of Agriculture**

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# How to Market Your Dairy Farm for Tours!

In order to come they have to first know who you are and what you have to offer them in terms of their curriculum. Information about your farm can be shared in a:

- brochure;
- flyer;
- newsletter;
- farm website;
- social media.

## Direct

For school tours, tourists, or other institutions, the method of notification can include:

- make direct contact in September with schools;
- mail-out (Only consider schools within a 1 hour travel radius.)
- visit school principal with information package. Offer to visit the school on career days.

## In-direct

Provide advertising brochures, flyers, newsletters to those groups that may receive queries on available farms for tours. Encourage them to visit your farm on their own or during a tour. Sources of potential referrals are:

- producer association, farm women's network, education support groups, BC Dairy Association;
- work with Agriculture in the Classroom;
- local Chamber of Commerce.

# Knowing Your Audience

**TIP: DURING THE VISIT**  
 Class supervision is necessary during the entire visit. Don't be afraid to make rules for their safety around equipment and structures.

Knowing what to expect will help you to plan your tour accordingly in terms of:

- time at each activity or area
- depth and breadth of information.

To do this requires some help from the teacher in terms of what they are focusing on in class and the skill levels of the class. To provide you some preliminary assistance:

GRADES	STUDENT BEHAVIOUR	MATERIALS/ACTIVITIES
GRADES 1-2	Warm, receptive, excitable, shifting attention	Visuals important, puzzling objects grab interest
GRADES 3-4	Attentive, keen, more able to focus on the topic, able to sit and attend for longer periods	Short speeches OK puzzles/ problem solving or riddles possible
GRADES 5-7	Independent learners, outgoing, can be opinionated, limited social graces, argumentative, practical, ask questions	Able to think beyond themselves- more emphasis on global thinking, hands-on activities
GRADES 7-9	Teenagers, sometimes lively, social not inclined to ask question. More teacher participation. Students likely to bring pre-prepared questions	Informal or structured activities, cooperation activities possible
GRADES 10-12	Young adults. More likely to ask questions and likely to come with prepared questions. Questions will be more sophisticated and pointed to an issue	Problem solving, extrapolation of ideas, more complex structures and their implications possible

# 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 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>

# Safety First

## Safety

**TIP: Check with your direct farm marketing association for tour liability insurance**

## Insurance Needs and Liability

Keep in mind that the farm is home to you but is unfamiliar territory to be discovered by urban children or their teachers. They are likely not to be fully aware of any of the potential dangers.

To prepare the farm for visitors, both for safety and good image, the following efforts are some examples of safety tips to insure a successful and safe visit:

- Hose down walkways.
- Keep all passages and stairways safe and unobstructed; where possible install railings.
- Check for nails, loose railings, syringes, sharp tools, loose tin/siding, etc.
- Keep sick or dangerous animals out of the way.
- Remove access to the dog(s).
- Rope off areas where you don't want them to go. But don't rely on the rope to keep them out. Choose spotters and/or clearly inform the teachers, supervisors that these areas are unsafe or inaccessible.
- Inform your staff of the visitors.
- Never leave any toxic products (sanitizers, pesticides) open and accessible.
- shut off all machinery or if can't, avoid areas where machinery is in operation. Remove all keys from ignitions.
- Do not encourage children to have direct interaction with animals. If any interaction is allowed be certain they are gentle animals housed in a way that controls their movement.

It is critical that you check your liability coverage with your insurance company prior to the visit. Most farm/ranch policies do NOT cover tours or consumer farm days. Be prepared to go over your tour plan and potential risks that are possible. Be clear on what monetary charges, if any, that may be applied to the visit and if any food or products will be dispensed. Keep your agent informed of any changes machinery or equipment used and the frequency of visits.



# Safety First

## Food Safety



It is a much appreciated bonus if your farm is capable of providing a snack, particularly if it is a product that originates from your dairy. However to insure no food borne illnesses result there are some precautions that should be taken.

- Provide a facility that all children can wash their hands (soap and warm water and paper towels).
- Serve only processed, packaged products. The benefits are many:
  1. it demonstrates the processing aspect of the product and allows for product recognition off the farm.
  2. it reduces the risk of potential food safety issues.
  3. provides an opportunity to talk about your industry's food safety and quality controls.
- Serve plain products-children's tastes are simpler than adults. Fancy flavours, spices or appearances may result in a negative response.
- **It is the responsibility of the teacher not the producer to know his/her students' medical needs (i.e.: allergies to nuts, hay, or bees).**

## Preparing for the Visit

Knowing beforehand, both the teacher and yourself, what sequence of stops and the points addressed at each stop will help in providing a successful tour. Plan in advance:

- where will they go;
- what will they do;
- what will they see
- how will you address their questions;
- how will you assure supervision and safety throughout the time of their visit.

Begin your tour with the youngest animals, as they are the cleanest and most vulnerable. Move through your barn from youngest to oldest, ending with your milking herd.

Consider the size of the areas, age of the children, experience of the supervisors and the degree of risk and/or complexity of any tasks.

### **TIP: KEEP IT SIMPLE**

It's sometimes too easy to fall into the trap of telling them everything you know. Remember these students will not know dairy language and terms and the message has to be simple and basic.

Pick just one or two things that you want the students to learn at different locations of the farm. Talk in terms that students can understand, for example:

- One cow drinks 100-150 liters of water each day (or enough to fill a bathtub).

# Preparing for the Visit

## Your Farm Your Industry

**TIP: Relate words such as hay, rations, forage and heifer to their everyday activities.**

School children are future consumers. Making a positive impression about dairy farming has the potential to shift future consumption trends. You, as a dairy producer play an important part in communicating key messages about agriculture and the food produced for everyone. You are an expert at taking care of detailed business decisions, cows and crops, land stewardship, etc., but may not be trained in public speaking and public relations. Doing some homework ahead of time can help you say and do the right things.

Food is not created at the super market, yet many school children believe that this is where their food comes from. The challenge for farm tour guides is to change this misconception. You can, in fact, inspire consumer confidence and spur on milk consumption. To ensure the paradigm is changed positively requires several things:

- Facilities and housing that are maintained in a manner that represents a clean, healthy environment that is both comfortable and healthy for the cows and workers.
- The farm represents the “norm” of the industry and dispels the “Old MacDonald’s Farm” myth. Don’t be afraid to show that yours is a professional operation that provides employment and food.
- Avoid circumstances on the farm that would reflect negatively on dairy farmers or the industry in general. The visit is a window into the entire industry, and extra cleanliness is encouraged.
- Always present milk as nature’s most wholesome food with the highest food value.

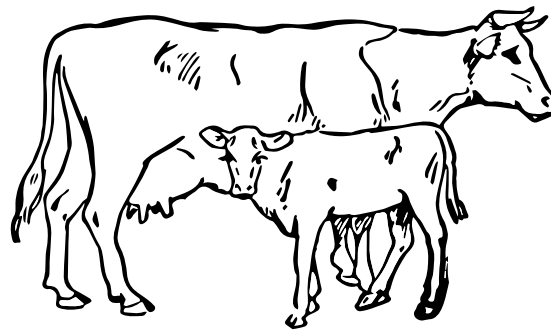
# Preparing for the Visit

## Your Farm Your Industry

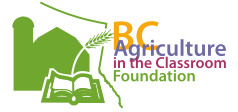
Always remember the only animal most people relate to is their pet. The environment and people involved with their pet will be their own home or friends, the small animal veterinarian and the local pet store. Either way it is a singular unit, treated as one of the family members and potentially pampered in a very human - like manner.

The level of smell, "dirt" and size of the farming operation will seem foreign. Images of farming may have come from story books or television and as a result may be dated, small, mixed farming operations or large "corporate" farms using "bad" chemicals, which pollute or taint the air/water/soil/milk/meat.

How you and the farm presents itself can change this and encourage visitors to think in a better more positive light.



# 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

# Develop Activity Stations

## Activities

Developing “activity stations” is a great way to focus school age children and their energies as well as provide them some tremendous hands-on experiences. All learners, children and adults, like a break from listening to actually doing something.

Challenging their skills and observations helps to consolidate what they’ve learned. Always keep in mind safety, and complexity as it relates to the age of the child and group size.

The following offers some example activities. Discuss your plans with the teacher before the visit.

### Hay wagon ride to tour fields

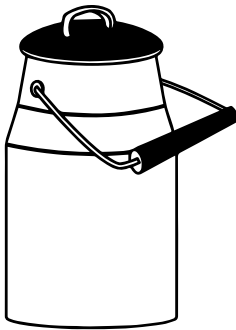
1. Corn: tell them how it is used to feed the cattle; show the entire plant and how it looks chopped up as feed; grows to a height of 10-12'; when chopped up is placed in a silo to ferment (preserve) for future feeding.
2. Pumpkins (or other crops grown): pick pumpkins, grow different varieties.
3. Handle soil: if possible show different types of soil; tell that it provides nutrients to plants, valuable resource and needs to be protected; demonstrate how erosion may be controlled.

- Separate off an area with rope, garden hose or tape and have smaller, more gentle animals in small pens accessible for petting or feeding. Always supervise-both for sake of child and animal.
- Viewing area of all farm structures-note the different designs and their purpose.
- Milking demonstration: always choose the most gentle and cleanest of animals not easily spooked by sudden noises or activities.
- “Teachable moments”- take advantage of events that can occur, e.g.: birthing process, breeding, tagging, etc. Be prepared to answer questions though! Discuss these potential topics with teacher beforehand to determine if appropriate.
- Have price tag on items-e.g. tractor, barn, cow.

**TIP: Remember safety features - fenced wagon, bales to sit on, steps in place to ensure easy on/off. Consider bad weather options.**

# Develop Activity Stations

## Activities continued



- **Role play**  
Using props have them guess how many career roles are on a farm, e.g.:
  - wrench = mechanic
  - grain ration = nutritionist
  - syringe (minus the needle) = vet
  - milk sample bag = bulk milk grader / processor
- **Using items from around the farm help students discover their use. Keep safety in mind when selecting tools. Some examples of appropriate tools are:**
  1. teat dip
  2. cow magnet
  3. milking unit
  4. chemical gloves
  5. computer feeding tag
  6. slow moving vehicle sign
- **Dress-up. In a large box place a collection of farm “uniform” /clothing (steel-toed boots, overalls, caps, quilted jackets, gloves).**
  1. Dress the teacher or a student to be a farmer.
  2. Have them say why the farmers wear special clothing - outline safety issues.
- **Have a collection of mail: farm magazines, repair bills, vet bills, feed bills, breeding catalogue, farm implement brochures, notices of meetings, 4-H materials, computer printouts etc.**
  1. Have them look through the material and discuss what skills you would need to address the issues, e.g. accounting, science, business, communication.
- **Test their knowledge with a game of farm trivia pursuit, e.g.:**
  1. how many glasses of milk will one cow provide in her lifetime (200,000)
  2. how many stomachs does a cow have (4).

# Develop Activity Stations

## Activities continued



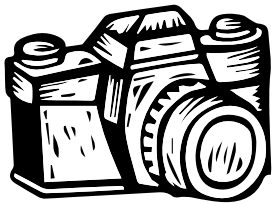
- **Challenge their observations!**
- **Soil -get each child to pick up a scoop of soil from the field. Get the children to think about the world and how much of that scoop of soil represents agriculture.**
  1. Drop  $\frac{3}{4}$  of the handful = amount of world covered in water.
  2. Drop  $\frac{1}{2}$  of remainder = amount of the land not suitable for agriculture.
  3. Drop  $\frac{1}{3}$  of remainder = amount of land lost to urbanization.
  4. Remainder = agri land. Ask for some forecasts about food production in the future.
- **Form a food chain-start off with two children, one the producer and one the consumer (eating a hamburger) - get the children to form a chain. To get in the chain each child has to mention someone who works between the producer and the hamburger. Have the producer leave the chain and ask them what happens to all those in the chain.**
- **Identify all the types of feed on a large clean surface (e.g. concrete pad) place some feed samples.**
  1. Have them point out the different piles of feed types - identify them with their help.
  2. Divide them into grain versus forage - smell, taste the different grains.
  3. Discuss how much a cow eats in a day in terms of weight, buckets.
  4. Older children could identify the percentage of each feed type.

**Above All - Have FUN !**



## Meeting the Group at the Bus

**TIP:** Set aside an area that would be appropriate for a group photo - think of a farm image how it will look to a consumer.



### Summary and Evaluation of Tour

Keep your discussion brief. Remember the children may have been on the bus for a while and will be anxious to start. Take them right to the first station and do your introductions there. Divide the students into manageable groups (5-10) with an adult supervisor. Be prepared with additional staff if necessary.

- Introduce yourself and your business.
- Let them know this is your place of work and your home.
- State your rules and your expectations. Adults are to listen carefully and be a part of the tour.
- Remember to speak clearly for everyone to hear.
- Have yourself and your staff attired in clean clothes.
- Remind them that loud noises and sudden movements will frighten the livestock and potentially create dangers for them and impair production outputs for you.
- Always be on the lookout for potential hazards. Remember, what may seem obvious to you as a danger, may not be to them.
- Students or teacher/supervisors may want to collect memories, for example they may:
  1. Take pictures for school displays. If you want some pictures, drawings or stories written by the children ask-they are usually happy to comply;
  2. Group photo-choose an appropriate place, taking into consideration background and the resulting image;
  3. Record audio/video; must have permission to film dairy premises.
  4. Take samples of feed, hay.

Maintaining your clients and ensuring positive word of mouth references, requires continual improvements. To evaluate the success of the tour and where you could improve ask the group before they leave:

- what they remember and what they learned;
- what they liked and did not like;
- invite them to write a story, letter or draw a picture about your farm and the visit.

# 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):

# Let's Talk About It!

Most people now are at least 2 and 3 generations removed from their farming roots. Concepts about agriculture rely on stories that may be years old, myths or from the news media. Awareness of how dairy farms function will be a mixture of new and old and issue oriented. To minimize confusion, be frank, brief and clear when answering questions.

The following touches on some of the areas and the types of information that will be of interest. Depth and specific topics will vary with your own comfort level and with the age of the children and the class subject matter. Discuss this with the teacher before they arrive to allow you some time to prepare.

## Cows

- Are mammals. (are warm-blooded, have hair, give birth to their young and nurse their young)
- Are herbivores. ( have flat teeth, eat plants and have their eyes at the sides of their head to watch for predators)
- How dairy cows differ from beef cows
- Different types of beef cows
- Numbers of different types of dairy cows
- Are a ruminant, have 4 stomachs, chew cud
- Difference between calf (baby), heifer (teenager), cow (adult)
- How you identify them - name, number, ear tag, etc.

## Cow Nutrition

- What they eat and how food is delivered to the cows
- Importance of water and minerals
- Care they require.

## Cow Reproduction

- First calf at 2 years of age
- Requires a cow to have a calf to make milk
- Lactation cycle 10 months and then rest (dry) for 2 months

## Milking Cows

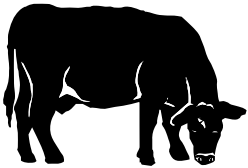
- Care and technology needed to milk cows
- How the milking system works (where is it going, how it is cooled)
- How milk is never touched by human hands
- Importance of hygiene
- Cow psychology, e.g. pecking order, personalities
- High quality milk comes from high quality animals and farming  
-be proud to be a farmer

# Let's Talk About It!

## Role of Support Organizations (Older Children)

- Milk Marketing System
- Producer organizations
- Processors
- Agri-business (feed, equipment, etc.)
- Veterinarians
- Research

## Manure Storage



- Waste-good and bad/soil conditioner and pollutant - how the rancher makes it work
- Waste Act-impacts on manure applications and how the rancher has to deal with this
- Nutrient cycle of manure in the soil - what does it do?
- Compare to human waste recycling programs.

## Environment

- Land conservation/stewardship
- Water resources/quality
- Pollution: manure/odours

## Animal Care

- Understanding animal needs
- Based on sound and humane management practices
- Cow comfort: freedom of free stalls, types of bedding, pasture vs confined housing

## Farming as a Business

- Labour issues
- Virtually all dairy farms in BC are family owned and operated
- Source of many jobs both direct and indirect and the types of jobs both on and off the farm
- How to get into ranching



# Let's Talk About It!

## Safety

- Food
  1. Canadian Dairy farmers work to prevent and reduce food safety hazards and risks on their farms, demonstrating that Canadian milk is produced in a safe manner
  2. Growth hormones are not used: BST is illegal in Canada
  3. Organic vs. nonorganic
  4. Bacterial contamination
- Human
  1. Farm accidents
  2. Labor related

## Science & Technology

- Computers - business (accounting), feed, breeding, production records, etc
- Robotics: milking parlours, automated milking systems.
- Genetics - plant and animal related
- Equipment: milking system, tractors, implements
- Ecological network - delicate balance of nature - soil, water, air - body and environment interactions - land stewardships
- Biology - life and reproductive cycle of cow/crops

## Milk and Nutrition

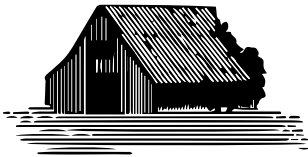
- Milk meeting daily food requirements
- Milk vs other beverages

## Society— Urban/Rural, Global and Cultural Issues

- Effect of food trends on ranching-e.g. vegetarianism, low fat, need for iron, vitamin B, and immigration
- Rural meets urban-expectations, conflicts
- Global marketplace-e.g. CETA/CUSMA/WTO/TPP

# Let's Talk About It!

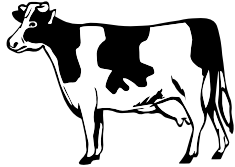
## Glossary



<b>Amino Acids</b>	Nitrogen containing compounds that are the building blocks from which proteins are made.
<b>Antibiotics</b>	A class of drug usually produced by living organisms (moulds, bacteria or green plants), which can inhibit or kill undesirable bacteria. Example: penicillin.
<b>Bacteria</b>	Microscopic unicellular organisms found almost everywhere.
<b>Barn</b>	Place where animals, feed and/or machinery may be housed.
<b>Breed</b>	Variety of animals within a species. To produce offspring.
<b>Bull</b>	Adult male. Potentially a very strong, dangerous animal needed to be treated with respect and distance.
<b>Butter</b>	Fatty substance made from cream by stirring.
<b>Calf</b>	Young cattle that are between 0 and 6 months of age.
<b>Carbohydrates</b>	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).
<b>Churn</b>	An old fashioned piece of equipment used to make butter from cream.
<b>Colostrum</b>	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.

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<b>Complete Feed</b>	A thoroughly blended mixture of different feed ingredients formulated to meet specific nutrient requirements.
<b>Cow</b>	Mature female cattle that are over 24 months of age and have given birth.
<b>Cream</b>	Fat part of milk, which in unhomogenized milk would gather on top of the milk
<b>Digestion</b>	The changes that occur to a feed within the animal's digestive tract to prepare it for absorption and use.
<b>Dry matter</b>	Feed residue left after all moisture has been removed by drying (100% dry matter).
<b>Energy</b>	Feed residue left after all moisture has been removed by drying (100% dry matter).
<b>Enzyme</b>	A complex protein compound produced in living cells which speeds up chemical reactions without itself being changed or destroyed. It is added to animal feeds to supplement low enzyme production by some young animals or to improve utilization of feeds.
<b>Escherichia coli (E. coli)</b>	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.
<b>Farm holding tank</b>	A refrigerated stainless steel tank used to store milk and keep it cool between 0 and 4°C.
<b>Fat (nutrient)</b>	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.

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<b>Feed additive</b>	Products added to basic feed mixes to improve the rate and/or efficiency of gain, prevent certain diseases, or preserve feeds.
<b>Food-borne illness</b>	The sickness resulting from eating food contaminated with either bacterial toxins or by certain bacteria in the food, often resulting in vomiting and/or diarrhea.
<b>Forage</b>	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.
<b>Free stall</b>	Bedding area in a barn, that holds one cow. Cow can come and go as she pleases.
<b>Grain</b>	Any of the common cereal seeds e.g. oats, barley, wheat.
<b>Hay</b>	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.
<b>Heifer</b>	A young cow between the ages of 6 months and 24 months that has not had a calf.
<b>Homogenize</b>	To process milk so that the fat globules are finely divided and emulsified that the cream does not separate on standing.
<b>Metabolism</b>	All of the chemical changes nutrients undergo following absorption from the digestive tract.
<b>Microorganism</b>	Any microscopic animal or plant-like organism including bacteria, yeasts, viruses and single-celled algae.
<b>Milk replacer</b>	A substitute for fresh whole milk, fortified with vitamins, minerals and sometimes antibiotics; used as a nutrient source for young animals.



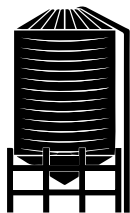
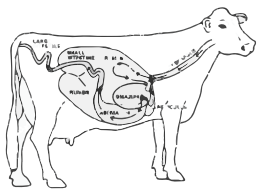
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<b>Minerals</b>	Inorganic feed elements essential for life.
<b>Mineral supplement</b>	A rich source of one or more mineral elements.
<b>Nutrient</b>	Feed components required for the maintenance, production and health of animals (water, carbohydrates, lipids, proteins, minerals and vitamins).
<b>Nutrient requirements</b>	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.
<b>Palatability</b>	The appeal and acceptability of feedstuffs. Affected by the taste, odour, texture and temperature of the feed.
<b>Parlour</b>	Area in the barn used to milk cows.
<b>Pasteurize</b>	The controlled heating of a food to a very high temperature for a very short time period in order to destroy all harmful bacteria.
<b>Pathogen</b>	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.
<b>pH</b>	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).
<b>Pasture</b>	A fenced grass field.

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- Protein** Naturally occurring compounds containing nitrogen, 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.
- 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.
- Separator** A type of equipment used to separate milk from the cream.
- Silage** Feed preserved by an anaerobic (no oxygen) fermentation process. Examples: corn silage, haylage, high moisture corn.
- Silo** Structure used to store forage. Stores it in a manner that prevents spoilage over long periods of time.

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<b>Skim</b>	To skim is to remove the cream or fat from the liquid (milk).
<b>Steer</b>	A castrated bull.
<b>Sterilization</b>	The process of eliminating all viable life forms; nothing is left living in a sterilized product.
<b>Teats</b>	Nipples on the udder. The baby calf nurses by instinct.
<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>Vitamins</b>	Organic compounds that function as parts of enzyme systems essential for many metabolic functions