



CANADA
4-H Saskatchewan

Beef Unit 1

Reference and Activity
Guide

4-H Motto

'Learn To Do By Doing'

4-H Pledge

'I pledge

**My Head to clearer thinking,
My Heart to greater loyalty,
My Hands to larger service,
My Health to better living,
For my Club, my community and my country'**

4-H Grace

(Tune of Auld Lang Syne)

We thank thee, Lord, for blessings great
On this, our own fair land.
Teach us to serve thee joyfully,
With head, heart, health and hand

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CANADA
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Introduction: Welcome to the Level 1 4-H Beef Project!

We are excited that you chose to become a member of the 4-H Beef Project. We hope you have a great time this year making new friends, taking part in 4-H activities, working with your beef project and learning more about beef production.

To complete a project year, you must:

- Complete the units your leader has chosen for the year.
- Complete a record book.
- Participate in a communication activity at the club level.
- Take part in your Achievement Day.

About the Beef Record Books

There are four record books available:

- General Record Book (to keep track of your meetings, goals, evaluations)
- Market Steer
- Heifer
- Cow Calf
- Feedlot

Depending on what animal(s) you will be working with will determine which record books you need. For example, if you have both a heifer and a steer, you need to complete the **General Record Book**, **Market Steer** and **Heifer** record books.

Some of the pages in the record book are for the more advanced beef member, so check with your leader which pages you need to complete, and **X** out the ones you don't have to.

Why keep records in 4-H?

- To record information about your animal.
 - To record the work you have done.
 - To record your club activities.
 - To learn the importance of keeping accurate records in any business.
 - So you can see the actual costs involved in completing your project. Without records, you cannot accurately tell how much of a gain or loss you have made on your investment.
-

How do I keep everything together?

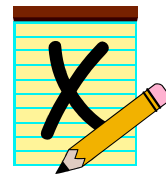
Take a 3-ring binder and put this material in it. Your leader will give you other information during the year. During the year, you will build your own book about beef. The record book is flexible. Make it **your** book by designing your own cover. Add pictures, newspaper or magazine clippings you have of yourself, your farm or your animal.

After you have been in the project for several years, you will have a special book.

What is involved in a good record book?

- **Completeness** – a good record book has all the required information completed.

Note: Check with your leader on which pages you need to complete. Put an "X" across the pages you are not using. If you leave it blank, you may lose marks for having an incomplete record book.



- **Accuracy** – your figures and information should be accurate and up-to-date. Be accurate when weighing your feed and your animal.
- **Neatness** – neatness is important. We realize that you are working on your record book throughout the year and will do your best to keep your book neat.
- **Personality** – this is your record book. Be original and personal in the information you keep. Add photographs, pictures, newspaper and magazine articles on you, your club, your project type and 4-H.

Hints for Keeping Good Records

- Keep a **calendar** and **pen** handy near your animal when you are working with him. Whenever you change the feed, or your animal is treated or vaccinated, you can quickly grab your calendar and mark it down. When it is time to write the information in your record book, the information is handy and accurate.
 - **Read** the instructions for each section carefully. Make sure you know in advance which records you must keep in that section. If you have any questions, ask your leader, they are there to help you.
 - If you don't know **feed prices**, there are many people you can contact. Your club may decide to set prices at the start of the project year. Consult your parents, web sites, local radio reports, feed companies, your local agriculture specialist, your leader, your neighbour, and so on. Prices will vary during the year.
 - Be **accurate** in your feed weights so you can accurately reflect the costs of maintaining your project. Round to one decimal place, for example: 1.4 kg instead of 1.375.
-

- Be **consistent** in your units for weight. No matter which type of units you use (kilograms or pounds); use the same units throughout your entire book.
- Include **all costs**, no matter how small. This will give you a true picture of your actual costs. Identify any purchases or losses of equipment during the project year.
- **Keep your records up-to-date!** Problems are caused by forgetting to record last month's feeds, or not recording changes in the feeds.
- Keeping records is a **good business procedure**. A good record book will be important in future projects for your decision-making. Start your record keeping as soon as you have chosen your project. End your record keeping for the project year at Achievement Day.

Achievement Day Requirements - You should...

- Exhibit your beef project.
- Display your record book that is complete and up to date.
- Complete an Achievement Day questionnaire.

Weighing

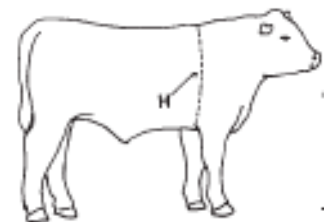
It is not always possible to use a scale when weighing your animal(s). Using a scale is the best method to get an accurate weight of your animal. However, if you do not have scales on your farm, borrow from a neighbour if possible. Remember that trucking your animal over to his farm is good practice for you and your animal.

Tape Measuring

One method you can use to estimate the weight of your animal is the tape measure. Any tape measure may be used, but there are specially marked tape measures you can purchase at most livestock and farm supply outlets.

Remember that it only gives you an estimate of the animal's weight. Variations from the actual weight may be due to the length of the body and/or legs.

To use the measuring tape, measure the circumference of the heart girth. Stand the animal with the head in the normal position and the four legs set squarely under the body. Pass the tape tightly around the body just back of the shoulders at the smallest circumference.



Use the charts at the back of the **general record book** to estimate the weight of your project. Record the weight in your record book. You should weigh your animal about the same day each month.

Only experience will enable you to estimate live bodyweight in metric units. You will have to compare your estimates with actual measurements (i.e. at stockyards). Some animal remedies, will be on a per animal basis and will not require knowledge of live bodyweight.

Think metric and read all labels and instructions carefully.

Weighing Feed

Whenever feed is weighed, you should record the kind and weight on a separate piece of paper so that the transfer can be made at the end of the month. The following information may help in your calculations.

To convert POUNDS TO KILOGRAMS: Divide the total pounds by 2.205 to determine the kilograms fed. Example: 300 lbs. \div 2.205 = 136 kgs.

To convert POUNDS TO TONNES: Divide the total pounds by 2,200 to determine the tonnes fed. Example: 700 lbs. \div 2,200 = .32 tonnes.

To convert KILOGRAMS TO TONNES: Divide the total kgs. By 1,000 to determine the tonnes fed. Example: 1,100 kgs. \div 1,000 = 1.1 tonne.

To convert BUSHELS TO KILOGRAMS OR TONNES: If you are self-feeding and use a bushel measure, multiply the number of kgs. /bushel* by the number of bushels to determine the kilograms fed. To determine tonnes fed, divide this amount by 1,000.

Example:

- * Barley - There are 21.8 kgs./bu. 21.8 x 200 bu. = 4360 kgs.
4360 kgs. \div 1,000 = 4.36 tonnes.
- * Oats - There are 15.4 kgs./bushel
- * Wheat - There are 27.2 kgs./bushel

The Use of Agricultural and Veterinary Chemicals

More and more farm chemicals are being labeled in metric units (mL, cc). The use of "cc" will be discontinued and cm^3 will replace it. Items such as vaccines and oral medications will be applied directly at rates given as:

Millilitres (mL) Milligrams (mg) **or** grams (g)

per kilogram (kg) bodyweight

Concentrated products such as horticultural, crop and pasture sprays will require dilution as:

mL/L mL/100 L **or** L/100L

g/L g/100 L **or** kg/100 L

Application will be as mL/ha, L/ha, mL/m^3 and so forth.

Standard prepackaged products (to avoid weighing from bulk supplies) will eventually be labeled as one pack for a certain number of litres (L) instead of one pack for 100 gallons. Animal remedies will rely on dosage rates based on live bodyweight in **millilitres per kilogram (mL/kg)**.

Metric Conversion Table

Weights	1	ounce	=	28.3	grams
	1	pound	=	0.45	kilogram
	0.035	ounces	=	1	gram
	2.205	pounds	=	1	kilogram
	2,200	pounds	=	1	tonne
	1,000	kilograms	=	1	tonne
Liquid Measure:	1	quart	=	1.1	litres
	1	gallon	=	4.5	litres
	0.91	quarts	=	1	litre
	0.22	gallon	=	1	litre
Length:	1	yard	=	0.9	metres
	1	yard	=	0.9	metres
	0.39	inch	=	1	centimetre
	1.1	yards	=	1	metre
	100	centimetres	=	1	metre

Transportation Regulations

When transporting livestock, you must carry a **LIVESTOCK MANIFEST** completed according to the regulations. Make sure you complete this manifest before the vehicle leaves your property whenever you transport any livestock. The **owner** of the livestock or his agent must complete the manifest with this information:

1. Date the livestock is transported.
2. Name and address of the owner of the livestock.
3. Consignee's name and address.
4. Number of livestock.
5. Colour of the livestock.
6. Kind of livestock.
7. The proper description and location of the brand and other marks of ownership on each head of livestock.
8. Sign the manifest.

The **operator** of the vehicle transporting the livestock or the driver must complete the manifest with this information:

1. Name and address of the person who is operating the vehicle or driver of the livestock.
2. Licence number of the vehicle used to transport the livestock.
3. Transportation charges, if any.
4. Sign the manifest.

Unit 1: You and Your Beef Project

Roll Call: How did you choose your 4-H beef animal?

Selecting Your Project Animal

What must you consider when selecting an animal as your 4-H beef heifer or steer? What is most important? How do you decide? In this unit we will try to answer these and other questions you might have.

When to Select

Select your beef project animal as soon as possible. The sooner you select your animal, the sooner you can begin working with it.

If you take the steer project, select a steer that weighs less than 275 kg. The actual weight and age of your steer will depend on the type of animal. Know the date when your steer must be finished. This is important as you will have to know how to feed your steer to have it properly finished for Achievement Day.

Heifer or Steer?

The first decision you have to make is whether to you want a steer or a heifer (or both).

- If you choose a steer, you will sell it at the end of your project year.
- If you choose a heifer, you can keep her and use her as a yearling project next year, and then as a cow-calf project or a beef herd project.

As a producer, deciding between finishing a heifer or a steer for market, you need to keep these points in mind:

1. Heifers grow more slowly, but will fatten at a lighter weight than steers.
 2. Heifers require more feed per unit of weight gain than steers.
-

Crossbred or Purebred?

Another decision you must make is whether to buy a single breed or a mixture of breeds. That is, a purebred or crossbred.

A **purebred** calf is one whose parents are of the same breed. No other breeds are present in their background. The animals may be registered with their breed organization. Although many people prefer a registered purebred, it is not always necessary and may cost extra money.

A **crossbred** calf is one that has parents of different or mixed breeds. The calf will show characteristics of more than one breed, and hopefully, the most desirable characteristics of each of the breeds.

Commercial breeders often prefer crossbred animals for these reasons:

1. They may inherit the desirable characteristics of each breed.
2. Crossbred calves often have **hybrid vigour**. This means that their performance is superior to the performance of the average of their parents' performance. You can see the improvements most often in fertility, growth rate and feed conversion.
3. Calves from some breeds of cows have higher pre-weaning gains because of the higher levels of milk production.

Crossbred calves will finish earlier than some of the larger framed purebred cattle.

Selecting is Really Judging

Choosing your calf will be your first practice with judging. Judging is evaluating and comparing in order to select the most desirable in a group of similar objects. In your case, this will be your 4-H animal. Follow these steps when you judge a class or when you are selecting your animal:

- Know the characteristics of the ideal or the perfect animal.
 - Compare the animals that are available. Compare them to each other and to your perfect animal using those characteristics you identified above.
 - View the animals from a distance.
 - From a distance, view from the front and the rear.
 - Move in for a close examination of each one.
 - View once again from a distance.
 - Make your decision.
-

When did you select your project animal _____

What did you select a heifer or steer _____

Did you select a cross or purebred? _____

The breed(s) is/are:

Why did you select this animal?

List the steps you went through in selecting your project animal and why.

In your own words...

What advantages does a crossbred animal have over a purebred animal?

What advantages does a purebred animal have over a crossbred animal?

Using your knowledge about breeds, fill in the blanks below with examples of the British and the exotic breeds.

The British Breeds	The Exotic Breeds

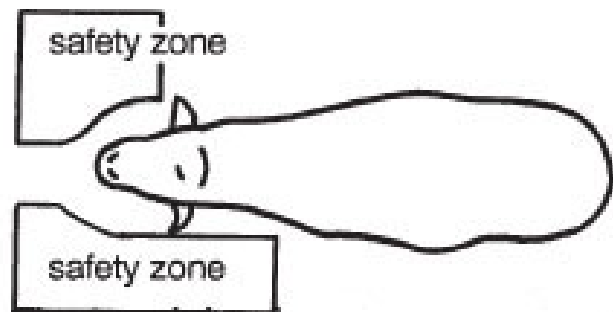
Working With Your Project Animal

Safety First!

Safety is important at all times when you work with your animal. Even cattle that are calm in the pen may become frightened and unmanageable when you take them outside. Until you and your calf are comfortable with each other, have someone help you as you work together.

Always wear safety footwear when working with your calf. Steel toed boots will protect your toes if your calf should accidentally step on you. It takes only an instant for you to become injured.

The best safety zone is on the front left side of your calf. Never stand directly in front of him as he has difficulty seeing you properly and will become frightened. If you move to the right side, hold the lead shank in your left hand and make sure that the shank is under the animal's jaw and not over it.



The picture below shows the correct and most secure placement of the halter on the head of the animal. If the halter is too low on the nose, it will slip off easily. If it is too high, you will not have enough control.



Too Low

Correct Halter Position

Too High

Most important to your safety is your attitude. You will spend many hours working with your animal over the next few months. Be patient, but firm. Do not lose your temper. The animal can sense when you become angry or upset.

Learn to do by doing

The best part of the 4-H project is that you will "learn to do by doing". Whether you are working with your animal or with the other members in your club, you will be doing and learning.

Remember – 4-H is FUN!

Unit 2: Digestion in the Beef Animal

Roll Call: Name an animal _____

Is the animal ruminant or monogastric? _____

As other members answer the roll call, record the animal they name.
Put it in the correct column.

Ruminant

Monogastric

What is a ruminant?

A **ruminant** animal has a stomach with four distinct rooms or compartments. Each of these compartments has its own special job to do in digestion of the food.

A **monogastric** animal has a stomach with one big compartment. All the digestion work is done in this one big room. Here is an easy way to remember this:

Mono = one **gastric** = stomach

Because the stomachs of the ruminant and monogastric animals are different, their diets are very different. Compare your diet to your animal's diet.

A monogastric – You

A ruminant – Your animal

What difference in the foods you eat! Your diets are different because your stomachs have different abilities to digest food.

What is Digestion?

Digestion is the preparation of food for absorption. Before your body can use those things in the foods, your stomach must digest them so the body can absorb them. The digestive system does this by breaking the food down into tiny bits and then breaking them down even farther so they can be absorbed into the body parts.

What is the Digestive System?

The digestive system is made up of all the parts of the body that have a job to do in the process of digestion. Let's look at each of the parts of the digestive system and the jobs they have to do. The parts of the digestive system in the beef animal are:

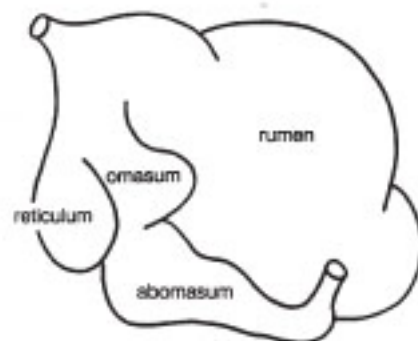
- Mouth
- Esophagus
- Stomach
 - Rumen or "paunch"
 - Reticulum or "honeycomb"
 - Omasum or "manyplies"
 - Abomasum or "true stomach"
- Small intestine
- Large intestine
- Anus

The **mouth** takes the food into the body. The food is broken up into smaller bits by the chewing and grinding of the teeth. Saliva from the mouth helps to break the food down more. The saliva contains enzymes that attack the food.

The **esophagus** is the long tube or tunnel that runs from the mouth down to the stomach. When food is swallowed, it goes down the esophagus into the stomach.

The **stomach** of a beef animal has four distinct compartments. This is how we know that they are a ruminant animal. Each of these compartments has its own special job to do in digesting food.

This is what the stomach looks like. → → →



The first part of the stomach the food enters is the **rumen**. This is the largest compartment. In an adult beef animal, it takes up about 80% of the size of the entire stomach. The rumen mixes the food. Microbes or “bugs” attack the food and help break it down.

From the rumen, the food moves to the **reticulum**. The fine material is moved to the next compartment. The coarser food material is sent back up to the mouth for more chewing. This is called rumination or “chewing the cud”.

Did you know? The cow spends up to eight hours a day “chewing its cud”. This is 1/3 of its life!

The third compartment of the stomach is the **omasum**. The omasum squeezes the fluids out of the food material.

The fourth and last compartment of the stomach is the **abomasum**. It is also called the true stomach since it is very similar to the stomach of a human and other monogastric animals. The abomasum contains digestive juices that help break down the food even more. In a newborn calf, the milk bypasses the first three stomach compartments and goes directly down the esophagus into the abomasum.

When food moves out of the stomach, it no longer looks like food that your animal ate. This food material goes from the stomach into the **small intestine** that is like a very long, thin, coiled tube. Juices are found here. These juices help to change the food material to a form that the body can absorb.



Now, the material moves to the **large intestine**. The large intestine is a shorter, fatter tube. It absorbs what is left of the liquid in the material and adds mucus to help the material travel more easily.

The final part of the digestive system is the **anus**. This is the opening in the body through which the waste material passes. This waste material is the remains or undigested food, which we refer to as manure.

WOW! Digestion is really complicated isn't it? If any part of this system is not working properly, the rest of the system cannot function and that can lead to real problems.

It is important that you understand how the beef animal can digest such different foods than you or any other monogastric animal. The beef digestive system can turn some very poor quality hay and straw into valuable proteins and energy that the beef animal can use for growing and reproducing.

Activity: The Digestive System Word Search

Find the digestion words in the puzzle. All of the words are in a straight line!

C	O	M	P	A	R	T	M	E	N	T
I	M	U	S	A	M	O	U	H	B	A
N	I	R	S	M	A	L	L	C	U	B
T	C	S	Y	A	N	A	U	A	G	O
E	R	D	S	C	Y	R	C	M	S	M
S	O	L	T	T	P	G	I	O	R	A
T	B	O	E	I	L	E	T	T	U	S
I	E	F	M	O	I	F	E	S	M	U
N	S	O	S	N	E	T	R	U	E	M
E	D	I	G	E	S	T	I	O	N	U

ABSOMASUM
ACTION
BUGS
COMPARTMENT
DIGESTION
FOLDS

INTESTINE
LARGE
MANYPLIES
MICROBES
OMASUM
RETICULUM

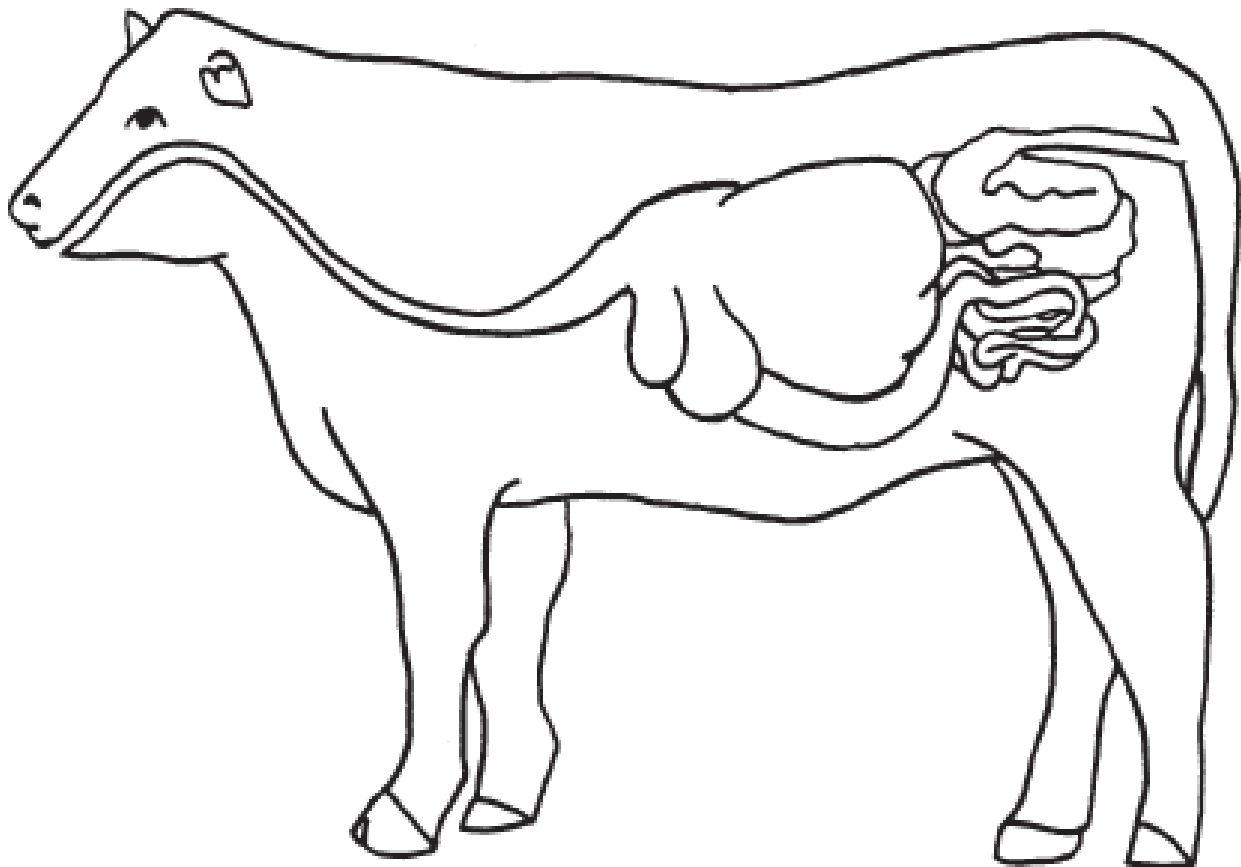
RUMEN
SMALL
STOMACH
SYSTEMS
TRUE

The remaining four letters spell the word that completes this statement:

"The stomach of the beef animal has ___ ___ ___ ___ compartments."

Activity: Follow the Patch

In the diagram below, follow the path the food takes through the digestive system of your animal. Draw arrows to show the direction the food material moves through the digestive system. Remember that once the food reaches the stomach, it begins to look very different. This is only one of the things that happen during digestion!



Unit 3: Nutrient Requirements of Beef

Roll Call: Name a nutrient: _____

Name a feed item that is a good source of this nutrient:

What is a nutrient?

A nutrient is something needed for life.

What is nutrient needed for?

Maintenance, growth, production and reproduction.

A nutrient is like an ingredient in a recipe. If we leave an ingredient out, the food we are preparing will not turn out properly. If we leave an ingredient out of our beef animal's diet, they will not grow up or produce as well as we expect.

If the animal does not receive enough of a nutrient, it is said to be **deficient**. There are five nutrients a beef animal needs in its diet. Can you name them?

1. _____

2. _____

3. _____

4. _____

5. _____

Let's learn more about each of these.

■ Water

We don't often think of water as an important nutrient, but it is necessary for life.

How important is water?

When a calf is born, water makes up 75 to 80% of its body weight.

What does water do?

Water does many things: it helps the body get rid of waste, it helps things transport through the body, it lubricates the joints, it participates in body activities and it helps keep the body healthy.

How much water does an animal need?

The amount of water your animal needs depends on many things: body size, weight, feed consumed, the environment and the type of animal. Water should be available for your animal at all times.

How can you tell if your animal is not getting enough water?

The first sign you will notice is a decrease in feed intake.

Water quality is important for all livestock. An abundant supply of clean, fresh water should always be available for all your animals.

■ Energy

What is energy?

Energy is the power an animal needs for the body to function. It receives this power from the food it digests, or the "fuel" it "burns".

The beef animal needs energy for many reasons:

- To keep warm
- To grow
- To produce milk and calves
- To move around

It receives energy from digesting carbohydrates and fats. Carbohydrates include the sugar, starch and cellulose found in plants. The oils of soybean and canola are good sources of fat. A couple of good sources of energy are barley and wheat.

Too Much Energy	Too Little Energy
<p>How can you tell if your animal is getting too much energy?</p> <ul style="list-style-type: none">• Becomes too fat• Calving is difficult• Upset digestive system• Lower resistance to disease	<p>How can you tell if your beef animal is not getting enough energy?</p> <ul style="list-style-type: none">• Slow or stopped growth• Losing weight• Poor hair coat• Lower resistance to disease• Reproductive problems

From these problems, you can see how important it is to provide your beef animal with the right amount of energy.

■ Protein

Protein is needed by the beef animal for:

- Growth
- Reproduction
- Muscle development and action
- Hair growth
- Milk production

Most feeds contain some protein. However, it is often in only small amounts. The best sources of protein are:

- Soybean meal
- Canola meal

■ Vitamins

Vitamins are needed for these activities:

- Growth
- Reproduction
- Movement
- Staying healthy

There are many vitamins. Each of them is important for specific reasons.

Activity: Match the Vitamin with its Characteristic

Vitamin	Characteristic
A	1. Ruminants manufacture this vitamin, but humans must receive it in their diet.
B	2. Needed along with the minerals, calcium and phosphorus for healthy bones; known as “the sunshine vitamin”.
C	3. Vitamins in this category include niacin, riboflavin, thiamine and others.
D	4. Needed for proper blood clotting.
E	5. A very important vitamin needed for vision, healthy skin, digestion and reproduction.
K	6. Needed along with the mineral selenium for muscle function.

■ Minerals

Minerals are needed in a beef animals diet to build healthy teeth and bones. They are also needed for other functions, including the working of muscles and nerves. There are at least 19 minerals required by the beef animal.

Some of these are:

Macrominerals: these are required in fairly large amounts.

- Calcium
- Phosphorus
- Magnesium
- Sulphur
- Potassium
- Sodium
- Chlorine

Microminerals: these are required in small amounts.

- Iodine
- Cobalt
- Selenium
- Iron
- Zinc
- Copper
- Molybdenum
- Manganese

About Salt

Type of Salt	Minerals Contained
White	Sodium, chloride
Iodized (red)	Sodium, chloride, iodine
Cobalt iodized (blue)	Sodium, chloride, iodine, cobalt
Trace mineralized	Sodium, chloride, iodine, cobalt, zinc, iron, manganese, copper, selenium

Did you know?

You need the same kinds of nutrients in your diet as a beef animal does in their diet.

Activity: Find the Minerals

Each one is in a straight line – up, down, across or diagonally.

C	M	U	I	S	E	N	G	A	M
A	O	U	C	O	P	P	E	R	U
L	L	B	I	M	D	*	*	*	I
C	Y	I	A	S	U	I	*	*	N
I	B	R	*	L	S	I	N	*	E
U	D	O	*	*	T	A	D	E	L
M	E	N	Z	I	N	C	T	O	E
E	N	I	R	O	L	H	C	O	S
S	U	R	O	H	P	S	O	H	P
*	M	A	N	G	A	N	E	S	E
*	*	*	S	U	L	P	H	U	R

Activity: Nutrient Summary

We have now learned a little about each of the nutrients that are required by the beef animal. Answer the following questions to give you a summary of the information provided in this unit.

1. The five nutrients required by the beef animal are:

2. Why is water important for the beef animal?

3. Two good sources of protein are:

4. The beef animal receives energy from digesting:

5. Choose the correct answer. If your beef animal receives too much energy, it will:

- a) become too fat, or
- b) lose weight

6. Why are vitamins needed by a beef animal?

7. There are two types of minerals. These are:

An example of each of these types is:

Unit 4: Feeds for Beef

Roll Call: Name a feed ingredient that is used in a ration.

Rations and Diets

Diet is the mixture or combination of feeds that provide the nutrient requirements. The diet you feed your animal contains those nutrients that keep your animal healthy, growing, producing and reproducing.

Ration is the amount of feed required by the animal daily.

The diet must contain the correct proportion of the nutrients an animal needs. The correct amount of a properly balanced diet gives you a ration that meets the animal's dietary requirements.

Tell me about the diet you are feeding your animal:

More About Rations and Diets

Your animal's diet will be made up of concentrates, roughages and supplements. Each of these contains necessary nutrients.

Concentrates are high energy feeds. This includes the grains.

Roughages are high fibre feeds. Roughages include hay, silage and straw.

Supplements are a good source of one or more nutrients. They are added to the ration to make a more nutritious feed. They may provide energy, proteins, vitamins or minerals.

Salt is a mineral supplement. Salt or sodium chloride is important for the animal because he/she loses sodium and chloride through sweat and body wastes. Your animal can receive salt by licking a block or eating loose salt mixed in with the feed.

Tell me about the concentrates, roughages and supplements you are feeding your animal.

Concentrates

Roughages

Supplements

Palatability

Palatability is how acceptable the feed is to the animal. It is affected by the flavour, smell, appearance, texture, temperature and dustiness of the feed. The way the feed is prepared will affect each of these.

Your animal must eat enough of its ration to get the daily gains you want. If it does not eat enough, it won't get those gains and the feed and the nutrients in the feed will be wasted.

What do you think your animal likes about the ration you are feeding?

What doesn't it like?

About Roughages

Hay is dried roughage that is harvested and stored with a low moisture content. Two types of roughages are used for hay crops:

- Grasses
- Legumes – clover, alfalfa, trefoil

What type(s) of hay are you feeding your animal?

The most common ways in that hay is packaged today are:

- Small square bales weighing from 20 to 30 kg
- Large round bales weighing from 300 to 600 kg
- Loose hay stacks weighing from one to three tones
- Large square bales weighing about 500 kg

Haylage is also produced from grasses and legumes. Instead of being stored as long hay, it is chopped into shorter pieces for a forage harvester. The main difference between hay and haylage is that haylage has a higher moisture content – around 40%.

Silage is grasses, legumes or cereals stored with a higher moisture content – about 60%, but harvested the same as haylage.

About the Grains

The grains are concentrates. These are the energy feeds.

Wheat is high in energy. It should be coarsely ground or cracked and fed in small amounts along with other grains. Fine particles of wheat appear when it is processed and may cause digestive upsets or bloat.

Barley has less energy than wheat, but more than oats. Barley is a very dense feed. If you compare the weight of a pail of barley with the weight of a similar pail of oats, the barley pail will be much heavier. Therefore, it is important to measure your grains by weight, not by volume.

Oats are very palatable. They are good to use when starting your animal on grain. However, because oats have less energy than wheat or barley, oats are not a very good finishing feed.

Corn is the most commonly used energy feed in most parts of North America. Corn is low in calcium, but has good phosphorus content. In most cattle diets, corn is fed along with protein supplements.

In Saskatchewan, the most commonly used energy sources are barley and wheat.

Feed Intake

Beef cattle will eat from 1.4 to 2.7 percent of their body weight each day in feed; this amount is on a dry matter or moisture free basis. The amount consumed varies depending on the concentrate roughage ratio of the feed and the age and condition of the animal. Older and fleshier cattle will consume less feed per unit of bodyweight than younger, leaner animals.

The table below lists the approximate amounts of different types of feed an animal will eat. These are based on a 90% dry matter basis.

Feedstuff	Daily Consumption as a Percentage of Body Weight
Excellent quality hay	3
Very good hay	2.5
Medium hay	2
Poor hay, oat or barley straw	1.5
Wheat straw	1
Silage (air dry basis)	2-3
Oats	3
Barley	2.5
Wheat	1.2-2

What do we mean when we say “on a dry matter basis”?

If your haylage has 40% moisture, then it has 60% dry matter – because dry matter plus moisture makes up the haylage or 100%. If you fed 10 kg of haylage then you are only feeding 6kg of dry matter.

Activity: True or False

For each of the statements below, put a "T" in the blank if the statement is true or an "F" if the statement is false.

- _____ Barley has more energy than wheat.
- _____ Oats are more palatable than barley.
- _____ A diet is the amount of feed required by the animal daily.
- _____ A pail of oats is lighter than a pail of barley.
- _____ Silage contains more moisture than hay.
- _____ Concentrates are high energy feeds, roughages are high fibre feeds.
- _____ Alfalfa is a grass used to make hay.
- _____ Beef cattle will consume up to 8% of their body weight per day.
- _____ Oats have less energy than wheat or barley.
- _____ If you feed 20 kg of hay with 90% dry matter, you are actually feeding 18 kg of dry matter.
- _____ Dry matter plus moisture gives you the total amount of the actual feed.
-

Unit 5: Parasites of Beef Cattle

Roll Call: Name a parasite

What are parasites?

A parasite is any living organism that survives on, or in a host animal. This organism, or parasite, gets all of its support for life from the host animal. This includes its food and shelter.

Parasites and Your Beef Animals

Why do we need to worry about parasites?

Parasites harm our animals. They cause beef cattle to be stressed. When they are stressed, they don't perform well, and they are more susceptible to disease and infection.

A healthy beef animal:

- Has bright, clear eyes
- Eats regularly
- Drinks water provided
- Is active
- Has a shiny hair coat
- Has pleasant breath

A beef animal with **internal** parasites may:

- Stop drinking
- Have poor feed efficiency
- Be weak and losing weight
- Have decreased milk production
- Be generally unhealthy

A beef animal with **external** parasites may:

- Be uncomfortable
- Not eat or drink regularly
- Lose weight
- Have a rough and dull hair coat
- Rub against fences, walls or trees

The bottom line is that your animal will not be healthy. When he is not healthy, he will not grow or produce well. When he does not grow or produce well, this costs you money.

It is important to know that a beef animal with only a slight infection of parasites will look normal. Often, you cannot tell just by looking at the animal that there is a problem. A beef animal with a severe infection, or many parasites, will look sick.

With good management, you will be able to control parasites on your farm. This will keep your animals happy and healthy.

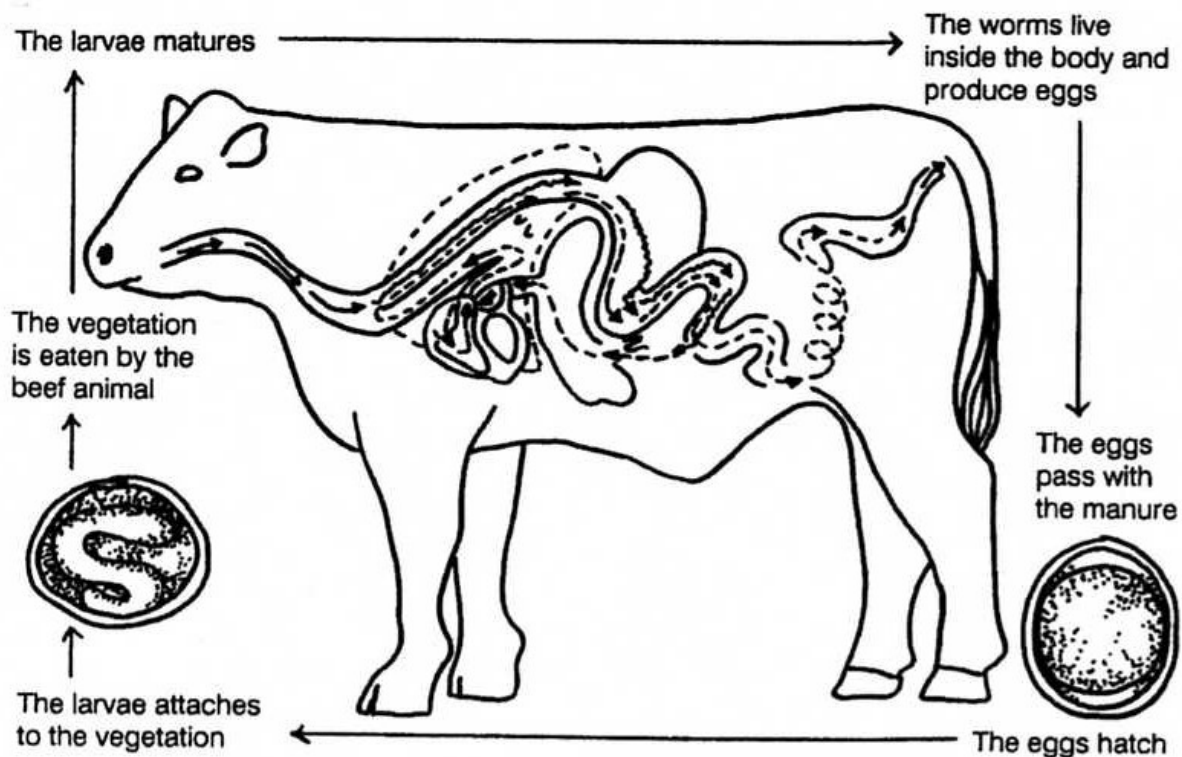
Controlling Parasite Infection

It is much easier and less expensive to control parasites by **preventing** them, rather than having to treat your animals once they have parasites. Because beef cattle spend so much time on pasture, they are very susceptible to parasites, especially worms.

To help better understand how the beef animal can become infected; let's look at the life cycle of a common internal parasite, the **roundworm**.

Suppose your beef animal has roundworms. The worms lay eggs while living inside the body. These eggs pass out of the body in the manure. While on the ground in the manure, the eggs grow into larvae. These larvae move from the manure to the grass. The animals eat the grass, taking the larvae into their body. Once inside the body, the larvae grow into adult worms. The cycle continues.

In Western Canada, roundworms can be found in beef and dairy cattle year round, particularly in young animals. They are often found only in small numbers. Because of this, it is often difficult to detect them.



Life cycle of the Roundworm

There are three different species of roundworms that can live in the abomasum or fourth stomach of cattle:

- Barber pole worm 35 mm
- brown stomach worms 15 mm
- threadworm 7 mm

They suck blood while attached to the stomach wall. One or all three of these species may be found. A serious infection would include several thousand of these worms in one animal.

The **threadnecked intestinal** worm is a common roundworm found in the small intestine. It causes harm only when found in large numbers.

The first step in preventing roundworm infection in your cattle is to know how to recognize infected cattle. Roundworm infection is usually a herd problem rather than an individual animal problem. If only a few worms are present, you likely won't notice any problems.

When many worms are present, your animals will begin to lose their appetites, not gain weight, appear thin and look poorly. Some may develop scours. To be positive that worms are the problem, manure samples can be analyzed for the identification and count of eggs. This will tell which type of worm and how severe the problem is.

There are several treatments on the market. Whether or not mass treatment is necessary is an individual farm decision. Consult your veterinarian for more information.

Activity: Parasites

There are two types of parasites. These are the **internal** and the **external** parasites. What is the difference between these two types of parasites?

An Internal Parasite

An External Parasite

Give some examples of each of these types of parasites:

Internal

External

How can your animal become infected with parasites?

Activity: Find the Parasites

Find the many different parasites. These words are in a straight line – forwards, backwards, up, down or on a diagonal. Find as many parasites as you can and record the words below.

```

C
*
M   O
R   *
O   F   C
W   L   I   C
D   I   C   *   L   D
N   E   E   *   *   F   I
U   S   W   A   R   B   R   O
O   *   E   G   N   A   L   *   S
R   T   A   P   E   W   M   *   V   I
*   *   *   M   R   O   W   G   N   U   S
                                     *
    
```

Unit 6: Beef Herd Health

Roll Call: Name one sign a beef animal shows when it is not healthy:

The Healthy Calf

As you get to know your calf and the animals in your herd, you will know what kind of behaviour is normal. A normal, healthy calf has these characteristics:

- bright, clear eyes
- eats regularly
- drinks water provided
- is active
- has a shiny hair coat
- has pleasant breath

Help keep your animals healthy by giving them:

- A dry, clean home
- Clean, fresh water
- Well balanced diets containing the right amounts of all the nutrients

The Unhealthy Calf

If an animal starts behaving differently, or you notice anything that is not normal, your calf might be ill. Look for some of these signs that something is wrong:

Appearance	<ul style="list-style-type: none"> • Depressed • Dull
Posture	<ul style="list-style-type: none"> • Standing differently from normal • Favouring some part of the body
Gait	<ul style="list-style-type: none"> • Walks faster or slower than normal • Walks around more or less than normal • Stands in one spot • Wanders aimlessly
Condition	<ul style="list-style-type: none"> • Too fat or too thin
Appetite	<ul style="list-style-type: none"> • Eating more or less than normal • Growing too fast or too slow • Refusing to eat certain foods • Drinking more or less water than normal
Behaviour	<ul style="list-style-type: none"> • Bawling • Nervous
Breath	<ul style="list-style-type: none"> • Smells sour
Urine	<ul style="list-style-type: none"> • Not yellow and clear
Manure	<ul style="list-style-type: none"> • Softer or harder than normal • Colour different than normal

Working With Your Vet

Once you have discovered an unhealthy animal, and you cannot solve the problem yourself, you will need to get help. Call your local veterinarian. To make it easier for the vet to find out what is wrong with your animal(s), do the following:

- Put the sick animal in a separate area
- Make it comfortable
- Have plenty of warm water available
- Have a halter ready
- Be ready to discuss the symptoms
 - How long has the animal been ill
 - What are the symptoms
 - Any recent changes in management or feed
- Be ready to help

Looking at Medicine

Drugs can be given through the mouth (**orally**) or with a needle (by **injection**). Whichever way you give the medicine, be sure to read the directions on the box or bottle. Follow instructions carefully for the amounts and ways to give it.

The amount of medicine you give an animal often depends on how big the animal is. It is important to give your calf the right amount. Giving it more will not make it get better faster. It may make it sicker.

Oral Medications

Medicines given through the mouth work more slowly than those that are injected. That's because the medicines must go through the digestive tract before they can be absorbed into the bloodstream, where they go to work.

In the Feed: mix the powdered drug into the feed. These drugs must taste good or the animal won't eat. If the animal does not eat it, they won't get the medicine and may become sicker.

Balling Gun: Put the balling gun in the animal's mouth at the back near the throat. Press the plunger to force the capsule, tablet or bolus down the animal's throat.

Drenching Bottle: Put the bottle in the animal's mouth at the back near the throat. Give the liquid slowly to make sure the animal swallows, and the liquid goes down the esophagus and not into the lungs.

Flexible Tube or Hose: slide the tube or hose into the animal's mouth and down the throat to the stomach. This can be used to put liquid medicine directly into the rumen. It can also be used to relieve pressure in animals with bloat.

Injections

Drugs may also be injected or given with a needle.

- **Subcutaneous** (injected beneath the skin)
The best place to inject is just in front of the shoulder where the skin is loose. If the dosage is large, split it in half and give it in two locations. Some drugs cannot be injected subcutaneously because they will bother the animal.
- **Intramuscular** (injected directly into the muscle)
Injected directly into the muscle to get drugs into the animal quickly. The two most common sites are the hind leg and the hip just behind the hook bones. Do not inject into a large blood vessel. It could kill the animal. If the dosage is large, split it in half and give it in two locations.
- **Intravenous** (injected into the vein)
An intravenous injection should be done by a veterinarian or someone with experience. Use it if:
 - The dosage is very large
 - Drug must get into the bloodstream immediately
 - Drug is too irritating to be given to the animal any other way

When giving injections, always:

- Use sterile equipment
 - Make sure the injection area is clean
 - Read the label and follow the directions
 - Restrain your animal in a squeeze chute with a head gate
 - Consult your veterinarian if you are not sure
-

Activity: How are Betsy and Boris?

Betsy and Boris are two of my favourite calves. Let's see how healthy they are. Put an (H) if you think he or she is healthy. Put an (N) if you think he or she is not healthy. Go ahead – fill in the blanks!

- _____ Boris has a soft, shiny hair coat.
- _____ Betsy is breathing very heavily.
- _____ Boris is watching me very closely, with his ears alert.
- _____ Boris has bright, shiny eyes.
- _____ Betsy has a runny nose.
- _____ Betsy is just standing in the pasture hanging her head.
- _____ Boris came running to me, just like he always does.
- _____ Betsy's manure is very loose.

Which calf is the healthy one – Betsy or Boris? _____

Activity: P or N

Below are some problems that can happen on the farm. Is the farmer trying to prevent diseases from happening or not?

Put a **P** if the farmer is trying to **prevent** diseases from happening on his farm. Put an **N** if the farmer is **not preventing** diseases from happening on his farm.

- _____ 1. A calf in the far pasture suddenly dies. He did not look sick yesterday. You decide to leave him there for the coyotes.
 - _____ 2. You are almost out of your protein supplement and your cows are due to calve next month. You have no time to go to town and buy more. You decide to put fewer supplements in the ration so it will last longer.
 - _____ 3. Each year when your calves are six months old, you vaccinate each of them for Bovine Virus Diarrhea (BVD).
 - _____ 4. Yesterday you bought five new calves at the local auction mart. You brought them home and put them in the pasture with your other 30 calves.
 - _____ 5. A calf in the south pasture died this morning. You had no idea what the problem might be so you took him to the vet for an autopsy.
 - _____ 6. A two month old calf has runny eyes and nose. He also has scours. You decide to leave him and see how he is tomorrow.
 - _____ 7. You bought 10 calves from a neighbour. He was only feeding them some good quality alfalfa hay. You want to get the calves growing, so you offer them a small amount of barley each day. Four days later you begin to slowly increase the amount of grain.
 - _____ 8. You have been feeding your calves hay and barley. Your neighbour has some extra silage he wants to give away so he can clean out the bunker silo. You take it and start feeding it instead of the hay and grain.
-

Unit 7: Managing Your Market Steer

Roll Call: What is the most important part of managing your market steer?

Dehorning

Removing horns from an animal is called **dehorning**. Beef producers dehorn their beef cattle because:

- Beef cattle with horns can be dangerous to people and to other animals
- Beef cattle with horns can bruise carcasses
- Aggressive animals use their horns to push others around
- Beef cattle with horns need more space at the feedbunk and water trough
- Horns can damage fences and buildings

It is easiest for both the animal and the beef producer if you dehorn before the calf reaches two months of age because:

- The calf is easier to control
- It is less stressful for the calf
- The wound heals quicker
- There is only a small amount of blood flow to the horn area at this age

Castration

Castration is the removal of the testicles in a male animal. It is best to castrate bull calves when they are between one and three months of age. A young calf recovers from the stress more quickly than an older calf.

It is more risky to castrate a calf over three months of age. As the calf gets older, more blood flows to the testicles. There will be a greater blood loss when castrating older calves. If castrated when too old, the steer will look "stagy". He will show some of the signs of a bull, including muscling through the neck and shoulder.

Why Castrate?

Steers are unable to reproduce. They don't show secondary sex characteristics such as masculinity about the head and shoulders. There is less struggle for position in a group of steers than with bulls. Steers produce a more desirable carcass.

How do you Castrate?

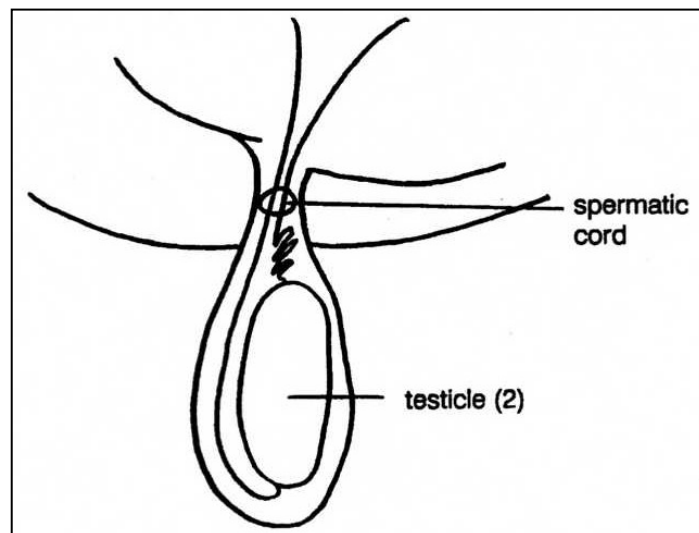
Before you begin castrating, make sure all of your equipment is clean. Boil it in water for 30 minutes. If you are castrating more than one animal, rinse the equipment with disinfectant between each animal. Use fresh disinfectant after every 15 animals. This will help to reduce the transfer of disease and infection.

A bull calf has two testicles. When castrating, you must remove both testicles. If not completely removed, the steer will have some of the characteristics of a bull. By feeling, or palpating the scrotum, you can tell if both testicles are down in the scrotum.

In a normal calf, castration is very simple. In some calves, one testicle stays inside the body cavity and does not move down into the scrotum. This animal is called a **cryptorchid** or **ridgling**. Special surgery is needed to castrate these animals.

It is important to properly control your calf during castration so you will not be injured. Small calves can be thrown or hobbled. A tilting calf table or chute works very well. For larger animals, you will have to use a squeeze chute or head gate.

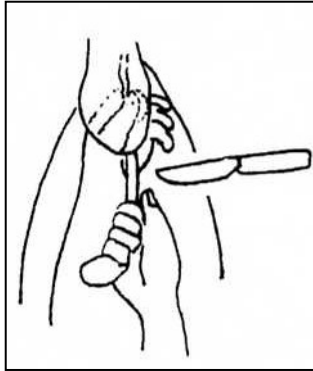
The method you use will depend on the size of the animal and the number of animals you must castrate. Castration can be **surgical** or **non-surgical**.



Surgical Castration

With these methods of castration the scrotum is opened and the testicles and cords are removed. Castrate when the weather is cool. Early spring or late fall are the best times.

The Knife Method:



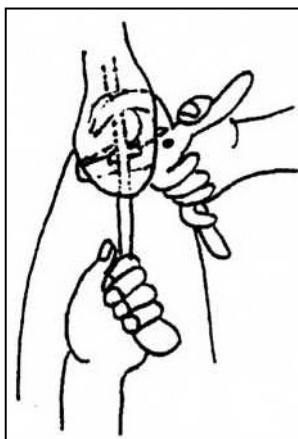
To remove the testicles, either split the side or remove the bottom third of the scrotum. There is less pain when the cut is made below the testicles.

Remove the testicle by pulling or squeezing it through the opening. Pull toward on it to show the spermatic cord. Slide your thumb up and down the cord to separate it from the connective tissue. A slow, steady pull will break the muscle that controls the position of the testicle.

Use a dull knife. If you cut yourself, you know that a scratch or scrape heals faster than a cut. The dull knife makes a rough wound that will heal faster than a clean cut. Remove the testicle by scraping the cord with a dull knife inside the scrotum until it is cut free. Repeat for the other testicle.

Make sure the calf has room to move around. The cut will drain as the calf moves. Keep the calves on clean bedding or pasture. Treat infections with antibiotics.

The Emasculator



The emasculator is both a clamp and a knife. **Do not** use the emasculator on calves over 220 kg or 500 lbs, because there is too much blood flowing to the testicles.

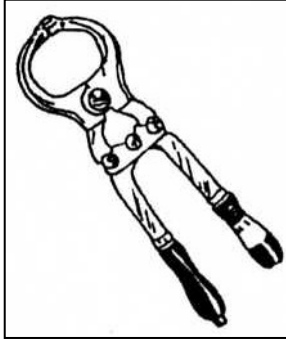
Place the emasculator over the cord with the crushing part toward the body.

Hold the emasculator as close to the body as possible. Squeeze the handle to crush the cord and cut off the testicle. Keep the pressure on the cord for at least 10 seconds after you cut so there will be less bleeding. Repeat for the other testicle.

Non-Surgical Castration

Non-surgical castration does not leave an open wound and can be done at any time of the year.

The Burdizzo



The burdizzo is a blunt jaw pincher used to crush the spermatic cord and blood vessels that lead to the testicles.

Find the testicle and the cord in the scrotum. Pull the cord to the side of the scrotum with your thumb and index finger. Clamp the cord with the burdizzo. Hold for five seconds. Repeat for the other cord and testicle.

Make sure you crush the cord. If not, the calf will develop some of the characteristics of the bull. Be careful not to crush both cords at the same time.

The Elastrator



Use the elastrator only on calves one month of age or younger. Place the rubber band on the elastrator. Open wide and slide the band up over the testicles, near the body. Release the band. Palpate the scrotum to make sure that both of the testicles are below the band. Give your calf a tetanus shot.

Activity: Castration

What is castration?

When was your steer castrated? _____

How was this done?

Why was this a good method to use?

Activity: Identify the Instrument

Match the instrument on the right with the method of castration on the left:

Burdizzo

Elastrator

Knife

Emasculator



Circle the instrument(s) that you might use in a non-surgical method of castration.

burdizzo

knife

elastrator

emasculator

Circle the instrument(s) that you should not use on your calf if he is over six months of age.

burdizzo

knife

elastrator

emasculator

What is the most important thing you have learned about castration?

Unit 8: Beef Cow and Heifer Management

Roll Call: Tell me one thing you must remember when looking after your cows and heifers.

Managing For Healthy Cows

In order to have healthy calves, you must first have healthy cows and heifers. To have healthy cows and heifers, you must do a good job of managing them all year round. Keep your cows healthy and fertile:

- Feed them properly
- Keep your animals free from disease and injury
- Practice good breeding management

Feeding

The greatest costs in a cow-calf operation are the feed costs. Proper feeding means you are giving your cattle the amounts and kinds of nutrients they need.

Many factors affect the amount of these nutrients that your animals will need. Let's look at some of these.

Age: Heifers and young cows need more nutrients than mature cows. This is because they are still growing. Growth, together with producing a calf puts great demands on the young cow's body.

Exercise: Cattle grazing on pasture or range land use energy as they move about. They need more nutrients than cattle in pens with limited movement.

Climate: Cold temperatures, strong winds and high humidity (more moisture in the air) increase the amount of nutrients your cattle need.

Gestation: Gestation is the period of time that the cow is pregnant; from the time she is bred and conceives to the time the calf is born. As the calf grows inside the cow, the cow needs more nutrients to take care of both of them.

Lactation: Lactation is the period of time when the cow is producing milk. A cow in lactation has a very high need for nutrients.

Keep Your Animals Free From Disease and Injury

Unhealthy cattle cost money in the form of veterinary bills, antibiotics and lost production. Nutritious feeding programs, clean and dry facilities, accurate record keeping and disease prevention programs are all needed to keep your cattle healthy.

Good Breeding Management

Practice good breeding management on your farm.

1. Check your cows early in the morning and in the evening for signs of heat.
2. Breed your cows when they are in standing heat.
3. Make sure you have enough fertile bulls to breed all your cows during the breeding season.
4. Pregnancy check your cows at the end of the breeding season. Cull all non-pregnant cows.
5. Keep accurate records to help you identify poor producers.
6. Keep your cows healthy year round so they will be able to produce healthy calves for you every year.

<p>Breeding</p> <ul style="list-style-type: none"> • Feeding level must be adjusted for condition of cows • Keep your cows in good condition • Vaccinate cows as needed 	<p>Pregnancy</p> <ul style="list-style-type: none"> • Good hay, salt and minerals are needed • Check for abortions or signs of heat • Check and treat for parasites • Make sure your cattle do not become too thin or too fat
<p>Weaning</p> <ul style="list-style-type: none"> • Check condition of cows • Increase feed to thin cows • Prepare for breeding • Treat for warbles and external parasites • Select replacement heifers • Prepare your winter feeding program 	<p>Calving</p> <ul style="list-style-type: none"> • Prepare for calving • Feed top quality feeds • Be aware that the cow's need for all nutrients increases after calving • Treat for lice if needed

Activity: Cow Management Word Scramble

Unscramble these words to find some things related to good management of your cows and heifers.

LYTHEHA

CTTALIANO

EIADSSE

EGNYER

GNNATEEMMA

TGINOTEAS

EFHIRE

Activity: Cow Management Review

Use each of these words only once to fill in the blanks in the summary:

Cold **Greatest** **Cows** **Heifers** **Energy**
Increase **Gestation** **Strong**

To have healthy calves, you must first have healthy _____. _____ have greater nutrient requirements than mature cows. Grazing cattle use _____ as they move about to find food. Climate affects the cow's nutrient requirements. _____ temperatures, high humidity and _____ winds cause the cow's requirements to _____. In early _____, nutrient requirements do not change very much. However, during the last six to eight weeks before calving, nutrient requirements increase. The cow's nutrient requirements are _____ when she is producing milk.

What are three things you must do to keep your cows healthy and productive?

What can you do to practice good management?

There are five main nutrients that cattle need. Can you name them?

Unit 9: Managing the Beef Herd Sire

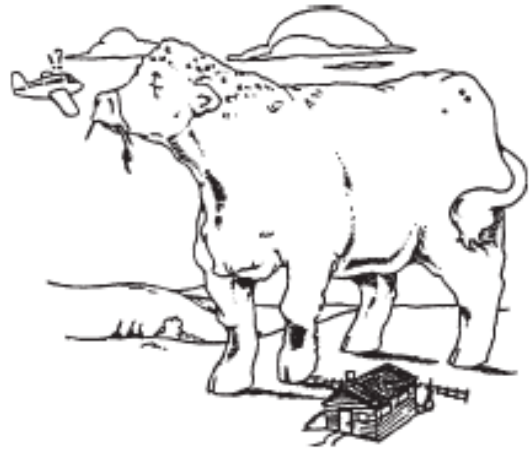
Roll Call: Tell one thing you must remember when looking after your bulls.

The Bull

The bull is very important to the production in your herd. He has even more influence than the individual cows. A good bull can improve your herd performance. A poor bull can hurt your herd production and profits for several years.

The bull has an effect on the:

- Number of calves born each year
- Length of your calving season
- Difficulty or ease of calving
- Growth rate of your calves
- Genetic potential of your herd.



Obviously, the bull is a very important part of your breeding herd.

Managing for a Healthy Bull

If we expect our bull(s) to stay healthy and be successful breeders, we must manage them properly all year round. We must be sure to:

■ Provide Good Nutrition

Nutrition has an effect on the reproductive performance of the bull. It is important to feed the bull properly all year round.

The breeding period lasts from about six weeks before the breeding season starts to the end of the breeding season. During this time, the bull must be in very good condition. He is more active than during the rest of the year because he is breeding your cows and heifers.

The maintenance period is the rest of the year before and after the breeding period. You should provide a well balanced diet for your bulls. This will give them all of the right amounts and

types of nutrients they need to stay healthy. A young, growing bull will need more nutrients than a mature bull.

If your bull is in poor condition at the beginning of the breeding season, you will need to increase his level of nutrition to bring him into good condition before breeding season starts. Feeding him extra grain at the beginning of the breeding period will help.

Bulls that keep themselves in good condition are often called “easy keepers”. These are the bulls that respond well all year round to your feeding program.

Fat bulls and/or thin bulls are not desirable. Over feeding can lead to overfat bulls. These bulls may have:

- Lower libido (desire to mate)
- Be less able to mate
- More feet and leg problems caused by the extra weight they must carry around

The lack of two nutrients, phosphorus and vitamin A, will cause a deficiency.

Phosphorus deficiencies in bulls can lead to infertility.

Grains, protein supplements and mineral mixtures are often good sources of phosphorus. Mature, dry forages are often low in phosphorus. By supplementing forages with grains, you can be sure the bull is getting enough phosphorus. The mature bull (820 kg) needs at least 25 grams of phosphorus per day.

Vitamin A deficiencies can cause the sperm to be abnormal or infertile. The bull may be infertile and have a lower libido.

Grains and dry forages are often low in Vitamin A. Green feeds such as alfalfa or other immature forages are often high in vitamin A. A mature bull (820 kg) needs about 60,000 IU of Vitamin A per day. The bull can get this from a salt-mineral mix, good quality forages or ADE injections. The liver of the beef animal can store Vitamin A for as long as three or four months. Therefore, Vitamin A deficiencies will appear only if it has been deficient for several months.

■ Control Disease, Parasites and Health Problems

Any disease or injury that affects the general health of the bull will also affect his breeding ability. You must be able to prevent and identify any problems with your bulls.

Before the beginning of each breeding season, examine your bull(s) closely. Look at the:

- Skin**
- External parasites such as lice
 - Evidence of internal parasites
 - Treat with insecticides if necessary
-

- Feet**
- Abscesses, corns, cracks, lameness
 - Trim the feet
- Brisket**
- Sores or infections
- Penis**
- Infections or abnormalities
- Testicles**
- Normal size and shape
 - Testes should be firm and have no swelling

■ Practice Good Breeding Management

It is good practice to have your bulls' semen checked prior to breeding season. This is usually done by a veterinarian. Even though your bulls may be in good condition and free from disease and injury, you can still get poor breeding results unless you practice good breeding management. The ability of a bull to breed is limited. Poor breeding results can be expected with a bull that is:

- too young
- too old
- used too often
- expected to breed too many cows

Under normal conditions, healthy bulls over three years of age can breed 30 to 40 cows per breeding season. A small yearling bull can be expected to breed only 10 cows. A well grown, well fed yearling bull can breed up to 20 cows.

The actual number of bulls you will need to breed all the cows and heifers in your herd depends on:

- size of pasture
- topography of pasture (hills or flat land)
- amount of artificial insemination used
- fertility level of the bull(s)
- number of cows and heifers in the herd

Heavy use of a bull can result in poor semen quality and unsuccessful breeding. To have a most successful bull, many breeders rest bulls during the breeding season.

One bull should be used on a group of cows confined in a small area. He should be able to breed these cows in five days. A rest period of 10 days between groups is recommended. During his rest period, another bull should replace him.

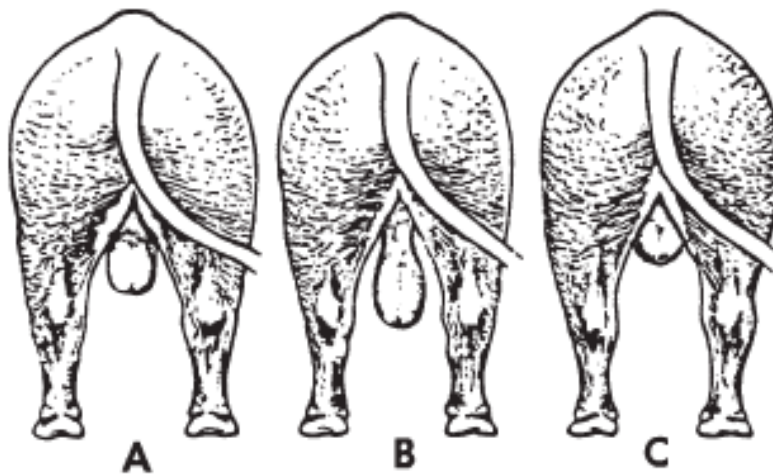
Looking at the Scrotum

The three most commonly found shapes of the male reproductive organ, the **scrotum**, are shown in the diagram below.

Testes that produce the sperm are located in the scrotum. Sperm production needs a temperature several degrees cooler than the internal body temperature. Therefore, the scrotum hangs away from the body as in B, the normal scrotum shape.

Bulls with straight sided scrotums, as in A, often have smaller testicles. This straight sided neck of the scrotum usually contains fat deposits.

Wedge shaped scrotums, as in C; hold the testes closer to the body. Bulls with this shape of scrotum should be avoided because the testes are generally small and produce poor quality semen.



Activity: Test Your Bull Knowledge

Match the phrases on the left with the most suitable phrase on the right. Note: Some of the phrases may match with more than one phrase from the opposite column. Keep working at it until each phrase on the left has only one suitable match on the right.

Easy keepers	Low fertility
Maintenance	Determines the number of bulls needed
Vitamin A deficiency	Desire to breed
Bull	For the small yearling bull
Libido	Determines the number of calves born
Overfeeding	Abnormal sperm
Phosphorus	Causes foot and leg problems
Pasture size	Keeps your bull in healthy condition
10 cows	Usually do not need extra grain

What does deficient mean?

Why is the herd bull so important?

What can you do to keep your herd bull(s) healthy and fertile?

Unit 10: Breeding

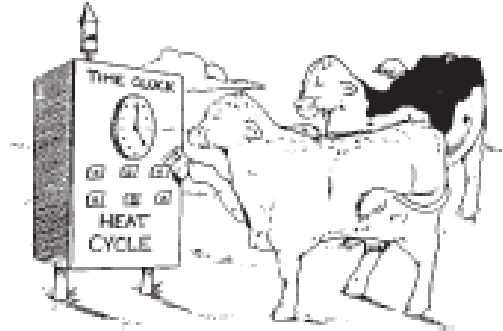
Roll Call: Tell one thing you know about breeding cattle.

The Reproductive Cycle

The reproductive cycle of the beef female determines when and if she will become pregnant. Let's look at it more closely.

The **estrus cycle** is a repeating period of time the cow becomes fertile, then non-fertile, then fertile again.

Estrus, or the heat period, is the fertile period of the cow or heifer. It is the only time when the cow or heifer will accept the bull. Estrus occurs approximately every 21 days. This may vary from 18 to 24 days depending on the cow.



Between 16 and 30 hours after the cow begins to show signs of estrus, she will **ovulate**. Ovulation occurs when she releases an egg from her ovary. If she has been impregnated by the bull, the bull's sperm will fertilize the egg, and it will then develop into a fetus and eventually, a calf. If the cow does not conceive or does not become pregnant, she will repeat her estrus cycle in approximately 21 days.

Some cows come into heat without showing any signs. This is called **silent heat**. When a cow has a silent heat, most producers assume the cow is not cycling. Your veterinarian can examine the cow to determine if she is cycling.

If you bred your cow when she was in heat, and she did not become pregnant, she would repeat her heat cycle in approximately 21 days.

The **gestation period** is the amount of time from when the cow becomes pregnant until she gives birth to a calf. The gestation period of a beef cow is approximately 283 days, or nine months and one week. The following chart shows the length of the gestation period of different animals.

Animal	Gestation Period (Days)
Dairy Cow	280
Beef Cow	283
Sheep	148
Swine	114
Horse	340
Human	280

Heat Detection in Beef Cattle

Knowing when your animal is in heat is the key to successful breeding.

Cows and heifers should be checked two or three times per day, usually in the early morning and late evening, for signs of being in heat. About 70% of mounting activity takes place between 12 a.m. and 6 a.m. As a general rule of thumb, if you see a cow in heat in the morning, she should be bred that afternoon or evening. If you see a cow in heat in the evening, she should be bred the next morning.

Time of Day

70% of standing - occur between the hours of 12:00 a.m. - 6:00 a.m.

22% of standing - occur between the hours of 6:00 p.m. - 12:00 p.m.

8% of standing - occur between the hours of 12:00 p.m. - 12:00 a.m.

Breeding Your Cows and Heifers

Within each heat period, there is a best time to breed the cow. This is when she is in standing heat. Standing heat usually lasts from 12 to 18 hours.

You can breed your females either naturally or artificially. In **natural** breeding, the bull does the breeding himself. In **artificial insemination (AI)**, you place the semen that has been collected from a bull, into the cow.

Most dairy cows are artificially inseminated. Artificial insemination is not used as often in beef cattle because:

- More time and labour are required from the producer
- Must be able to recognize when your cattle are in heat
- Need a trained AI technician to breed the cattle
- Good facilities are needed to restrain the cattle

There are many advantages to using artificial insemination in a beef herd. Some of these are:

- Safer for people and cattle not to have a bull on the pasture
 - Easier to prevent and control disease
 - You can use top quality bulls without paying the very high price of purchasing them
 - You can make rapid genetic progress by using top quality bulls
 - You can breed more cows and heifers to one bull in a shorter time period
 - You will have no problems with infertile bulls
 - Your breeding records, especially predicted calving dates, will be more accurate
 - You will have, given proper heat detection, higher conception rates
-




The Time of Ovulation

Ovulation usually occurs after the end of standing heat. The average time is approximately 10-14 hours after all signs of standing heat have disappeared. This may vary from 2 hours until 26 hours after heat. Heifers may ovulate sooner than cows. Research information can be summarized by the following table:

Heat First Observed	Average Time of End of Heat	Average Time of Ovulation	End of Heat Until Ovulation
a.m. Heifers (6 p.m. – 9 a.m.)	9:00-9:30 p.m. Same day	7:00 a.m. Next day	9 ½ hours
a.m. Cows (6 p.m. – 9 a.m.)	10:30 p.m. Same day	9:00 a.m. Next day	13 ½ hours
p.m. Heifers (12 Noon – 6 p.m.)	9:00 a.m. Next day	7:30 p.m. Next day	10 ½ hours
p.m. Cows (12 Noon – 6 p.m.)	12 Noon Next day	10:00 p.m. Next day	10 hours

The Stages of Heat

The Heat Period Timing of the Average Cow

0-10 hours		0 2 4 6 8 10 11 12 14 18 20 22 24 26 28 30 32 34 36											
<p>Coming Into Heat</p>  <ol style="list-style-type: none"> 1. Smells other cows 2. Attempts to ride other cows 3. Vulva moist, red and slightly swollen 	<p>True Heat</p>  <ol style="list-style-type: none"> 1. Stands to be ridden 2. Bawls frequently 3. Nervous & excitable 4. Rides other cows 5. May hold up milk 	<p>After Heat</p>  <ol style="list-style-type: none"> 1. Will not stand to be ridden 2. Rides other cows 3. Clear mucous discharge from vulva 											
TOO EARLY		GOOD	BEST TIME TO BREED			GOOD	TOO LATE						
Detected conception rate in normal cows (%)	40	45 55	65-70	72 75 78	75 72	70-65	55 30 10						
<p>(1) ----- (2)</p> <p>(1) At this point, the earliest best breeding time is still 12 to 16 hours away and the latest best breeding time is 30 to 36 hours away. Plenty of time to plan. (2) At this point the cow or heifer enters early standing heat, try to note this time as closely as possible. It is the KEY to timing the service properly.</p>		<p>The Early Detection System</p> <p>----- (3) -----(4)</p> <p>The earliest best breeding time is now 6 to 8 hours in the future. The latest best breeding time is 24 to 26 hours away. You should now decide to call today or tomorrow for service, depending on the time of the day you have noticed the cow. (3) The cow now enters the "Best Breeding Period" and should be bred within the next 18 to 20 hours.</p>			<p>----- (5) -----(6)</p> <p>(4) The cow now leaves standing heat. She may still be bred successfully within the next six hours. (5) Inseminations after this point will result in a very low conception rate. (6) The cow now leaves Estrus. If inseminated during the Best Breeding time a normal cow has a 70 to 80% chance of conceiving.</p>								

Tips for Increasing Breeding Success

1. Assign one person to be responsible for heat detection.
2. Identify each animal properly.
3. Know the signs of heat.
4. Record all heat dates on a calendar.
5. Observe heat signs and schedule basis time needed.
6. Try to pen heifers with another animal so they can demonstrate mounting and other signs of heat.

Anestrus

Some cows or heifers may not come into heat at all. This is called **anestrus**. There are many reasons for this:

- Not in the breeding phase of her cycle
 - Infection in the reproductive tract
 - Poor nutrition
 - Cysts on the ovaries
 - No ovaries
 - The female is still nursing
 - Seasonal anestrus; some cows do not ovulate in the winter
 - Age
 - Your cow is already pregnant
-

Activity: Find the Repro Word

In the puzzle below, find each of these words:

Breeding
Estrus
Bull
Gestation

Calving
Heat
Cow
Heifer

Cull
Insemination
Cycle
Puberty

Each word is in a straight line – forwards, backwards, up, down or diagonally. After you find all of the words, there will be eight letters left. These letters form the word that completes this sentence:

At the end of the breeding season, you want all of your cows and heifers to be

C												
O	R											
W	P	C										
C	C	U	G									
A	Y	L	B	E								
L	C	L	U	E	S							
V	L	E	L	G	R	T						
I	E	S	L	T	N	T	A					
N	P	T	T	A	E	H	Y	T				
G	B	R	E	E	D	I	N	G	I			
E	N	U	H	E	I	F	E	R	A	O		
I	N	S	E	M	I	N	A	T	I	O	N	

Activity: When would you look for signs of heat in these cows?

Betsy was bred on September 15th.

Susan was bred two days ago.

Samantha was bred 15 days ago.

Lisa was bred this morning.

Unit 11: Calving

Roll Call: How can you tell your cow will soon calve?

Getting Ready for Calving

Calving is one of the most exciting times on a beef farm. It is the time of year when your hard work in feeding and caring for your cows and heifers shows you the results. Your goal as a beef producer is to gain a strong, healthy calf from each of your pregnant cows and heifers.

In this unit, we will look at how you can prepare for that special time. You will learn how to identify that calving time is near and the stages a cow goes through in delivering her calf.

Signs That Calving is Near

Before a cow calves, she may show some or all of these signs:

- The udder begins to fill with milk or “bags up”
- Her belly “drops” or looks heavier
- Vulva relaxes
- Ligaments on both sides of the tail head relax and sink

Just before labour begins, the cow:

- Becomes restless
- Isolates herself from other cattle
- Lies down and gets up often
- Raises her tail head
- Stops eating
- Tries to urinate often
- Discharges a thick mucus from the vulva

Stages of Calving

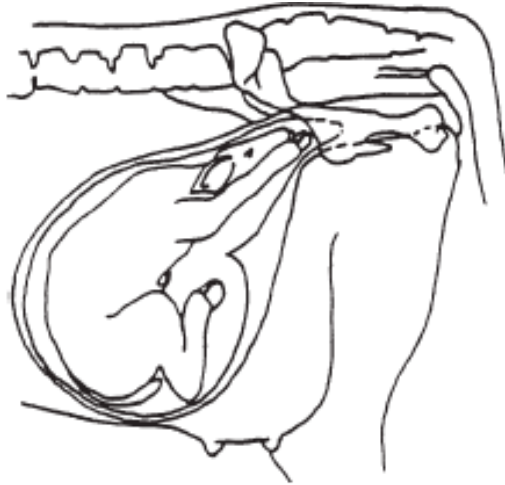
Stage One (Relaxation)

This first stage of calving lasts from two to six hours. The calf changes position in the uterus. Hormone changes in the body of the cow cause the uterus to begin contracting. In early labour, these contractions are about 15 minutes apart. The contractions become stronger and more frequent as labour progresses. The contractions are a lot like clenching and unclenching your fist. They begin at the horn of the uterus, working towards the other end, eventually forcing the calf out.

At the end of this stage, the water sac is forced into the cervical canal and pelvic area. The pressure breaks the sac, and the fluid lubricates the birth canal. You will often see the water sac hanging from the vulva at the end of stage one.

Watch your cow, but stay out of sight. The cow is uneasy and nervous and will calve more comfortably if she thinks she is alone.

This first stage lasts from two to three hours in a cow and from four to six in a heifer.



Normal Position of the Calf Before Birth

Stage Two (Active Labour)

The cow usually lies down just before or during this second state. In a normal delivery:

1. The calf enters the birth canal.
2. The uterus contracts more often.
3. Contractions become stronger after the water has broken.
4. Powerful stomach muscles begin to contract too.
5. The calf's front legs and head are forced through the birth canal and can be seen.
6. The cow strains to push the calf's shoulders and chest out of the birth canal.
7. The calf's stomach muscles relax and the hips and hind legs straighten so the hips slide out of the cow more easily.
8. Once the hips pass out, the rest of the calf slides out easily.

The time to complete this stage is from 1/2 to one hour in a cow to three hours in a heifer.

Stage Three (Involution)

The uterus continues to contract after the calf has been delivered. The placenta or afterbirth usually is forced out of the cow within 12 hours of birth. Lochia, or birth fluids from the uterus, will exit the cow for up to two weeks after birth.

Complete involution (return to normal) of the uterus takes from 30 to 40 days, but may take longer after a difficult calving.

Calving Problems

At any time during calving, something may go wrong. You must be prepared to help your cow if she has any problems.

The most common problem that happens with calving is **dystocia** or difficult calving. This may be caused by many things:

- Small or immature cow or heifer
- Abnormalities of the pelvis in the cow
- Distortion of the uterus in the cow
- Very large calf
- More than one calf (twins or triplets)
- Placement of the calf inside the cow

After the Delivery

Once the calf is born, make sure there is no mucus or fluid in its nostrils and mouth. Make sure the calf is breathing normally. If the calf is having difficulty breathing, lift it by the rear legs and shake or swing it back and forth.

Newborn calves have an amazing ability to get up, move around and search out food from the mother. Watch the mother nudge the calf towards her udder to help it find the food.

Activity: Which Stage?

Beside each of the cows below, indicate which stage of labour she is in. Put I, II or III in the blank.

- _____ Suzy has been straining for 20 minutes.
- _____ Marylou is wandering restlessly around the calving pen.
- _____ Belinda's water sac has just broken.
- _____ Betsy has just laid down in the straw. Half an hour ago she was really uneasy and nervous.
- _____ You can see the front legs of a calf coming out of Maisy.
- _____ Lisa is bawling and very restless.
- _____ Candy just delivered a strong healthy heifer calf 10 minutes ago.

Activity: Put in Order

Now that you have learned about calving and what happens in each stage, let's review once more. Put these steps in order, from 1 to 12, of when they occur. 1 happens first, then 2, and so on.

- _____ Udder fills with milk
 - _____ Calf nurses for the first time
 - _____ Mother becomes restless
 - _____ Contractions about 15 minutes apart
 - _____ Calf enters birth canal
 - _____ Calf's front legs and head appear
 - _____ Afterbirth comes out
 - _____ Calf's head and shoulders appear
 - _____ Contractions are two minutes (or less) apart
 - _____ Water sac is broken
 - _____ Calf's hips and hind legs appear
-

Unit 12: The Newborn Calf

Roll Call: When was your calf born?

Getting Off to a Good Start

Healthy heifers, steers and cows grow from healthy baby calves. Give your calves a clean home and good care starting from their first hour.

The calf is born with a thick fluid or mucus in its nostrils. Clear this from the nostrils by holding the calf by its rear legs with its head upside down. Tickle the nostrils with clean fresh hay and the calf will clear its air passages by snorting and shaking its head.

As soon as possible after the calf is born, disinfect the navel using an iodine dip. This disinfectant will help to prevent disease by killing bacteria that might enter the calf's body through the navel. It is a good idea to keep a wide-mouthed jar of iodine solution handy near your calving area.

After the calf is breathing normally, allow the cow to lick it dry. The newborn calf should stand and try to nurse.

The mother should have licked the calf very soon after it is born. If she hasn't, check to make sure she is feeling all right and that the calf is healthy.

A newborn calf should have a bowel movement within two hours after birth. The bowel movement will be dark and look like tar. This is called **meconium** and it is made up of material that was in the intestines before birth.

Feeding the Newborn Calf

Feeding a newborn calf properly is very important to the future growth of the calf. You need to be sure that the calf receives enough of the right nutrients.

It is important to make sure the calf suckles as soon as possible after birth. By suckling early, the calf will receive the much needed **colostrum** from the mother's milk.

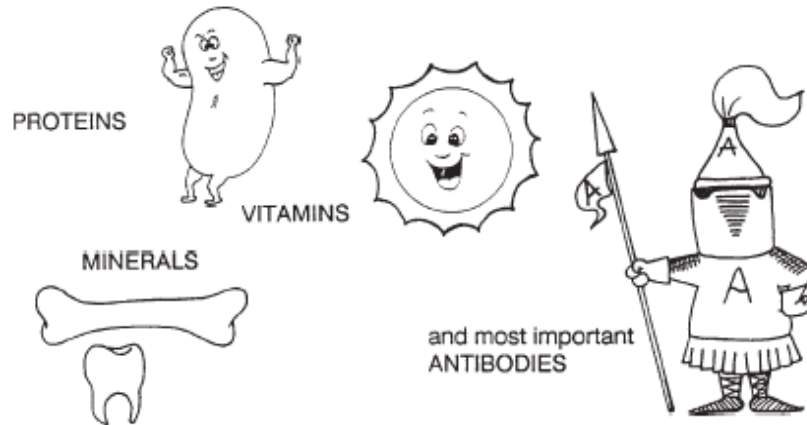
What is Colostrum?

Colostrum is the thick, rich yellowish milk that the calf's mother produces.

Why does the newborn calf need colostrum – and need it fast?

The calf's stomach can only absorb the nutrients from the colostrum for the first 12 to 24 hours after birth. You must be sure the calf gets colostrum during this time so it gets these nutrients.

There are many things in the colostrum that are needed by the calf.



Antibodies are disease fighters. They are the tiny bodies in the blood that get together and attack the disease. The cow passes these antibodies through her milk so that the calf will be able to use them to fight disease until it is old enough to make its own antibodies. At three or four months of age, a calf begins to make its own antibodies.

Colostrum vs. Whole Milk		
	Colostrum	Whole Milk
Total Solids	29%	13%
Protein	19%	3%
Milk Fat (energy)	6%	4%
Lactose (sugar)	3%	5%
Ash (minerals)	1%	7%

Colostrum contains 10 to 100 times more Vitamin A than milk and three times more Vitamin D. It also contains a laxative that helps a calf get rid of the sticky material in its intestines at birth.

If a calf is not able to get fresh colostrum from its mother, you can always give colostrum in a bottle. Many cattle producers will collect extra colostrum and freeze it so they will always have some on hand, or you can buy powdered from a veterinarian and mix up and feed by bottle or tube.

The Healthy Calf

Temperature

The normal temperature is 38.1 degrees Celsius, plus or minus 0.5 degrees. To take your calf's temperature, gently insert a thermometer into the calf's rectum and hold it there for two minutes. Remove the thermometer, clear and read it. If you are taking the temperature because of a health problem, take it at the same time each day, since the temperature may vary with the calf's activity.

Breathing Rate or Respiration

A normal calf breathes 10 to 30 times per minute. You can find the breathing rate by watching the calf's chest and counting the number of times the calf breathes in and out in one minute.

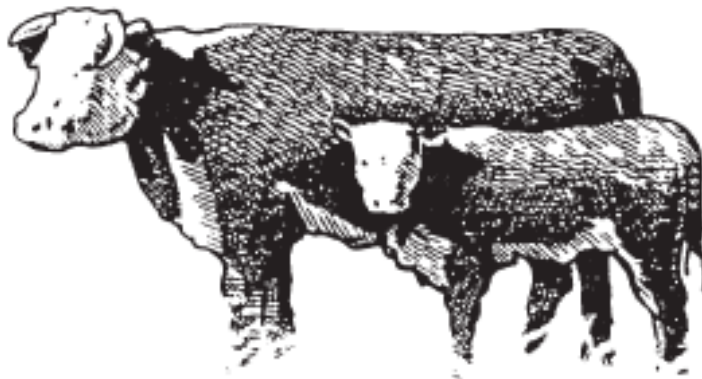
Appetite and Digestion

A young calf should eat 10 to 12% of its bodyweight in milk per day. Small calves in very cold weather may need up to 25% more milk to meet their energy requirements.

Your calves should have a good appetite during feeding. If your calf isn't eating or drinking like it usually does, there is something wrong with the calf or the feed. Your calf's manure is usually semi-soft. If it is watery, with a strong odour, this is a sign of sickness.

Just like us, calves have to be protected, more from sickness when they are young than when they are adults. Two of the most serious sicknesses for young calves are **diarrhea** or **scours** and **pneumonia**.

It is important to always have a fresh, clean supply of water available for your calves of all ages.



Activity: The First Month

Fill in the blanks in the sentences below using the words below. Use each word only once.

Antibodies

Mother

Calves

Quickly

Freeze

Replacer

Growth

Vitamins

Minerals

Water

1. The best milk for a calf comes from its _____.
 2. The most important things a calf receives from the colostrum are the _____.
 3. _____ and _____ are also found in the colostrum.
 4. It is important to make sure that your newborn calf receives the colostrum as _____ as possible.
 5. If you have extra colostrum, it is a good idea to _____ it.
 6. When you feed a calf artificially, you feed it milk _____ in place of milk.
 7. Your goal is to raise strong, healthy _____.
 8. Feeding a newborn calf properly is important for its future _____.
 9. Be sure to provide a good supply of fresh, clean _____.
-

Unit 13: Handling and Facilities

Roll Call: What is one thing to remember when you are working with cattle?

Working with Cattle

When we are startled or scared, our first reaction is to protect ourselves. It is the same for cattle. Charging and kicking are ways cattle defend themselves. This can cause serious injury to the handler. When you are working with cattle, be safety wise. Follow these hints:

- Stay alert.
- Move slowly when working with animals.
- Talk softly so they know where you are.
- Don't make loud noises or sudden movements.
- Never wrap the lead shank of a halter around your hand.
- Wear protective boots – steel toes and soles offer the most protection.
- Don't use an electric prod or whip on cattle.
- Keep your yard and working areas clean and dry.
- Be very cautious when working with bulls or a cow and calf. Never turn your back or become cornered.

Understanding Cattle Behaviour

Understanding cattle behaviour will make it easier for you to work with your cattle.

Cattle are social animals. They like to live and move in groups. Therefore, it is always easier to move and work with cattle when they can be with or near others.

Cattle like to follow the leader. If you can get the first animal to move through a gate or chute, others will follow. That is why most chutes are designed to hold at least three animals in a row. Animals will move more easily when they can follow each other.

Cattle will stop if they seem to be approaching a dead end of a sharp turn. That is why most chutes are curved rather than straight. Then the cattle can always see part of the animal ahead of them. Don't frustrate them by forcing them into a chute before they can see where they are going.

Cattle move at their own speed. Pushing them too fast only excites them and makes them more difficult to handle. Always use patience when working with them.

Activity: Let's Work

LET'S WORK

It's time to work with your cattle.
Make your way through this maze by choosing the correct solutions.



START

This heifer won't move. All the others are through the gate.
Make sure she can see the others ahead.

I'll just use this prod...

No time to drowse, hurry on out.

It's time to move the cattle. Dad's waiting.

Take a few minutes to put on your steel toed boots.

more where she can see you, then go toward her.

The white heifer is standing over there by herself. She needs to go through the gate.

She'll move if I yell at her.

You are entering another pen full of cattle.

You are moving a calf by halter across the pasture towards the gate.

Wrap the short around your hand tight.

Hold the halter tight in your hand - but don't wrap it around.

Fun and get her. The others won't bother you.

The red heifer is way over in the corner of the pasture grazing.

Don't turn your back on the cattle.

When! It's been a long day. I'll just sit here in the corral and rest.

No, stay alert - almost finished.

I'll just close my eyes for a few minutes.

Holler and yell at them so they move.

Talk softly as you approach.

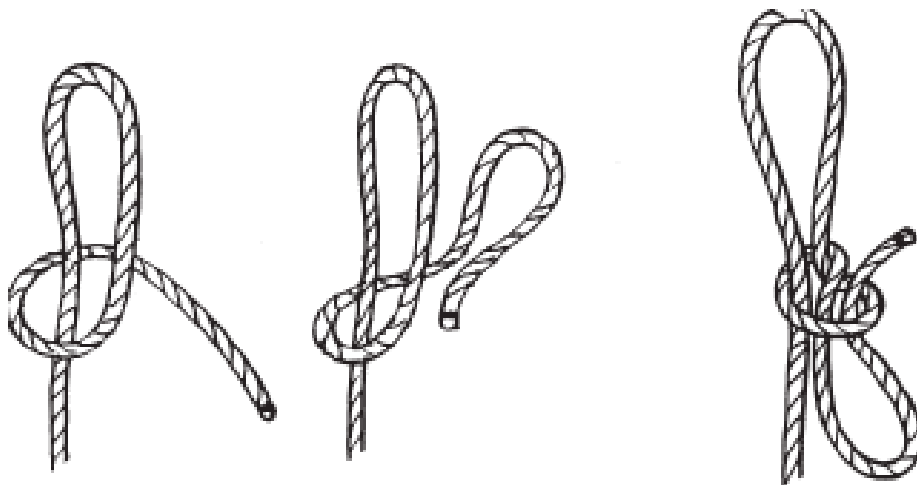
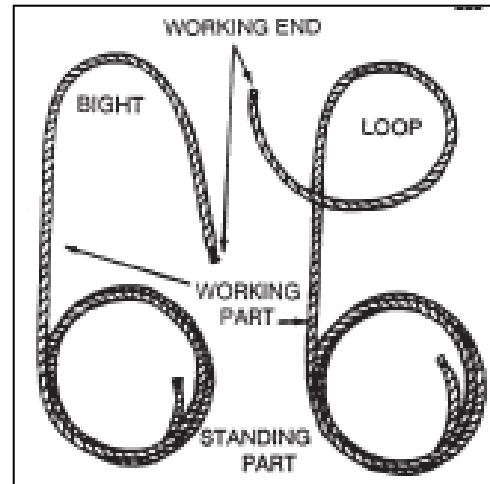
FINISH
Let's go in for supper. We've worked hard today!

The Quick Release Knot

When tying your beef cattle, always use the quick release knot. It has this name because it can always be quickly released to free your animal.

To make a quick release knot:

1. Hold the standing part (the end you are not using to make the knot) of the rope in your left hand and the working part (the end you are using to make the knot) in your right hand.
2. Leave 25 to 30 cm of the working part of the rope below your left hand. Form a bight (turn in the rope where it does not cross over itself).
3. Wrap the working part of the rope over the top and around the back of your bight.
4. Make another bight in the working part of your rope and insert this into the loop (turn in the rope where it crosses over itself).
5. Grasp the standing part of the rope and pull to shape and secure the knot.



Note: Do not use the quick release knot around the neck or body of your animal. It should only be used to tie your animal to a fence post or corral.

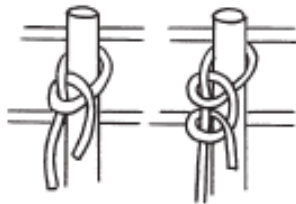
More Knots

Square



The square knot is used to join two pieces of rope together. It can be used to tie the ends of one rope together to form a loop.

Double Half Hitch



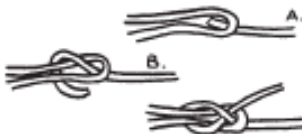
The double half hitch knot is quick to make, easy to tie and acts like a slip knot.

Bowline



The bowline knot is one of the most useful of all knots. It forms a loop which will not tighten.

Sheet Bend



The sheet bend knot is used to join ropes which are different in thickness.

Clove Hitch



The clove hitch knot can be tied around a post or leg. It can be preformed and dropped around a post.

Activity: Release It

Think about the quick release knot and how you would use it. Now, find a word that starts each letter of "QUICK RELEASE" and put it in the blank beside the letter. Use any word or phrase you can think of – about your steer or heifer, training to lead and using the quick release knot.

Q _____

U _____

I _____

C _____

K _____

R _____

E _____

L _____

E _____

A _____

S _____

E _____

Unit 14: Range and Pasture Management

Roll Call: What is one thing you might find on the land where you graze your cattle?

Range or Pasture?

Most beef farms have both range and pasture land. But, they are not the same.

Pasture is...

A grazing unit seeded to tame forages (land that grow plants put there by man).

Range is...

Any land supporting vegetation suitable for grazing, including rangeland, grazable woodland and shrubland. Rangeland grows native plants (those that grow naturally in that area).

Range and Pasture Management

In Saskatchewan most grazing lands are called pasture.

What is “managing your range or pasture”?

It is your plan for the care and use of your range and pasture land. This plan allows you to get the most products (meat, live animal, wool) per acre of land while keeping the land in reusable condition. You want to make sure you do not harm the plants, soil and water of the land.

Without a plan, your range and pasture would not stay in good condition and you would be unable to get the same return from it in the future.

Range and pasture management is much more than turning your cattle out to graze. It is important:

- By caring for the land, you make the best plants grow at the fastest rate. These plants are harvested by the animal, turning the plant into products that provide an income for the farm.
 - With good management, you will always have a reserve of feed. If cattle are not controlled, they will graze and overgraze the land, eventually killing many of the popular plants. Those plants not liked by the animals, and are usually the least valuable, will grow and take over the pasture, reducing its quality.
-

- With good management, you can keep a good plant cover. The grasses and plants will have strong root systems. This plant cover will help to protect the soil from erosion.

Good Range and Pasture Management

To give your range and pasture land good management, follow these rules:

■ Use the right season for grazing

Some plants (native western wheatgrass and Russian rye grass) are cool season grasses. They begin to grow early in the spring. Warm season plants (blue grama grass) do not begin to grow until the weather becomes warmer.

In the spring, allow plants to grow to a height of 15 cm before you put your cattle out to graze. If there are lots of legumes, such as alfalfa and clover, allow them to grow to a height of 25 cm.

■ Use the right number of animals

Do not let too many animals graze any area. Change the number of animals grazing your land so that half of the annual grass is left at the end of the grazing season.

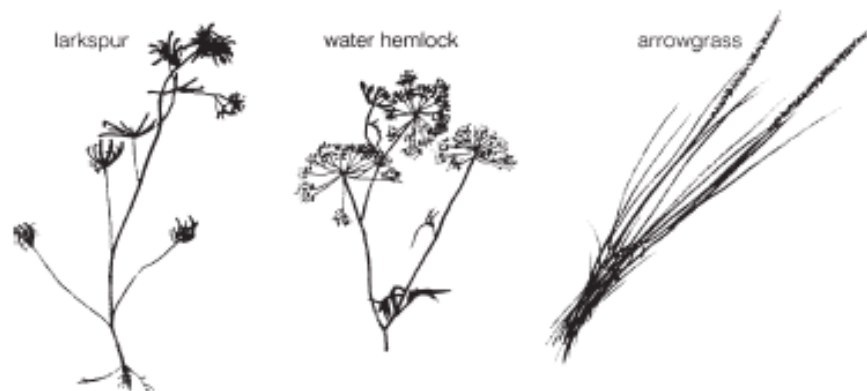
Remember that the green leaves make the food for the roots to grow. "It takes grass to make grass."

■ Use the right amount of time for grazing

Good grazing must include a rest period for the plants. Once plants and grasses are down to 8 cm in height, move the cattle to another area for about four weeks.

■ Know the range and pasture plants

It is important to be able to recognize plants that are poisonous and can harm your livestock. You will need to get rid of them or fence them out. Three plants that can poison your cattle are:



Range and Pasture Plants

Many different types of plants grow on our land. These plants differ in their appearance and growth habits. There are four main plant groups:

Western Wheatgrass



1. **Grasses** are the most important range plant group. They supply most of the feed for cattle. They have hollow, jointed stems and the leaves are in two rows on the stem. Veins on the leaves are parallel. Examples are rough fescue, quackgrass, smooth brome grass, orchard grass, and cheatgrass brome.

Threadlead Sedge



Wire Rush



2. **Grass like** plants look like grass but they do not have a hollow stem and the stem is not jointed. Veins in the leaves are usually net like. They include sedges (triangular stems) and rushes (round stems).

Western Yarrow



Big sagebrush



3. **Forbs** are non grassy plants with annual stems or tops. They include range weeds and flowers. Examples are gumweed, skelton, tapertip hawksbeard, bull thistle and tumbling mustard.
4. **Shrubs** are woody plants with stems and buds that winter above the ground and stem that branch near the base of the plant. Examples are sagebrush, wolf willow, rabbitbrush and bitterbrush.

Activity: Word Scramble

Below are some important words you have learned in this unit. Unscramble them and put the words in the blanks.

ZAERG _____

RSTUPAE _____

NMGEAA _____

NGREA _____

SSBRUHU _____

BROFS _____

SSEARG _____

SSHRUE _____

DGSSEE _____



Activity: Range Review

Complete the sentences below to give you a summary of the important information in this unit.

1. Range land is ...

2. Pasture land is ...

3. Managing your range or pasture means that you ...

4. To give your range and pasture land good management.

a) _____

b) _____

c) _____

d) _____

5. It is important to know the plants on your land because...

Unit 15: Record Keeping

Roll Call: What is one record you keep on your farm?

Why Keep Records?

Records you keep might be for production, financial, or personal reasons. Some of these records might include:

- Birth weights
- Vaccinations
- Weaning weights
- Date of birth
- Show winnings
- Date and age castrated
- Health problems

Good records help you to know many things about your farm and its animals including:

- Good and poor mothers
- Identification of your animals
- Healthy cow families
- Income and expenses
- Overall herd health

Today, the agriculture industry is becoming very complex. There are many choices we producers have.

- Which breed do I choose?
- Which bull do I buy or use?
- Purebred or crossbred?
- Cow-calf, finishing, custom feeding?
- Do I cull or keep, expand or cut back?

By keeping accurate records, you will have the information you need to make informed decisions about your operation and its future.

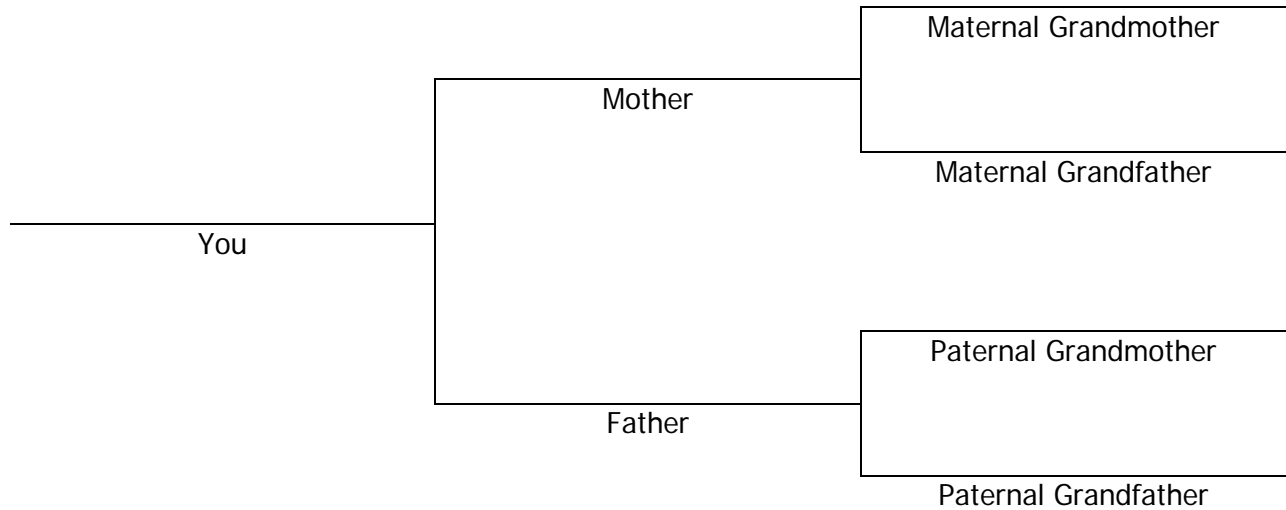
In 4-H, we require that you keep detailed records on your project animal(s). By doing this, we hope that you will realize how important records are.

Pedigrees

All animals and people have a history. They have mothers, fathers, daughters, sisters, and so on. These things are often written down, making a **pedigree**.

A **pedigree** is a written ancestry or history.

Let's look at you - you have a pedigree too. Fill in the blanks to make your pedigree.



You can add to these pedigrees to make them into family trees. Family trees include brothers and sisters, aunts and uncles, and often go back for many generations.

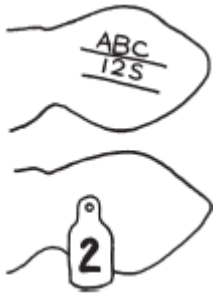
People keep family histories for many reasons:

- Interest
- History
- To know about your ancestors
- To help future generations know about you

Talk to your parents and/or grandparents. Find out if there are any family histories of your family.

Maternal means on the mother's side. **Paternal** means on the father's side.

Production Records



Production records are one of the most important records you should keep in your beef operation.

Identification of your animals is the first step to good record keeping. Identification of your cattle by tattooing, ear tagging and/or branding means you can always identify each of your animals.

Registration is the official recording of purebred animals. Purebred animals have only one breed in their pedigree. You must officially identify each animal you want to register with a tattoo.

The Canadian Livestock Records Corporation in Ottawa looks after registration of some breeds of cattle, such as Angus, Shorthorn and Salers. Other breeds, such as Charolais, Simmental and Hereford, are registered through their own breed associations. It is important that you find out where you register your breed of cattle.

Registration forms must be filled out and sent to the registration office of your breed. On the registration form, you must put this information:

- Your name
- Name you want to give the calf
- Sex and date of birth of calf
- Tattoo numbers, colour and other identification
- Registered names and numbers of sire and dam
- Breeder (who owned the dam when she was bred)
- Owner (who owned the dam when she calved)

Once the information is checked, you will be sent a registration certificate for each animal registered. If you sell a registered animal, this certificate must have the name of the owner changed. There is a fee for registering and transferring ownership of the animal.

Performance testing involves keeping records on the traits that affect the profits on your farm. This means that you can then compare the animals to other animals of the same age and conditions in the herd.

Activity: What Would You Do

Suppose you are a beef producer. Your goal is to keep the best records you can about your herd. In each of the situations below, tell how you could use farm records.

- A. If three of your cows calved this morning, but you didn't have time to write down the weights of the calves?

- B. If you aren't sure whether to move your pregnant cows to a calving area? You know they were bred, but you can't remember when.

- C. Someone asked you if your calving season has been getting shorter over the last ten years?

- D. If you never seem to have enough time to enter your information into a computer, even though you know how important it is to keep your information up-to-date?

- E. You think you have spent a lot more money on feed for your cattle this year?

Unit 16: The Beef Carcass

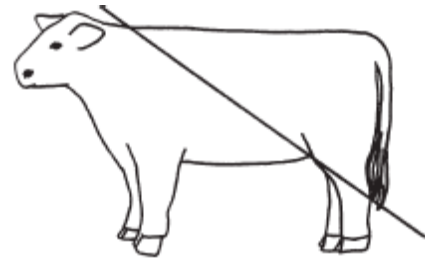
Roll Call: Name a beef cut.

What did some of the other members' name? There are more than 25 different cuts of beef.

In this unit you will learn:

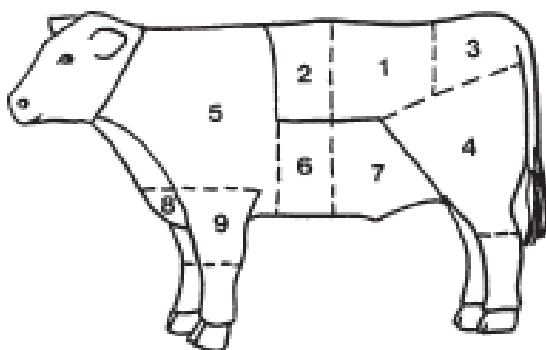
- What makes up a carcass
- Where the cuts come from on a carcass
- Why and how we grade beef
- How to find the beef cuts on a live animal
- Carcass terminology to help you talk about beef

Take a beef animal and draw a diagonal line on the side from the shoulder to the hind foot. This line approximately divides the high and the low priced cuts. Everything in front of this line is considered a low priced cut. Everything behind this line is considered a high priced cut.



As a beef producer, you want to market animals with lots of the high priced cuts. Therefore, your animals should have plenty of meat in the hind quarters. The wholesale cuts of meat are shown on the diagram below. You can learn to identify these by practicing on a live animal.

Wholesale Cuts of a Beef Carcass



High Priced

1. Loin
2. Rib
3. Rump
4. Round

Low Priced

5. Chuck
6. Plate
7. Flank
8. Brisket
9. Shank

All animals slaughtered and sold in Canada must be graded by federal government graders. The product that we sell, or the beef, must meet the standards set by the federal government. Therefore, it is important for all beef producers to understand the grading system.

Grading is categorizing the carcass according to different characteristics. It takes into account the maturity or age, colour, yield, fat and marbling.

Inspecting is the examination of the animals before and after slaughtering to ensure that the standards of sanitation, hygiene, product handling, packaging and labeling are met. Any carcass that does not meet these standards is condemned and destroyed.

Canada's beef grading system has been in place since 1972. The most recent changes were made in 1992. This grading system examines both the quality of the carcass and quantity of meat. Graders examine:

1. **Maturity.** As the animal gets older, bone and cartilage become hardened.
2. **Quality.** Determined by colour, texture, firmness, fat and marbling.
3. **Meat Yield.** Graders determine the amount of fat covering between the 12th and the 13th ribs to determine the overall meat yield.

Once the graders have examined a carcass, they assign it a grade.

The Grades of Beef

■ Canada Grade A

Meat from youthful animals. The muscle is bright red, firm and fine grained. The fat covering is firm and white. There are three different Canada Grade A grades. The only difference between them is the amount of fat.

A1 Leanest

A2

A3 Fattest

Within each of these grades, the carcass is also graded as A, AA or AAA, depending on the amount of marbling. **A** having the smallest amount of marbling, or fat within the muscle, and **AAA** having the greatest amount.

■ Canada Grade B

Also from youthful animals. Carcass lacks adequate fat cover and may have yellow coloured fat and darker coloured meat. The B grades vary from B1 to B4 depending on fat colour and amount of muscling.

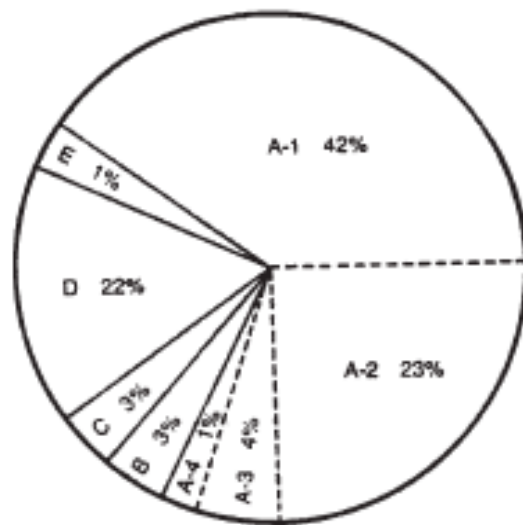
■ Canada Grade D

Mature cows that vary from D1 to D4 depending on the amount of muscling and fat cover on the carcass.

■ Canada Grade E

Mature bulls.

Canadian Beef Grades Proportion of each grade produced.



Note: Grade C was previously used for middle aged animals.

Note: approximately 70% of beef produced in Canada is Grade A beef. Keep in mind that when we talk about beef grades, the grade does not mean best or worst, or healthiest or most unhealthy. A grade only informs the consumer that the meat comes from a young, or old animal, is dark or light coloured, and how much fat is on the carcass. Remember that everyone has different tastes, and there are different uses for each cut and grade of beef.

Agriculture Canada regulations make sure that every beef carcass is graded and inspected to give the consumer a top quality, safe, wholesome product.

Activity: Selling Your Carcass

Your main goal as a beef producer is to make a profit. To do this, you need to have as great an income from your product as possible. Therefore, you need to be aware of the market prices for beef.

Where can you find out the current market price for beef? _____

Do these prices change? _____

What price could you expect for your beef today?

Today's date _____

Source of price _____

Grade _____ Price _____

Grade _____ Price _____

Grade _____ Price _____

Fill in these blanks to get you thinking about this part of the cattle business.

- A. A four letter word for the most valuable part of the carcass is _____.
- B. The _____ is the person or people who buy your product. They determine the type of product you, the beef producer, should be producing.
- C. Meat, the edible part of the carcass is the _____. (Hint: scrambled, this word is Imuecs.)

What Makes Up the Carcass?

The carcass is the part of the animal that remains after the head, feet, hide and internal organs are removed. What's left? There are three main parts of the carcass. These are:

1. _____

2. _____

3. _____

True or False: Why do we grade beef?

To tell the difference between breeds.	TRUE or FALSE
To give the consumer a consistent quality product.	TRUE or FALSE
To reward the producer for producing top quality beef.	TRUE or FALSE
To set a standard to compare carcass qualities.	TRUE or FALSE
To indicate to the consumer the qualities of colour, marbling, tenderness, juiciness, flavour and amount of fat.	TRUE or FALSE

Who grades beef carcasses?

- a) The farmer
- b) The 4-H Achievement Day judge
- c) Meat inspectors
- d) Meat graders

Is beef grading necessary? Why or why not?

What is the difference between grading and inspecting?**Grading is**

Inspecting is

Why is inspection important?

Activity: Grading Review

1. Suppose your carcass graded Canada Grade A1.

What price would you receive for it today?

Is it youthful or mature beef?

Is it bright or dark red meat?

Will it be made into hamburger?

2. Suppose you culled a seven year old cow from your herd.

What grade would it be?

What characteristics would the carcass have?

Unit 17: Marketing

Roll Call: What do you think of when you hear the word “marketing”?

What is Marketing?

If you ask five people to tell you what marketing is, you are likely to get five different answers. That is because marketing involves a wide variety of activities.

Marketing is planning and putting into action the development, pricing, promotion and distribution of ideas, goods or services to create an exchange that satisfies both the buyer and seller. In the beef industry, it is producing and presenting your beef product to the satisfied buyer. It is more than just selling; it is also making your product attractive to your potential buyers.



Marketing has 4 P's

- Product
- Price
- Promotion
- Place

Let's look closely at what is involved in each of these 4 Ps of beef marketing.

Product

- Carcass
- Live steer
- Replacement heifer
- Bull
- Individual meat cuts

Place

- The farm
- Auction mart
- Packing house
- Supermarket, restaurant

Promotion

- Canadian Cattlemen's Association
- Beef Information Centre
- You the Producer
- Butcher, Supermarket, Restaurant

Price

- Determined by the market

As you can see, beef marketing has many components. Marketing can be affected by any of these things.

The Canadian Beef Industry

The beef industry in Canada has these characteristics:

1. Most producers are small. Approximately 96% of all herds have less than 100 animals. The average herd size is approximately 27 cows.
2. Cattle can graze land that is not suited for crop production. This may include areas with poor soil, or land that is too rocky or hilly for farm machinery.
3. Most feed used for cattle is grown on that farm. The number of cattle a producer keeps depends on the feed available and current feed prices.
4. Most beef herds use only family labour. This reduces labour costs and limits the herd size.
5. Beef cattle are often only one part of a farm operation. Most farms also produce and sell grain. This makes it possible for producers to spread their financial risks over several commodities.
6. Fixed costs. Those costs that do not change if you expand or decrease your herd, are low. They include rent or mortgage, taxes, electricity and water, and so on.
7. Beef producers are able to expand or reduce the size of their herd very quickly. Because of this, a beef cycle is created. The prices tend to rise and then fall as producers react to the market conditions.

Beef is sold on open market. Supply and demand determine the price. When supply is high and few people are buying, prices will be low; when supply is low and lots of people want to buy, prices will be high.

Some things that affect the supply and demand of beef are:

- Price and supply of meat in the stores
 - Consumer attitudes
 - Imports from other countries
 - Money people have to spend
 - Time of year
 - Weather
-

Activity: Market It

Here is your chance to develop a marketing strategy of your own. Choose an item or service you want to provide. Looking at the 4 Ps, decide how you will market your good or service.

My good or service is:

Product – characteristics of your good and service.

Promotion – how, when, where you will promote it.

Place – where and who will sell it.

Price – your price(s)

Activity: Journey to the Table

Many people are involved in the journey beef makes from the field to the table. The pictures below show many people who might be involved. How many can you name?



1. _____
3. _____
5. _____
7. _____
9. _____
11. _____
13. _____

2. _____
4. _____
6. _____
8. _____
10. _____
12. _____

Provincial and Local Beef Markets

We have looked at the characteristics of the Canadian beef market. However, beef production and marketing are very different from one side of our country to the other.

Provincial. Tell me the characteristics of beef production and beef markets in your province.

Local. Beef production and marketing may be unique or different in your local area. Tell me the characteristics in your country, district or region.

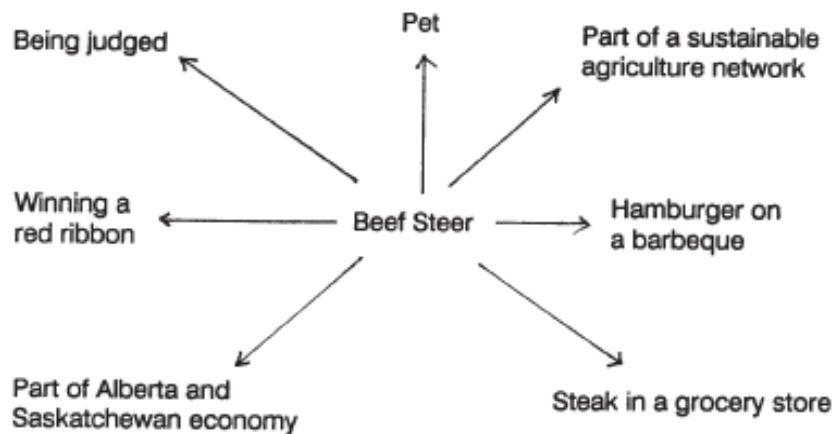
Unit 18: The Beef Industry Today

Roll Call: Name a person who is involved in the beef industry.

What are some of the answers other members gave?

_____	_____
_____	_____
_____	_____
_____	_____

In this unit, we will look at the beef industry and some of the many things that can affect it.



Let's start with you and your beef project. How do you and your beef project animal fit into the beef industry?

Answer these questions to help you find out more about you.

Who are you? _____

A 4-H member, part of a beef producing family, a student, a future veterinarian, and so on. You are probably several of these and many others, too.

What are you trying to accomplish by participating in the 4-H beef project this year?

- Make money.
- Learn about feeding, caring for, grooming and training a beef animal.
- Produce meat.
- Have a high rate of gain for your steer.
- Keep your animal healthy and production.
- All of the above and more.

Who do you produce your product for?

- The judge at your Achievement Day
- Canada Packers
- The local feedlot
- Safeway or a local business
- The shopper at a store
- Others

A consumer is a person like you and me. It's the moms and dads, grandparents and children, students, executives and other people you know. They come in all shapes and sizes, ages and religions, nationalities, locations and preferences. Consumers are the people who eat our beef.

Who is your consumer?

Are you a consumer? _____

Why or why not?

There are many things that can affect the beef producer's ability to produce meat for the consumer. Some of these are food, water, shelter, medicine, technology, genetics, responsibility, transportation and help.

What are some of the factors that affect your ability to raise your 4-H steer?

The Power of Choice...

In your everyday life, you make many, many choices. You must decide what to wear to school, what cereal to eat for breakfast, who to play sports with, and so on. As a consumer, you must make choices about the produces on the market. Consumers must choose between a Harley and a Honda motorbike, a Ford or a Chevy truck, Calvin Klein or Levis jeans, Revlon or Body Shop shampoo.

What things make a consumer choose one product over another?

Why is it important to understand these things? Remember – you are trying to sell your product (beef) to the consumer.

Let's look at an example. Suppose for your birthday, your aunt gives you a gift certificate for your favourite clothing store. You can use the certificate to buy anything you want.

What will you buy? _____

How did you choose this item?

Activity: Wrapping Up

Put the words listed below in the correct place in the crossword puzzle. Each of these things has some effect on the decision a consumer makes when he or she is purchasing an item or items. As you put each thing in the puzzle, think about how this might affect your decision.

3 Letters

Age

4 Letters

Size

5 Letters

Price

Shape

Taste

6 Letters

Colour

7 Letters

Flavour

History

Quality

Variety

8 Letters

Maturity

Pedigree

9 Letters

Condition

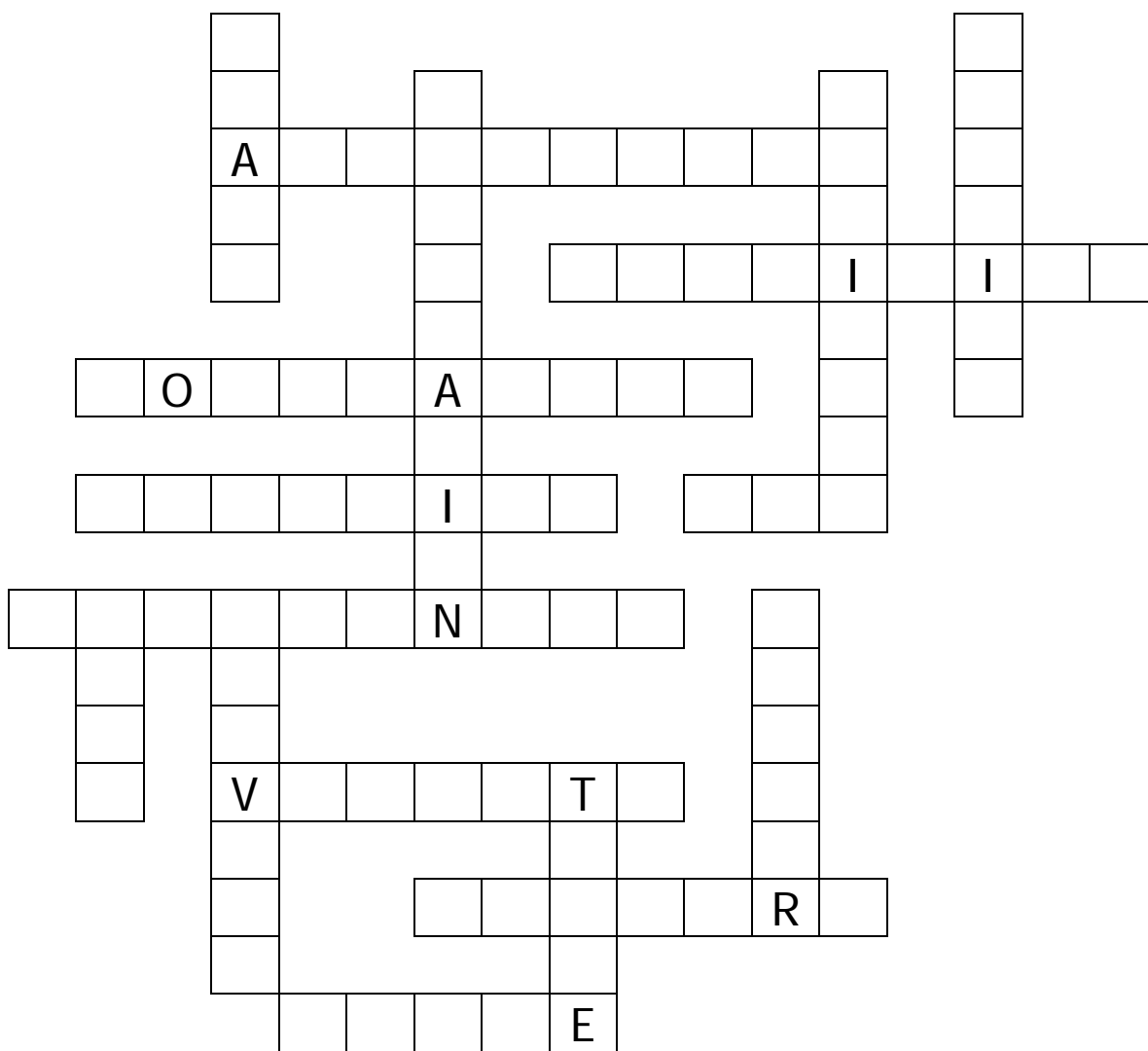
10 Letters

Appearance

Popularity

Reputation

Usefulness



Unit 19: Grooming, Showing and Judging

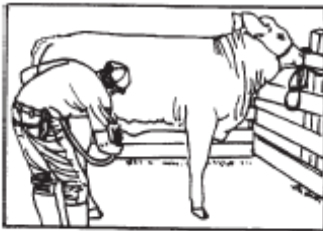
Roll Call: Name a tool used when grooming or showing beef:

Grooming

Washing

Collect everything you will need for washing and drying your animal(s): rope halter, hose, bucket, brushes, combs, soap, and blower. Put on your rubber boots and suit to keep you dry. Using special cattle wash soap, prepare your soap solution in a pail with warm water.

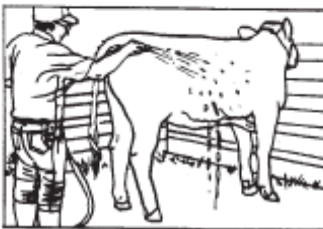
Securely tie your animal to a fence or post using a nylon or non-sisal rope halter that will not swell when it becomes wet. Use a quick release knot that holds firmly but can be quickly and easily released when necessary. Brush or blow the surface dirt, old hair and straw from the hair of your animal.



Get your animal used to the water by wetting slowly, starting at the bottom and working your way up the body. Start with the legs, then the underline. Move up the sides, the topline and finish with the head. At all times, take care to avoid getting water in the ears. Use a wet cloth to wipe out the ears.



Using a rubber curry comb or brush and your soap solution, soap your animal well, producing a good lather. Work from the tailhead across the top of the animal to the head. By working this way, the soap and water will run down over the unworked areas. Your animal is less likely to be frightened and will be used to the treatment by the time you reach the head.



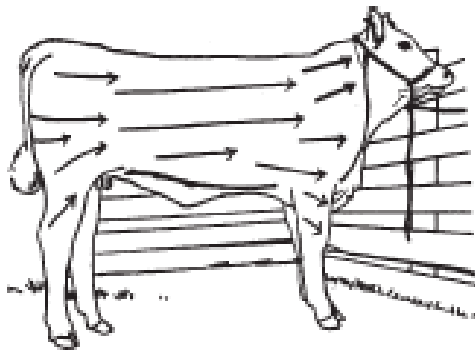
Wash all areas of your animal carefully and completely. Take care that your animal does not kick you when you wash the underline, brisket (between the front legs) and twist (between the rear legs). Leave the tail until last so the animal does not slap you with a wet, soapy tail.

The hooves, knees and hocks are often stained and will require extra soap and work to get clean. The tailhead and just behind the poll will also be dirty because the animal cannot reach these areas to lick or scratch them.

After you have completely soaped your animal, begin rinsing at the head and move along the topline toward the back. Move down both sides and rinse the underline, legs and tail. Always spray water from rear to front, against the growth of the hair to remove all the soap.

It will take more than one washing to get your animal clean. Show animals should be washed once before you first begin to work the hair, then at least once a month until your show.

After your first washing at home, you should use an insecticide to control lice and mange. Use this insecticide again following the first and last wash at the show. This will help prevent infestation with lice or mange from other animals.



Drying

A blower can be used to quickly and easily remove moisture from the animal. Blow the hair forward, working from the back to the front of the animal. Take care to blow the hair evenly and avoid hair divisions. By combing or blowing the hair in the directions shown in the diagram, you can make the hair lie smoothly and give your animal the appearance of having a longer body. Unshaven neck and shoulders will make the body look even longer.

In warm weather, using a blower is not recommended to dry the hair. Use of a dryer, in combination with warm weather will dry out the hair and hide. The amount of natural oil will be reduced and the hair will become hard to manage.

Clipping

It is important to secure your animal so it cannot move around while you are clipping. A blocking chute is the easiest and safest way to restrain your animal for clipping. Tie your animal with its head high, using a halter.

To get ready for clipping, gather all your supplies together: clippers, extension cord, lubricating oil, combs, brushes and sprays.

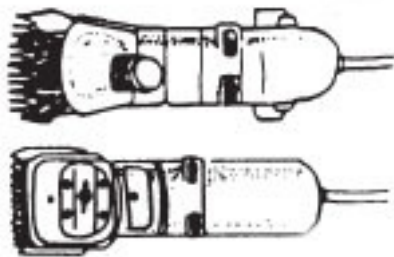
About your clippers:

- To do a good job of clipping, your clippers must have sharp blades. As soon as the blades begin to get dull, get them sharpened or replace them with new blades. The type of hair they cut and how often you use them will determine the life of your blades.
- Always keep your clippers well lubricated. Put a few drops of clipper lubricating oil in the holes in the clipper head before you use them. Oil the clippers during use to keep them from getting hot and dull.

- Always keep your clippers clean. Using your blower is a fast and easy way to blow old hair and dust from the blades. Clean your clippers by dipping them, while running, in diesel fuel or solvent. Dry them off before putting them away.
- Reduce the tension on the blades before you put your clippers away. Don't forget to tighten them before you start to use them again. If the blades are not tight, they will not cut properly and they could fly apart and injure you or your animal.

Prepare your animal for clipping by washing and blowing the hair dry. Blow the hair on the tailhead and topline upward and forward. Blow dry the outside and inside of the rear and front legs. Brush the hair in these directions.

Becoming efficient at clipping requires practice, organization and thought. If you plan to clip several animals, have them all ready. Clip all your animals with one clipper head before changing to another.



There are two types of clipper heads used for clipping beef cattle:

The **sheep head** has comb-like blades and is used for cutting longer hair and blending.

The **flat head** has small, fine blades and is used for shaving off all the hair in any spot (head, underside and brisket).

The Belly

Clipping hair from the belly will make your animal look taller and cleaner.



Using your flat head clippers, clip a horizontal line along the base of the belly from the rear flank to the heart girth immediately behind the front legs.

Take care not to make this line too high up on the belly. Clip all the hair underneath this line. During cold weather, you may want to leave some of the hair on the belly to protect the animal from the cold.

The Udder and Twist

On females, clip all of the hair from the udder so that the judge can easily view the udder. On your steer, trim the twist area to the deepest and fullest look possible.



The Head

Using your flat head clippers, shave the head to give it definition and make it look longer and sharper. To give the cleanest cut, cut against the growth of the hair. Shaving the ears is optional. Clip the side of the head and under the jaw and muzzle. Move from the base of the ear toward the jawbone. Move down to the dewlap and brisket. Shave the neck only when there is enough time before your show for some of the hair to grow back.

Methods of clipping the head will vary depending upon the season, your personal preference and the type and appearance of your animal. On polled animals, you may want to leave a tuft of hair that you can later groom to make the animal appear longer. Steers usually have their heads clipped completely.

The Brisket

Clipping the brisket will clean up the brisket area and make it look trimmer. Pulling the hide tight with your free hand, trim the brisket using your flat head clippers. Be sure to blend in your cutting lines.

The Legs

Your treatment of the legs will depend on the condition of your animal. If your animal has desirable legs, you will likely want to trim most of the hair from them.

There are two main ways to bone the legs of your project animal. The first method does not use aerosol products (there are restrictions at some cattle shows). The product used is saddle soap. Each leg is rubbed down. Make sure to rub the saddle soap into the hair around the entire leg. Then, using a scotch comb, comb the hair upwards against the growth of the hair.

The second method is using adhesive aerosol products made for grooming beef cattle. Using the spray adhesive, spray a little at a time, starting at the hoof and working up; use a scotch comp to pull the hair straight up each time. Be sure to spray a little glue at a time and then comb upwards and forward. Clip off all of the long hairs to even out the length of the hair on the legs.

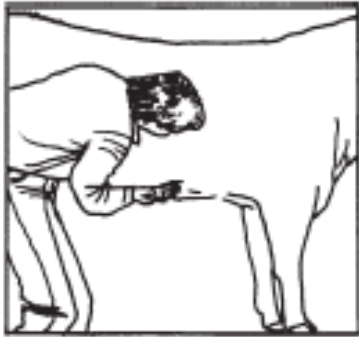
The Tail and Hind End

There are several different ways of clipping this area.

The tail can be completely clipped, or clipped only on the side with the long hair left on the back to be groomed later. Watch beef shows and talk to people at beef shows to find out which method you should use.



Blending



You cannot avoid clipping lines, but you can hide them. Blending, or making the change from shorter clipped to unclipped or longer areas, will hide your lines and make your animal appear smoother.

Tilt your clippers slightly on the side and run them lengthwise along the line. Or, hold the clippers upright with your free hand under the blade to give you more control. Gradually increase the angle of the blade as you work up the side of the animal. To do a good job of blending, you need a steady hand, patience and lots of practice.

Getting Ready for the Ring

The Body

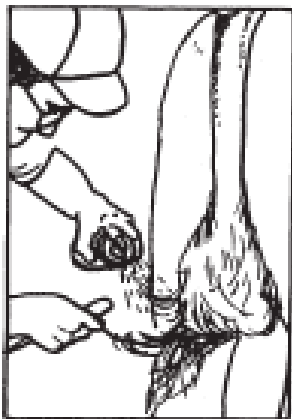
Show foam and body products for grooming the body hair are available at farm supply stores. Find out which ones work the best by experimenting with them and talking to people at beef shows. Generally, these products are used to work the hair and hold it in position for long periods of time.

The Tail

The two methods of grooming the tail are:



- **Pyramid** - The pyramid is usually used on mature animals two years and older. It fills in the twist area. Follow these steps:
 1. Comb out the tail.
 2. Backcomb the tail to form the hairs into a pyramid shape.
 3. Spray to hold the shape.



- **Teardrop** - To make your younger animal look balanced and stylish, the tail is usually brought up so it is even with the underline and made into a teardrop shape. Follow these steps:

1. Comb out the tail.
2. Take a few strands from the bottom of the tail bone and divide them into two.
3. Tie these two pieces of hair around the tail at the height that will make the bottom of your teardrop even with the underline. Spray a little bit of adhesive on your tie to hold it.
4. Backcomb the rest of the tail hairs and spray a light mist on them.
5. Form into a loose ball or teardrop shape, by lightly pressing in the hair. Try to keep it flat on the side against the animal's body so it will lie naturally.



To give the appearance that your animal is slightly higher in the rear end than in the fore, groom the tail and tailhead hair to a peak and trim using clippers or scissors.



The Head

To make the head appear longer and more feminine, the hair on the poll may be left long and formed into a pyramid.

Comb the hair on the poll into a pyramid shape, and then spray with adhesive to hold.

Just before you enter the show ring, wipe off your animal's eyes with a cold cloth. This will help to refresh them and they will appear more alert in the ring.

After the Show

After the show, thoroughly soap and rinse your animal to remove everything you applied to the hair. To remove the adhesive, use mineral oil or a commercial remover. Make sure to thoroughly remove all the mineral oil from the hair because the adhesive will not stick where there is the least bit of mineral oil.

Showing

No one is born with the ability to be a good show person. Only with many hours of training, practice and experience can you become successful. Beef showmanship styles are constantly changing, so it is important that you be familiar with show ring practices in your area. For more information, contact your local beef association and observe beef shows.

Your Animal

Whenever you take an animal into the show ring, that animal should be in the best possible show condition. Whether you are in a showmanship or conformation class, your animal should be groomed and its feet should be properly trimmed.

Not only must your animal be well groomed, it must also be well trained and easy for you to manage. That means that you will have started working with your animal many months before show day. Training is not something that can be done overnight.

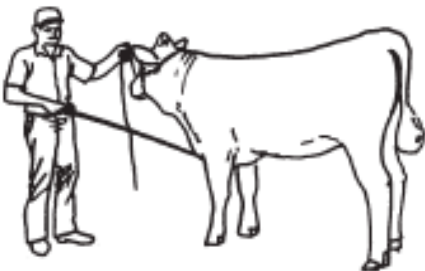
Your Equipment

Halter

A properly adjusted halter will give you the control you need over your animal. When well placed on the animal's head, it will give the animal an attractive appearance. Non-sisal rope halters can be used for training and restraining your animal, but leather halters should be used in the show ring. Begin using a leather show halter at least two weeks before show day.



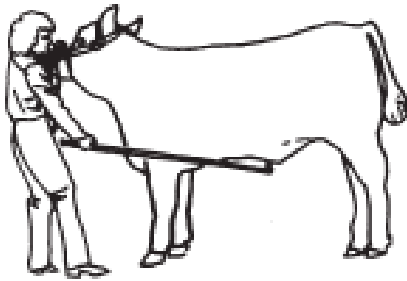
When leading, hold the halter shank in your right hand about 30 cm from the animal's head. Do not coil the shank around either of your hands. This will be dangerous for you if the animal should bolt. Hold the length of shank in your left hand with the show stick. Your hands should be about 45 cm apart.



When you stop to setup your animal, hold the shank in your left hand, letting it hang down. The shank should not be so long that it reaches the ground when you hold it like this. A length ending about 30 cm above the ground is recommended.

Different judges may have different opinions regarding the length of the shank.

Show Stick



Show sticks may be made of wood, aluminum or fiberglass and can be purchased or made at home. Your show stick should be long enough so that you can comfortably reach the back feet of your animal when you stand at the head. It should not be so long that it is awkward for you to use.

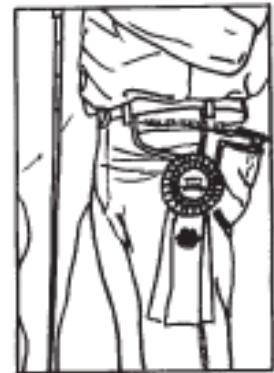
When leading the animal, hold the show stick in your left hand with the point end backward. Hold the stick with about 3/4 of it behind your hand.

When you stop to set up your animal, smoothly move the show stick to your right hand and your halter shank to your left hand. When set up and standing, use the show stick to gently scratch the underline of your calf. Through practice, you will discover the exact scratching location that works best on your calf.

Comb

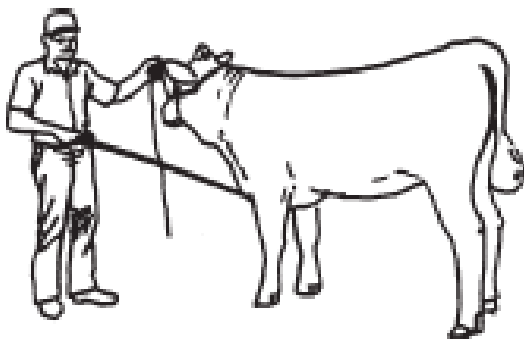


A scotch comb is recommended for use in the show ring. When the hair on your animal is changed by the judge or another animal, use the comb to quickly and smoothly comb the hair back into place. Carry the comb in your back pocket with the teeth pointing towards your body and away from the animal's body.



The Judge

Showing Your Animal to the Judge



Always know the identity of the judge and ringperson in each of your classes. Be knowledgeable about your animal and ready to answer any questions you may be asked. The most common question is "When was your animal born?"

When the judge moves toward your animal to look at it, make sure you are not standing directly in their line of vision. Keep your animal completely under control at all times. Move slightly to give the judge a clear view of your animal.

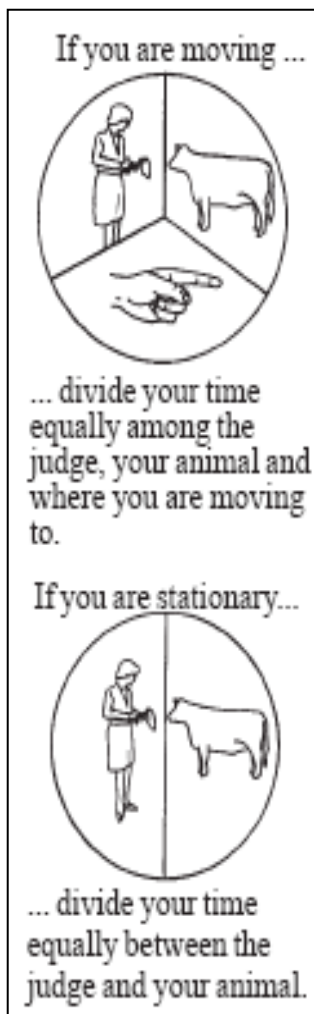
When the Judge Handles Your Animal

Judges often handle beef animals to:

- Determine the amount of condition
- Examine your grooming job
- See your reaction

If the judge moves the hair on your animal, be ready to return the hair to its original position. Pull your scotch comb from your pocket and use it quickly and smoothly. It is best to do this once the judge moves to the next animal.

You – The Exhibitor



Your Appearance

While in the show ring, your dress should always be neat and clean. Individual shows, clubs or districts may have their own dress codes, so be sure to find this out ahead of time. To keep clothes clean until show time, many members wear coveralls and remove them just before the show.

Always wear safety footwear when working with cattle. Steel toed safety boots are recommended.

Eye Contact

Keeping eye contact with the judge is important. It shows that you are alert to their movements and requests. But, don't overdo it - you don't want to get into a staring contest with the judge.

Keep your eyes on the judge, the ringperson and your animal at all times.

Setting Up Your Animal

When you stop in the show ring, take care not to bump or crowd other animals and leave at least one metre of room between animals whenever possible. Avoid all low spots and place your animal's front feet on higher ground whenever possible. Quickly and smoothly set up your beef animal. When your animal is set up properly, the four feet will be squarely placed underneath it when viewed from the front and rear. Place the animal's rear feet first, then place the front feet.

The Rear Legs:



To move a rear foot backwards, pull back slightly on your halter shank and use your show stick to apply backward pressure between the toes of the foot.

To move a rear foot forward, pull forward slightly on your halter shank and use the show stick beneath the dew claw to apply forward pressure on the foot.

When viewed from the side, the rear foot closest to the judge should be placed slightly behind the other foot. When you view from behind the animal, the hind legs should be squarely placed so that your animal shows maximum thickness through the hind quarters.



Too Close



Proper



Too Wide

The Front Legs:

Keeping complete halter control of your animal, use your feet or your show stick to properly place the animal's front feet. It is possible to place the front feet using only halter control, but this comes only with lots of practice and patience. When viewed from the side, the front foot closest to the judge should be placed slightly ahead of the other foot.



Too Close
The animal looks narrow, weak and awkward.



Proper
The animal looks natural and comfortable with width and strength through the shoulders and chest.



Too Wide
The animal looks uncomfortable and front legs appear weak.

Moving Your Animal in the Ring



When entering the ring, move clockwise, keeping an eye on the judge or ring person for any directions. If you are the first one into the ring, move smoothly and quickly to allow room for others to follow.

Always stay far enough away from the outside of the ring, and from the animals in front and behind you, so the judge can comfortably move around your animal.

If your animal becomes difficult in the ring, remain calm and continue to work with it. If the animal in front of you will not move, tap it gently with your show stick or hand. Do not pass another show person unless the judge or ring person instructs you to.

Changing Position in Line

When you pull into line as requested, leave about one metre of room between you and the next animal. When lining head to toe, leave approximately one metre between your animal and the one in front of you. Avoid moving in and out of the line unless it is necessary.

Always allow your animal enough room to make a comfortable turn. Turn in a clockwise direction, moving around your animal. Avoid making sharp or awkward turns.

Moving from position 3 to 6:



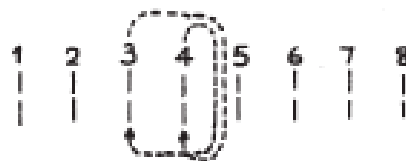
When you must set up again in the same position:



Moving from position 6 to 3:



Switching positions 3 and 4 (4 would move out first):



The Class

There are generally two types of classes. In the conformation class, the animal is judged on its conformation. In the showmanship class, the judge places the show person according to this recommended scorecard:

Suggested Showmanship Scorecard	
Exhibitor <ul style="list-style-type: none"> • Personal appearance 	20 points
Appearance of animal <ul style="list-style-type: none"> • Cleanliness • Grooming 	30 points
Showing of animal <ul style="list-style-type: none"> • How well animal is trained • How well animal responds • Individual poise and skill 	50 points
Total	100 points

Be sure to find out in advance what type of class you will be in. At some shows, classes may be a combination of showmanship and conformation.

Final Hints:

- Every class is an opportunity for you to learn and gain more experience.
 - Before you go into the ring, take a deep breath and relax.
 - Keep your attention focused – ignore what is going on outside the ring.
 - Do not stop showing until you are out of the ring.
 - Be courteous and show good sportsmanship.
 - Smile.
-

Judging

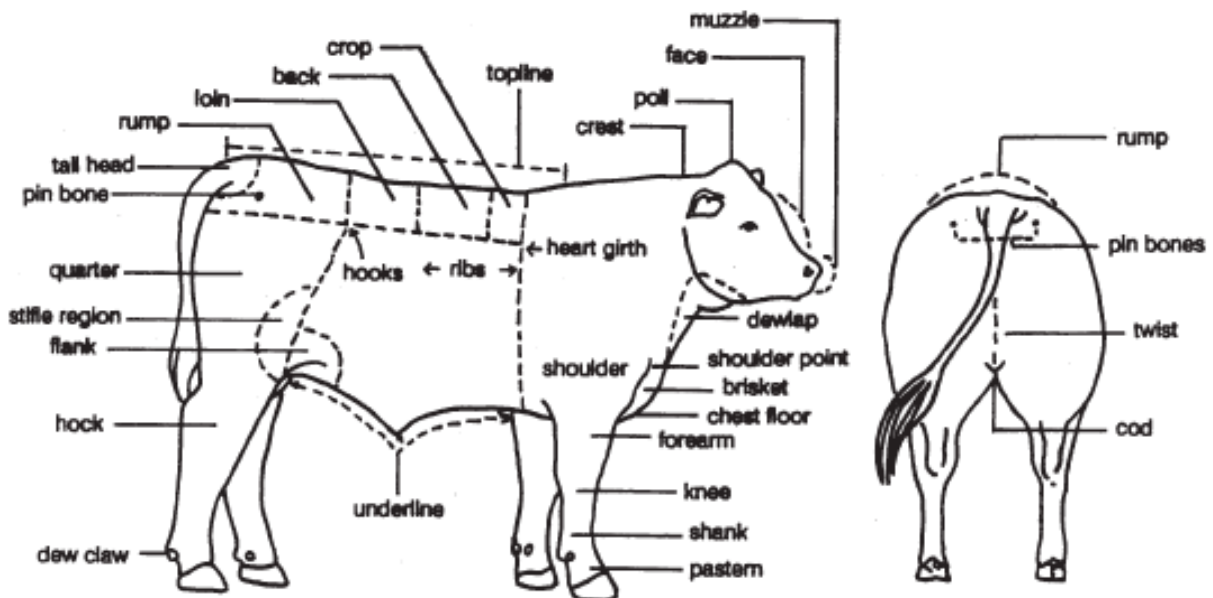
The aim of the beef industry is to efficiently produce carcasses of the type and quality demanded by the consumer. The ability to look at a live beef animal and evaluate its potential to produce these carcasses is a challenge to you and to others in the beef industry.

We use live animal appraisal techniques in the show ring, the feedlot, the pasture and at the auction sale to assess the quality of our beef animals. This is what we refer to as **judging beef** - the art of visually comparing and ranking beef cattle. The objective of this section is to:

- Give you background knowledge on the structure and function of a beef animal so you know the important points to look for when judging beef.
- Show you how to determine if a particular animal possesses these important traits.

First we must know what a beef animal looks like...

Parts of the Beef Animal



Beef Terminology

One of the most confusing things about judging is the terms we use to describe the animals. It may be hard to define some of these terms because they have different meanings to different people. Let's have a look at some of the more common terms and their definitions.

Market Steer Terminology

Muscle	<ul style="list-style-type: none"> • red meat or lean • that part of the carcass that is not bone or fat
Carcass	<ul style="list-style-type: none"> • the part of the animal that remains after the removal of the head, feet, hide and internal organs • composed of bone, muscle, fat and connective tissue
Finish	<ul style="list-style-type: none"> • the amount of fat covering on a market animal
Overfinished	<ul style="list-style-type: none"> • the animal has too much fat cover
Underfinished	<ul style="list-style-type: none"> • the animal doesn't have enough fat cover to fall into a desired grade
Cutability	<ul style="list-style-type: none"> • the saleable meat in proportion to the total carcass • a high cutability, or high proportion of red meat to bone and fat, is desirable
Frame	<ul style="list-style-type: none"> • skeleton size • this can be determined by looking at bone length and width and is easy to see in areas where there is nothing but bone, such as the cannon bones
Structure	<ul style="list-style-type: none"> • must be sound or free from any defects that inhibit performance • must be correct and show the desired structural traits
Balance	<ul style="list-style-type: none"> • the overall view of the animal, including how well the parts blend into one another and how freely and smoothly the animal moves
Trimness	<ul style="list-style-type: none"> • freedom from excess fat or finish - this can be determined by looking at places where fat tends to accumulate • the brisket, flank, and twist
Grade	<ul style="list-style-type: none"> • the description a carcass receives based on maturity of the carcass, the quality (colour, texture, and firmness of the muscle and fat) and the meat yield
Style	<ul style="list-style-type: none"> • way of going, alertness, gait, and colouring • this is often referred to as eye appeal
Meatiness	<ul style="list-style-type: none"> • the degree of muscling - a meaty animal will have superior muscling

Breeding Animal Terminology

The terms used for breeding stock are similar to those used for market animals. Soundness, correctness and breed character are most important in conformation of beef breeding stock. There are several terms that relate to these qualities.

Conformation	<ul style="list-style-type: none"> the overall structure of the animal - includes all the points mentioned
Masculinity	<ul style="list-style-type: none"> this term is used to describe bulls massiveness and strength secondary sex characteristics such as well developed and defined muscles, thickness throughout the shoulder, neck and crest regions, overall well developed forequarters and a well developed scrotum
Femininity	<ul style="list-style-type: none"> this term is used to describe heifers and cows refinement of the head, neck and shoulders, the degree of muscling, evidence of udder and teat development females should have smoother muscling than bulls and should be more refined through the head, neck and shoulder
Breed Character	<ul style="list-style-type: none"> the shape of head, length of body, height, colour markings and other characteristics as defined by the Breed Associations as characteristic of that breed
Condition	<ul style="list-style-type: none"> is the amount of fat and muscle that an animal is carrying means the same thing as finish does for the market animal
Broodiness	<ul style="list-style-type: none"> indicators that a female will be or is a good mother includes adequate size and frame to carry a calf, udder and teat development and disposition
Capacity	<ul style="list-style-type: none"> also means volume or depth the size and frame of an animal in relation to its ability to carry a calf, develop desirable muscling, and remain structurally sound over the years
Progeny	<ul style="list-style-type: none"> the offspring of calves of a female or bull

Carcass Terminology

In addition to the terms already defined, there are many other terms you will encounter when working with carcasses. In the beef industry, where our product is meat, we need to understand the importance of these characteristics whether we are judging live animals or carcasses.

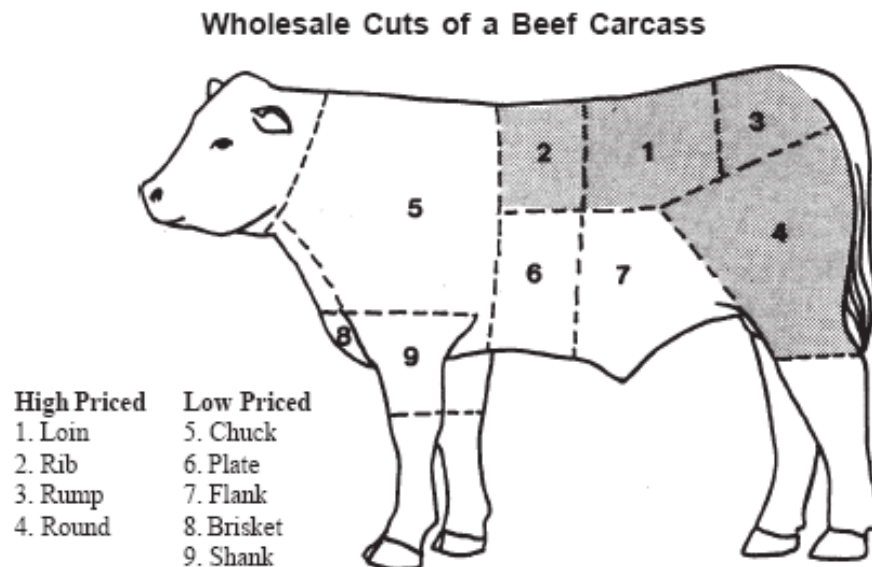
Connective tissue	<ul style="list-style-type: none"> includes tendons, ligaments and cartilage these all help to hold the body and organs together
Gristle	<ul style="list-style-type: none"> refers to the heavy deposits of connective tissue found in the muscle meat with lots of connective tissue will be tough to cut and chew connective tissue looks like white or colourless ribbons and threads through the meat
Cartilage	<ul style="list-style-type: none"> connective tissue that may be replaced by bone as the animal matures and develops in the mature animal, cartilage is only found in places where there needs to be elasticity and flex such as the ears and the joints

Maturity	<ul style="list-style-type: none"> the age of the animal or carcass affects the eating quality of the meat is determined by the degree of bone ossification or hardening of cartilage into bone
Colour	<ul style="list-style-type: none"> when grading a carcass, colour is important - the meat must be bright red and the fat must be white to receive Canada Grade A
Marbling	<ul style="list-style-type: none"> amount of fat within the meat this does not include the outside covering found on many cuts nor any large fat deposits within the muscle looks like little white flecks in the meat marbling gives the meat flavour and tenderness T-bone steak with marbling T-bone steak without marbling

Before we learn about a live animal, let's discuss what to look for in a slaughtered animal, or in the meat. When the consumer buys meat, he or she looks mainly at price and grade. Grade gives the consumer an indication of colour, tenderness, juiciness, flavour and the amount of fat or marbling.

Cuts of Beef

The wholesale cuts on the beef carcass are shown below. Note the locations of the higher priced cuts.



Judging the Carcass Class

When you judge a carcass class, you do the same thing as the graders. You look for the carcass or carcasses that will grade Canada A1. You place the carcasses in order from highest to lowest quality. The steps you should follow are:

1. Determine the maturity. You can determine this by looking at the amount of bone ossification or hardening.

2. Check the colour of the muscle and fat. Look for bright red meat and a white fat cover.
3. Check the yield. Look between the 12th and 13th rib and see how much fat there is. A Canada Grade A1 must have between 4 and 10 mm of fat.

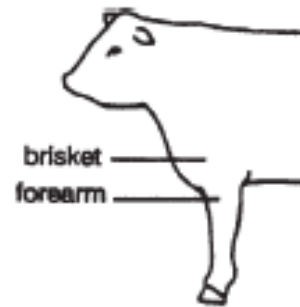
Look for a carcass that has ample red meat. The muscles should be large and bulging with the appropriate amount of fat cover. The muscles should be long and tapered where they attach to the bones and full and thick in the middle. Check to make sure the meat is firm and “bounces” back when you press into it. Remember that muscle is firm and fat is soft.

Place the class from most desirable to least desirable according to how you think the carcasses would be graded.

Let's take a closer look at each of these rules to help you understand how the beef machine works.

Rule One

We cannot change the composition of cattle. Mother Nature designed cattle to grow and develop in a genetically determined way. This is true for all cows, steers, heifers and breeds. Cattle deposit fat in the brisket area and not in the forearm area. There will never be any muscle development in the brisket and there will never be any fat on the forearm.



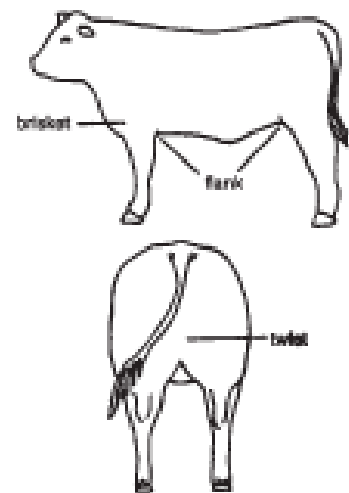
In any animal, there is a priority of nutrients. This means that as the animal takes in nutrients or feed, these will first be used in the most important areas - that is maintenance. The most important is for the nerves, the least important is for fat. Once all of the important needs have been met, then the animal will lay down fat.

Rule Two

Muscle and fat are developed evenly in a beef animal. This means that muscle is laid down at the same rate all over the animal, regardless of where the muscle is located.

The proportion of one muscle type to the next is the same from one animal to the next. You know this because your beef animal should have symmetry and balance of all parts in order to function properly.

One steer could be bigger and show more muscle expression than another, but both would have exactly the same proportion of forearm muscle to round muscle. This is important for you to understand. When someone says “this steer showed more muscle expression in the areas of the high priced cuts”, you know that if that steer is well muscled in the hind quarter, then he will be well muscled over his entire body.



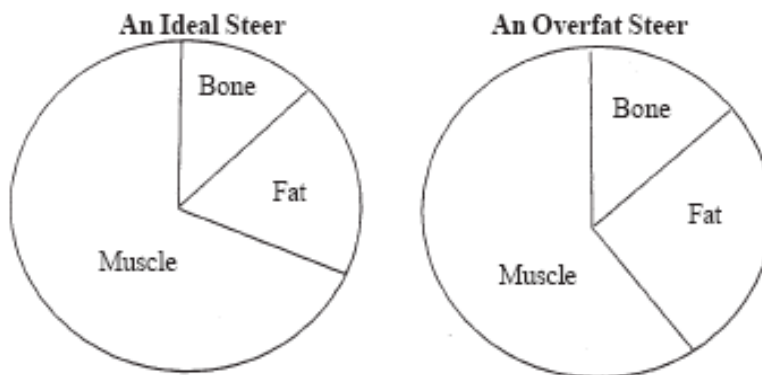
This same principle applies to fat. Fat accumulates in certain places on a beef animal. It accumulates in these locations at the same rate. Look at the brisket, flank and twist. By determining the amount of fat your animal is carrying in any of these three places, you can predict the amount of total fat on your animal. A very fat cow will also have fat in the pin bone area. A very fat bull will also accumulate fat in the neck of the scrotum.

Rule Three

Of the three components of cutability (bone, muscle and fat), bone changes the least from one animal to the next. The amount of bone or size of skeleton as a percentage of the total weight varies very little between cattle of similar height or weight.

You can tell if animals have a similar skeletal structure by looking at the areas where there is only bone. Look at the cannon bone. If two animals have the same length of cannon bone, they have a similar size of skeleton because the length of the cannon bone is always a constant percentage of the whole skeletal size.

This will help you if you see two steers - one that looks taller and heavier and another that appears smaller and lighter. When you look at their cannon bones, you find that the cannon bones are the same length. This tells you that they have the same size of skeleton. What could account for the difference you see in their size and weight? It must be either muscle or fat.



Rule Four

Muscles are always located in the same place on each animal. These muscles always have a similar size and shape in proportion to the animal. They do not increase in number or size, or change location as the steer grows or gains weight. Double muscled steers are an exception to this.

This is an important point to remember because looking for the amount of red meat on an animal while the animal is still alive can be very difficult. If you know that the muscles covering the rump of the beef animal are long and tapered, you know that a square, flat hind end cannot be composed of entirely muscle, because these muscles are rounded and tapered, not flat and square. The hind end must have an appreciable amount of fat on it to make it look square. Remember, muscle is round - fat is square.



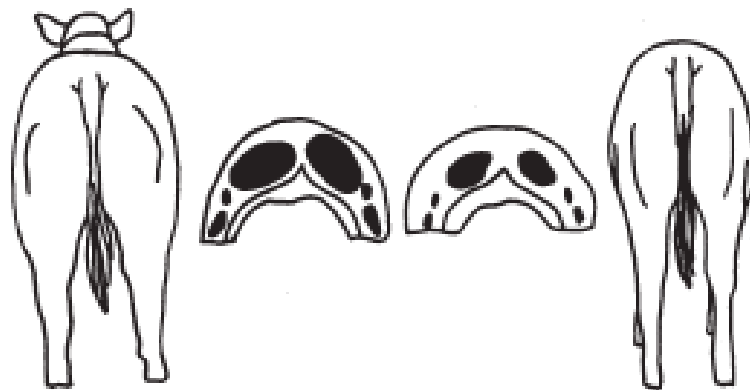
The same goes for the twist area. All beef animals are cut up in the twist. The muscle located in the twist is long and flat, and cuts up high into the hip. If your steer is full in the twist most of the way down to the hock, you know that this area must be filled with fat as muscles do not and never will develop in that fashion.

Rule Five

Animals grow and develop in a set way. They always lay down muscle before they lay down any significant amount of fat. So you know that if you find much fat on a market ready steer, his muscles are not going to grow any more. He will just keep getting fatter.

Never think that a fat steer is going to develop more muscle - he has already developed all the muscle he is going to.

Both of these steers have finished developing muscle. If you continue to feed them they will lay down more fat, but no more muscle or meat.



Judging the Market Animal

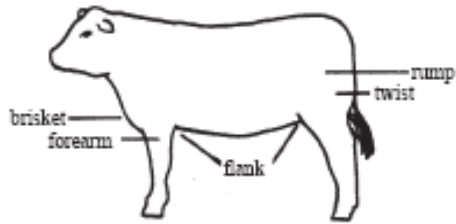
When you judge market animals, you are trying to visually assess the cutability in an animal that is still breathing, walking and dragging its owner all over the ring!

Cutability = Muscle as a % of Total Bodyweight

There are three components influencing cutability. There are bone, muscle and fat. Your first place animal should be the one with the highest cutability. This will be the one with the highest percentage of lean meat compared to bone and fat. How can you find this animal?

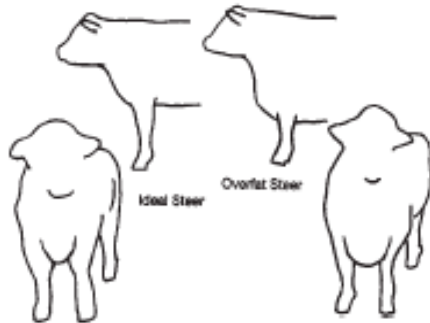
There are some fairly accurate steps you can take to estimate the cutability if you first understand how a beef animal grows and develops. The idea is to “undress” the steer with your eyes to see the meat parts. Your difficulty is trying to “see through” the fat and hide in order to evaluate the meat that is underneath.

These five rules gave you a quick lesson in cattle biology. Let's now relate this to judging a class of steers.



The most important thing to find in market animals is a desirable degree of finish, or amount of fat covering. Graders look for the fat between the 12th and 13th rib. Obviously, we cannot check that area in a live animal but we can look at other areas that indicate fat amount. The challenge for you is to identify which is fat and which is muscle.

There are five key areas where you should check for the amounts of fat and muscle. These are the brisket, flank, twist, rump and forearm. Let's take a close look at each of these key areas.



The Brisket (view from the front and the side)

The brisket is located underneath the breastbone. The breastbone has very little muscle over it - just the tips of two long and narrow muscles. Therefore, if the brisket is deep and full it must be full of waste fat not muscle. If there are fat deposits here, there will be deposits of waste fat in other areas of the carcass.



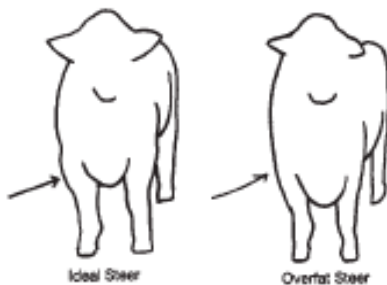
The Flank (view from the side)

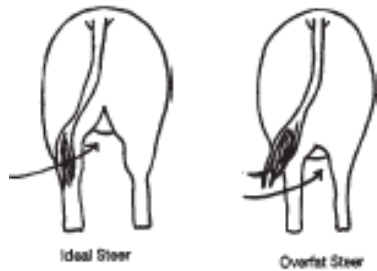
If we look at the muscular structure of a beef animal in the flank area, we can see that there is no muscle or meat there at all. There is also no bone or skeletal structure. It is an area of skin and tough connective tissue. If the flank is deep and full, what could account for this? Nothing but fat. If there is fat here, then there will be other deposits of waste fat in the carcass, because the flank is the final place the animal deposits fat.



The Forearm (view from the front)

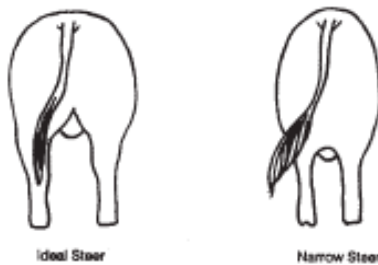
Examination of the forearm will give you an indication of how well muscled the animal is all over. Look at the forearm because no fat ever accumulates here. It is composed entirely of muscle and bone. If the forearm is bulging and muscular, the animal will have well developed muscles all over its body because, as we already know, muscle develops evenly.





The Twist (view from directly behind)

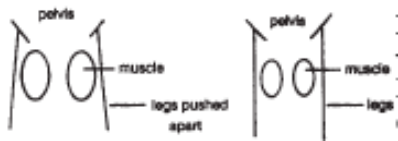
A deep, full twist indicates fat, not muscle. If your steer is full all the way down to the hock, this must be fat because the muscles do not extend all the way down to the hock.



The Rump (view directly from behind)

A desirable steer has a thick hind end. This indicates good muscling. The muscles covering the rear should be curved and rounded. If a steer has a flat, square rump, it cannot be full of muscle because muscles are not square and rectangular. It must be fat.

Thickness is desirable low in the stifle area. The steer should be thicker through the stifle area than anywhere else. Very little fat is ever laid down on the outside of the stifle region. If the steer is thick here we know it must be full of meat.



We can observe most about the amount of muscling on the steer by looking directly from behind. Look at the placement of the hind legs. Does the steer stand wide on his hind legs? The hind legs are attached way up in the hip area. If there is lots of meat through this area, the legs will be pushed apart and the steer will stand wide. The hind end contains the high priced cuts. An animal with a wide leg stance, indicating superior muscling in this area, will yield lots of red meat from the hind end.

Once you have viewed the animal at a distance and evaluated the five areas, move in for a closer look. There are points on a steer that contain no muscle or meat, just bone and hind, and . . . if the animal is finished, a certain amount of fat.

The easiest place to determine the finish of a steer is over the ribs. Feel the ribs about halfway down. There should be about 1 cm of fat between the hide and the bone.



Feel the shoulder blade, for there is no muscle here either. There should only be a thin covering of fat over the bone. Handle the steer with the flat surfaces of your fingers or your whole hand, not just your finger tips. The tips of your fingers tickle the animal and make it prone to kick or fidget.

In the show ring, market animals are also evaluated on their walk, style and eye appeal, shape of the head, and so on. Remember that these things do not affect the quality of meat so don't place more importance on these points than you do on muscling and fat. When placing your class of steers, consider the most important things first - muscle, fat and finish. Then consider the less important characteristics.

The Ideal Steer

From the front:

- Stands wide and shows trimness in the brisket and neck.

From the rear:

- The top is rounded with the widest point through the stifle. The legs stand wide apart and the twist shows evidence of muscle development.

From the side:

- The brisket and neck are trim, the topline is long and straight, legs are long, and the flanks and middle are trim. Assess the size and scale of the animal. Remember to look at the cannon bone for an indication of size of bone and skeleton.

A steer should be sound, alert, healthy, and move without any hindrances. Remember, he has to be able to make it from his bed to his trough and then to the slaughterhouse!

Judging Breeding Animals

There is more to judging a breeding animal than just evaluating muscle and fat. The breeding animal must be able to last substantially longer than a market steer. Structure and conformation are important. The better the conformation of a cow or bull, the greater the chance that their offspring will also have good conformation.

We want our males and females to consistently produce calves that will:

- Produce more quality calves or
- Go to the slaughterhouse and return maximum profit

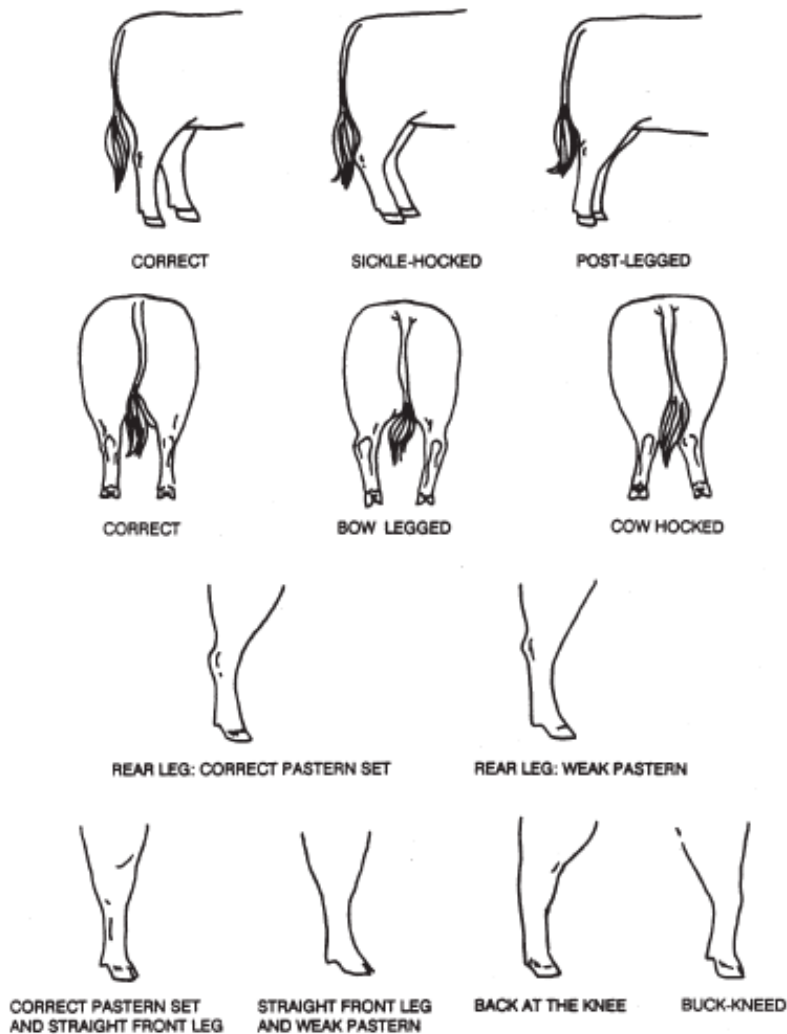
The market animal must make it from the calving pen to the feedlot in about a year. A breeding animal must last for many years, withstanding harsh winters, flies, calving, breeding and foraging. Therefore, structure and soundness are very important considerations when selecting breeding stock.

If you are in the purebred industry, you want animals that meet the breed specifications. Breed character and type are also extremely important.

How do you look for these things? It is harder than predicting how a steer will grade but we'll give you a few hints. Remember - all those things that you looked for in a steer are still important because breeding stock must produce those steers. Your breeding stock should have exceptional muscling characteristics just like in a steer. So, all that time and energy spent learning about the market animal has not gone to waste! First, let's look at the ideal breeding animal.

Feet and Legs

The legs should be set squarely underneath the animal. They should be widely placed and straight, not bow legged, cow hocked or weak in the pastern. The hooves should be solid and healthy with no cracks or lesions, and should not be long in the toe. The dew claws should also be short and without any curl.



General Appearance

The animal should be healthy and alert, moving freely and easily. The desirable head has good distance between the eyes and a wide muzzle. The shoulder should be smooth and the body parts blended well.

A bull should have more muscle definition than a cow or heifer and his muscles should bunch or ripple when he walks. Remember that an animal, when viewed from the rear, should be widest in the stifle area as this indicates superior muscling. A bull should be more massive than a cow of the same breed. In a bull, the development of the crest, scrotum and other secondary sex characteristics give you evidence of maturity.

The heifer and cow should appear feminine. The head and neck should be refined. She should show appropriate udder and teat development. She should have a wide muzzle so she can forage effectively.

Capacity

All beef animals should have capacity or adequate internal size. This is shown by a good spring of rib, and depth through the chest and heart. Width of the chest and width through the hind end are also desirable.

Breed Character

The animal should exhibit breed characteristics according to the breed association standards. This will include size, frame, shape and conformation. It is difficult to compare animals of different breeds in the same class. You can make this easier by becoming familiar with characteristics of the different breeds.

Fertility and Reproductive Capacity

This is where judging can be inaccurate. We do not know for a fact that any heifer will be a good mother, an easy calver, or a producer of progeny with a good rate-of-gain. We do not know by looking at a bull that he will be a successful breeder. However, we do have indicators that assist us in predicting fertility. These are all you have to go on in the show ring. Here are some clues that the industry uses:

The Bull

- Rugged and massive about the head, neck and shoulders
 - Head should be carried with poll slightly above the topline of the animal, indicating alertness
 - A crest over the neck region with size dependent on age
 - Scrotum should be large and hang straight, not twisted
 - Sheath should be compact and close to body
-

The Heifer

- Refined about the head, neck and shoulder
- Pins slightly below the hooks with good distance between the pins
- Signs of udder development with four evenly spaced teats
- Vulva should be tight and firm to guard against infection

The Cow

- The producing cow should show the same refined features as a heifer
- Udder balance with four functioning teats
- Vulva healthy and flush with the body

In a cow-calf class, look at the calf. Is it healthy and thriving? Does it have energy, size and frame? Is its conformation better than that of the cow? An exceptional cow that produces an inferior calf will not be profitable to you. We want cows that pass on their superior qualities to their calves.

Condition

Condition means the same thing in breeding animals as “finish” does in the market animal. The breeding animal should have less fat than the steer. The breeding animal should not have excess finish or be ready for market.

Assess the amount of fat and muscle present to determine growth characteristics. If a heifer carries a lot of fat at one year of age, she will be a less efficient cow than a heifer on the same diet carrying minimal fat or condition. You are not looking for skinny animals - you are looking for muscular, healthy cattle that are not fat.

There must be a desirable amount of muscle expression in both the sire and dam for the offspring to have a chance of developing desirable muscle. A bull will look meatier and have more overall muscle than a heifer or a cow. A bull should also have less fat than a heifer or a cow. Females should show good muscling even though the muscles will not be as pronounced as in bulls.

Structure

Structure is the skeleton and frame, or size of an animal. While there are differences in structure between breeds, certain things remain true for all cattle. Good feet and legs are essential for good structure. An animal must travel for many years on these feet and legs, so they must be sound and correct. All beef animals must show good size and frame as determined by their breed. They should be long over the top, have ample length of leg, and show capacity and depth.

Capacity in the female means the ability to carry a calf, metabolize food, and produce large quantities of lean meat. The pins should be slightly below the hooks and the hind end should be large and wide.

The animal should move straight and true. The front hooves should point straight ahead. The back hooves may turn in a little bit at the toe. The back hooves should be set down almost straight behind the front hooves when the animal walks. To see the hoof placement, look at the prints the animal makes in the dirt when it walks.

Body type or frame and muscling are economically important traits. They are related to the ability of the animal to gain weight, develop optimal muscling and cutability characteristics.

A process called frame scoring evaluates body type and muscle on a consistent basis from animal to animal. The body type and muscling at six to eight months is often a very good indicator of the body type the animal will have as a yearling or adult.

A frame score is made on a scale of 1 through 7. The smallest type of cattle will get a low frame score and the largest type will receive a high score. A score of 6 or 7 does not necessarily mean that the animal is the best but indicates that it is the largest type of cattle.



The Breeding Animal Checklist

Feet and Legs

- Legs straight, square and placed wide apart
- No swellings, cracks or lesions in the legs or hooves

General Appearance

- Appears healthy and alert
 - Blended, smooth body
 - Widest in the stifle
-

- Bull thick and massive
- Female refined with udder development
- Evidence of lots of muscle; little waste in the neck and brisket

Fertility Reproductive Capacity

- Bull - rugged, massive with a high headset, crest development, superior muscling, large straight scrotum, compact sheath
- Female - refined and smooth, pins slightly below hooks, width between pins, shows capacity and depth, udder development

Condition

- Less finish than a steer
- Evidence of superior muscling

Structure

- Long over the top, long straight legs
- Lots of capacity and depth, large, wide hind end
- Moves straight and with ease

About Breeds...

In the beef cattle industry there are many different breeds. In Saskatchewan alone, there are over 20 breeds. There are important differences between these breeds that you must take into account when judging cattle.

Some breeds have been bred with the emphasis on carcass and growth characteristics while some have been bred for their hardiness and maternal qualities. They all look different in size, shape and colour. It is important to learn about the popular breeds and be able to take their individual features into consideration when judging. You can learn more about breeds by looking at cattle magazines, breed books, promotional material printed by a breed association and by attending cattle events.

Familiarity with breeds is the key to solving the dilemma of comparing different breeds to each other. Know the characteristics of the different breeds.

A Few Final Hints:

Now you know what to look for in a market steer and a breeding animal. The problem is actually picking out these things in the show ring, the field or the judging class. As a 4-H member, you are taught how to groom and fit your animals to show them to their best advantage. You are trying to highlight the superior characteristics of your animal, and downplay the other characteristics.

Now the tables are turned and you must look beyond the wrapping and see the real animal underneath. It takes a lot of practice to do this successfully, but it sure can be fun to try!

Good luck judging beef cattle. What you learned for the show ring will help you when you go to the auction mart to buy a heifer, the neighbour's pasture to pick next years' calf, or the feedlot to pick the steers that are ready for market.

Judging will never be an exact science, but with a lot of practice and a little luck, you can become much more successful at selecting the most desirable animals!

The Judging Class

When evaluating the beef judging class, develop your own system and follow it each time you judge. Your first impression is the most important. Stand eight to ten meters from the class and view from a distance. Compare the animals.

When you view from the rear, compare:

- Thickness over the back, loin and rump
- Spring of fore and rear ribs
- Trimness of middle
- Muscling along the top and in the rear quarter
- Freedom from excess finish in the twist, round and pins
- Thickness through the stifle
- The set of rear feet and legs

When you view from the front, compare:

- Breed type and sex character about the head and neck
- Substance of bone
- Set of front feet and legs
- Muscling through the forearm
- Depth and width of chest
- Trimness in the throat and brisket
- Smoothness through the shoulders

When you view from the side, compare:

- Size, balance
- Length of body
- Strength of top
- Length of rump - from hooks to pins
- Levelness of rump
- Trimness of brisket and middle
- Muscle development in forearm, round, over back and loin
- Substance of bone
- Depth of rib
- Set of feet and legs
- Length of neck
- Finish over ribs and forequarters

When the animals walk, watch for:

- Style, freedom of movement
 - Correct set of feet and legs
-

- Strength of topline
- Tightness of frame
- Those areas where you look for muscle development
- Firmness and amount of finish

When you have an opportunity to handle the animals, check for:

- Firmness
- Uniformity, smoothness and amount of finish
- Length of rump
- Muscling in the shoulder, forearm, rear quarters
- Thickness and quality of hide

Terminology for Reasons

The following terms are acceptable in your reasons. There are many more terms, but these will give you an idea of some of the terms you should be using in your reasons. Remember to put emphasis on the different areas depending on whether you are judging market or breeding animals.

General Terms

- A taller, more lengthy heifer
- Carrying more uniform thickness from front to rear
- More desirable meaty type
- Female showing more balance and symmetry
- Larger, longer, trimmer, more correctly finished steer

Head, Style and Breed Character Terms

- More feminine through the head, neck and shoulders
- Shows more desirable breed character through head, ears and neck
- Cleaner bone and more refined in the legs
- Shows more desirable balance and eye appeal
- More stylish and alert

Fore Quarter Terms

- Fuller in the heart girth with a more desirable spring of rib
- More smoothly blended through the neck and shoulder
- Shows more muscle expression in the forearm

Ribs, Back and Loin Terms

- Straighter and stronger over the topline
- Thicker, meatier, more heavily muscled loin
- More correctly finished over the top and loin

Hind Quarter Terms

- More bulging rear quarters
 - Wider, meatier steer
 - Extremely thick and muscular through the centre part of the round
 - Free from excess flesh in the twist
-

- Cleaner and trimmer in the flank
- Longer, deeper, more dimensional quarter
- Showing greater evidence of muscling through the stifle region

Legs and Bone Terms

- Straighter, stronger legged, standing on more substance of bone
- Moves straighter and truer on the walk
- Stands more squarely on all four legs
- Longer bodies, longer hiped
- Larger framed steer

Finish and Carcass Terms

- More uniform in his condition
- More uniform fat cover
- Cleaner over the loin edge
- Showing a more desirable degree of finish
- Harder, firmer, and more correct in the finish over the ribs

On the left is a sample of the Saskatchewan 4-H Judging Card

Sample Reasons

Hereford Market Steers

"I placed this class of Hereford Market Steers 1-2-3-4 for the following reasons.

I started this class with 1, placing him over 2 because 1 is larger, stretchier, more heavily muscled and stands more squarely on more substance of bone than 2. 1 shows more muscle development in the forearm region, and is longer ribbed, longer rumped and thicker through the stifle. 1 has a more desirable amount of finish than 2. I grant that 2 is cleaner through the throat, neck and brisket than 1.

In my middle pair, I placed 2 over 3 in a very close placing because 2 shows more size, scale and length through the body than 3. 2 is trimmer and cleaner along the underline, and is cleaner in the throat than 3. 2 shows more muscle expression through the forearm than 3, and is cleaner and firmer through the flank. I admit that 3 shows more thickness through the top of the rear quarter than 2.

The form is titled 'Saskatchewan 4-H' and contains the following sections:

- Header:** Saskatchewan 4-H logo.
- Identification:** Name or Number _____, 4-H Club _____, Class _____, Age _____.
- Placing:** A table with columns for Placing (First, Second, Third, Fourth) and Reason Score, and a Total row.
- Reasons:** A section titled 'Reasons (give main points):' with three prompts: 'I place _____ over _____ because:', followed by several blank lines for writing.
- Footer:** (Use back of card if necessary)

In my bottom pair, I placed 3 over 4 because 3 is thicker, meatier, and more heavily muscled than 4. 3 is more correctly finished and trimmer and cleaner through the brisket than 4. 3 shows a deeper, thicker, more heavily muscled rear quarter than 4. I grant that 4 is taller and more lengthy than 3, but felt that 4 was too wasteful in the brisket and twist regions to place any higher in the class.

These are my reasons for placing this class of Hereford Market Steers 1-2-3-4 as I see them here today."

The above reasons have these desirable qualities:

- Analysis is completed in pairs
- Both descriptive and comparative in terminology
- Terms are first general and then more specific in each pair
- The reasons are positive and avoid criticizing the animals
- Minimum of three points are detailed about each pair
- Emphasis is first on the most important qualities to look for in market steers and then in the less important qualities
- Introductory and concluding statements completely identify the class

If your reasons have these desirable qualities, are representative of the class you judged, and are well presented, then you will be successful with your reasons.



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