

Unit Nine

Beef Cow and Heifer Management

Roll Call

Tell me one thing you must remember when looking after your beef 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. There are five main nutrients which cattle need. Can you name them?

Many factors affect the amount of these nutrients which your cows and heifers 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 a producer 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 of your cows during the breeding season.
4. Pregnancy check all of your cows at the end of the breeding season. Cull all nonpregnant 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 - A 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 three things must you do to keep your cows healthy and productive?

What can you do to practice good management?

Unit Ten

Managing the Beef Herd Sire**Roll Call**

Tell me one thing you must remember when looking after your beef bull(s).

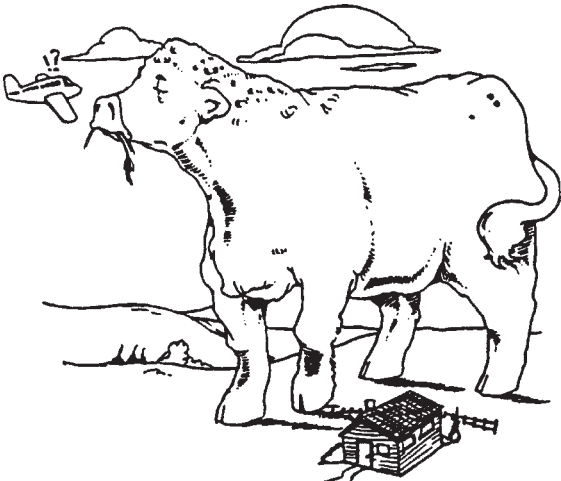
The Bull

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

Fat bulls and, or thin bulls are not desirable. Overfeeding can lead to overfat bulls. These bulls may have

- lower libido or 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.

What does **deficient** mean?

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 that 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 which 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 | <ul style="list-style-type: none"> • external parasites such as lice • evidence of internal parasites • treat with insecticides if necessary |
| Feet | <ul style="list-style-type: none"> • abscesses, corns, cracks, lameness |

- Brisket
 - sores or infections
 - trim the feet
- Penis
 - infections or abnormalities
- Testicles
 - normal size and shape
 - testes should be firm and have no swelling

◆ **Practice Good Breeding Management**

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.

Why is the herd bull so important?

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

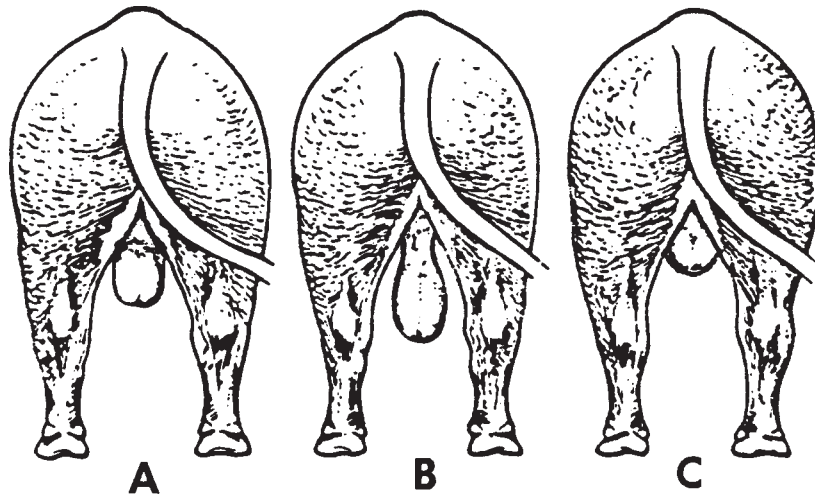
Looking at The Scrotum

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

Testes, which 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
Vit 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

Unit Eleven

Beef Breeding

Roll Call

Tell me one thing you know about breeding beef cattle.

The Reproductive Cycle

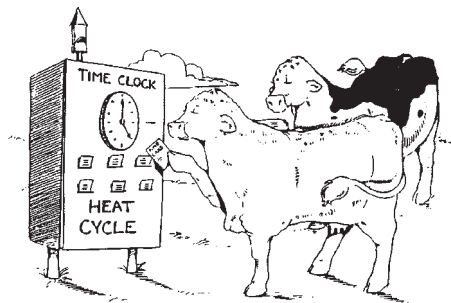
The reproductive cycle of the beef female determines when and if she will become pregnant. Let's look at it more closely.

The **estrus cycle** is a repeating period of time in which 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. 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.

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 the 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

Heifers begin their reproductive cycle any time between five and 14 months of age. The age when a heifer first begins to show signs of female maturity is called **puberty**.

Many factors influence when a heifer will reach puberty, including:

- age
- weight
- breed
- growth rate
- nutrition she has received.

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 per cent 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

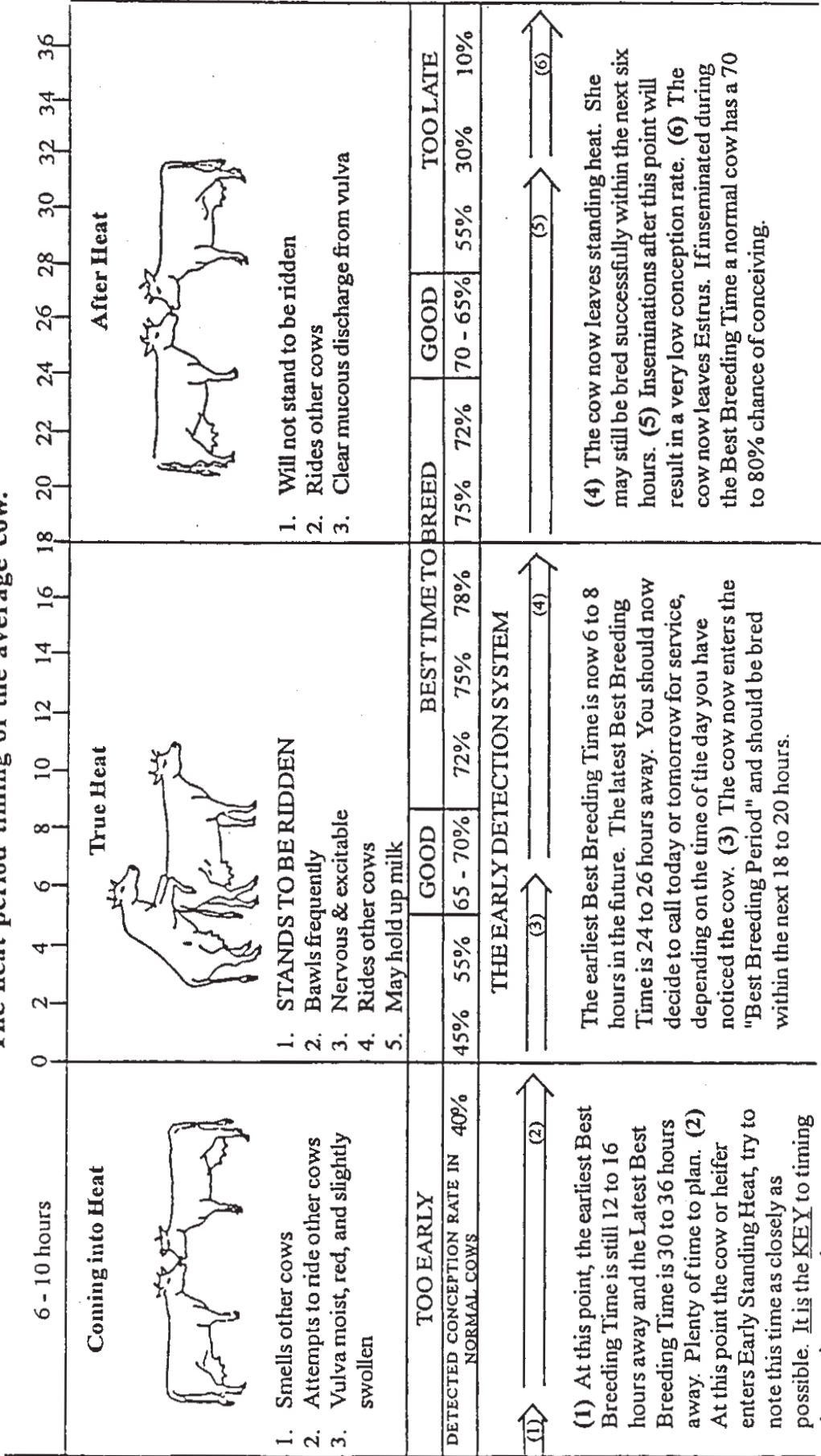
70% of standing - occur between the hours of 12:00 a.m. - 6:00 a.m.

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

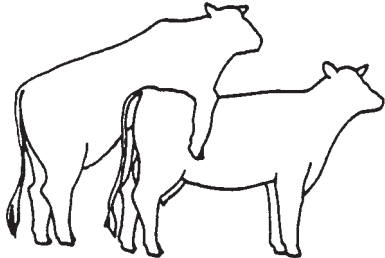
8% of standing - occur between the hours of 12:00 p.m. - 12:00 a.m.

The Stages of Heat

The heat period timing of the average cow.



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 calendar.
5. Observe heat signs and schedule basis time needed.
6. Try to pen 4-H heifers with another animal so they can demonstrate mounting and other signs of heat.

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 beef females either naturally or artificially. In **natural** breeding, the bull does the breeding himself. In **artificial insemination (AI)**, you place the semen, which 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.

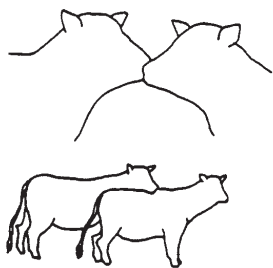
There are many advantages to using artificial insemination in the beef herd. Some of these are

- 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 live
- 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 1/2 hours
a.m. Cows (6 p.m. - 9 a.m.)	10:30 p.m. same day	9:00 a.m. next day	13 1/2 hours
p.m. Heifers (12 Noon - 6 p.m.)	9:00 a.m. next day	7:30 p.m. next day	10 1/2 hours
p.m. Cows (12 Noon - 6 p.m.)	12 Noon next day	10:00 p.m. next day	10 hours



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 on the right, find each of these words:

breeding

estrus

bull

gestation

calving

heat

cow

heifer

cull

insemination

cycle

puberty

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

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 which completes this sentence:

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

_____.”

Unit Twelve**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 the beef farm. It is the time of year when your hard work in feeding and caring for the 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 the 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.

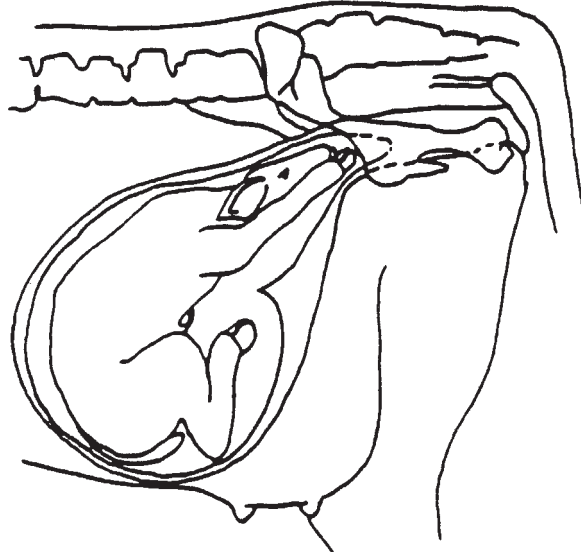
Stages of Calving**Stage One (Relaxation)**

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 hours 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 stage. 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 0.5 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 the 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 which 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 a 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 changes position in uterus.
- _____ 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 Thirteen**The Newborn Calf****Roll Call**

When was your project calf born?

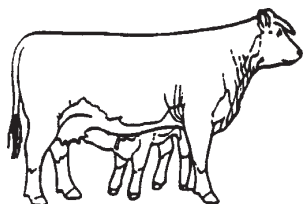
Getting Off to a Good Start

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 which 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 soon 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 the 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.

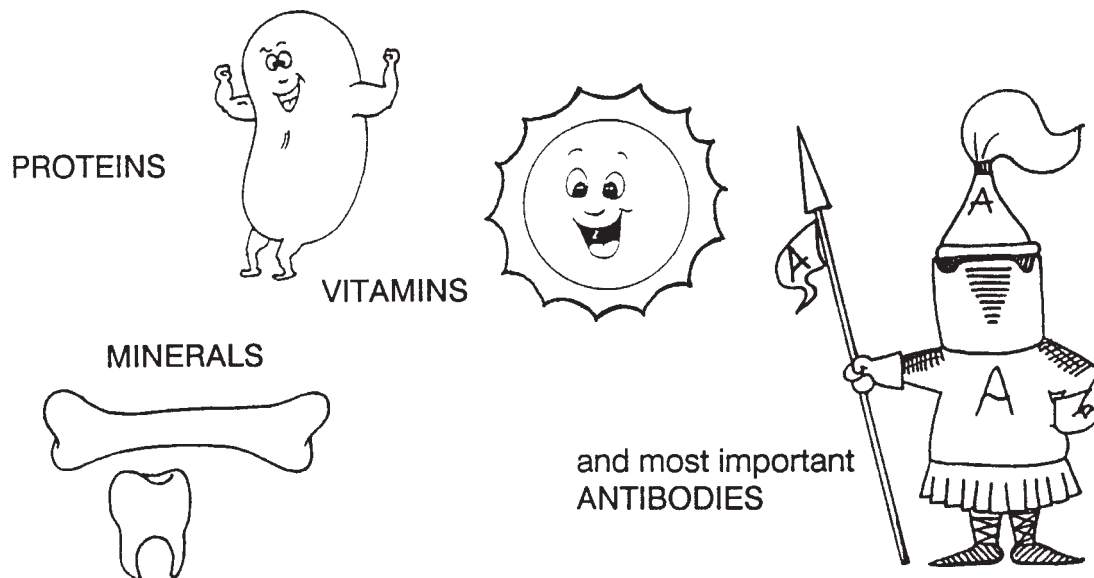
What is Colostrum?

Colostrum is the thick, rich yellowish milk which 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 which are needed by the calf:



Antibodies are disease fighters. They are the tiny bodies in the blood which get together and attack the disease. The cow gives these to her calf in the 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, the 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 which helps the calf get rid of the sticky material which is in its intestines at birth.

If the 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.

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.

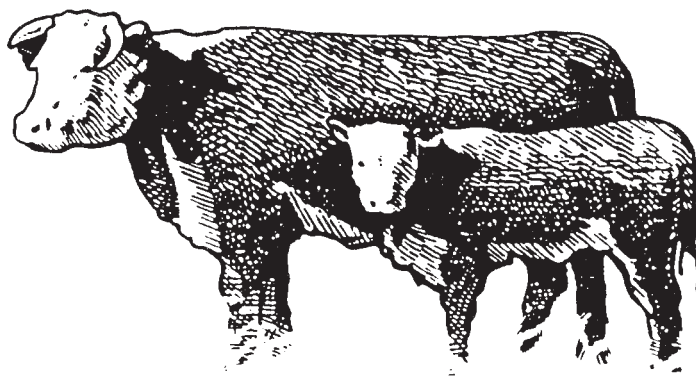
Appetite and Digestion

The 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 in the column. Use each word only once.

antibodies

mother

calves

quickly

freeze

replacer

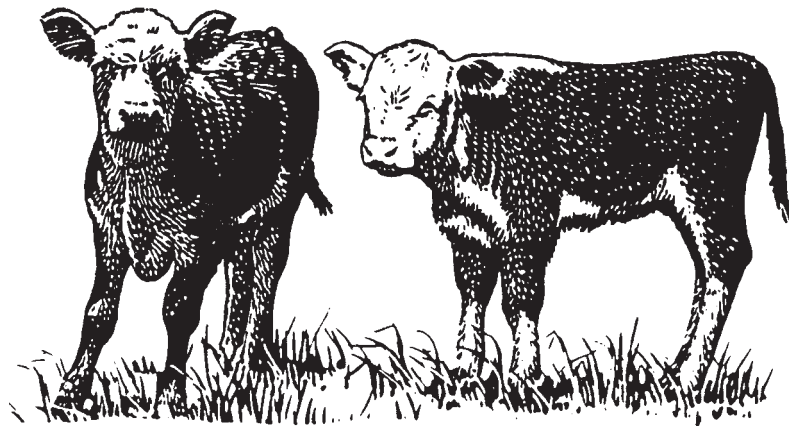
growth

vitamins

minerals

water

1. The best milk for the calf comes from its _____.
2. The most important things the 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 the newborn calf properly is important for its future _____.
9. Be sure to provide a good supply of fresh, clean _____.



Unit Fourteen**Beef Cattle Handling and Facilities****Roll Call**

What is one thing to remember when you are working with beef 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 the 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.



be safety-wise

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 much more easily when they can follow each other.

Cattle will stop if they seem to be approaching a dead end or 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

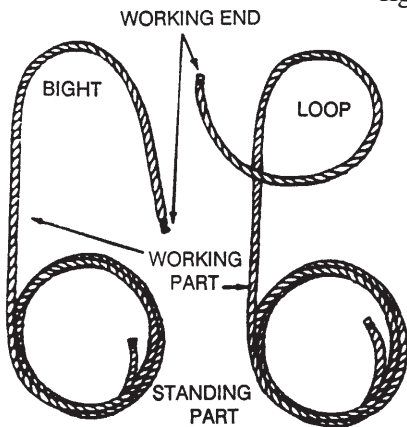
It's time to work with your cattle. Make your way through the maze on the following page by choosing the correct solutions.

The Quick Release Knot

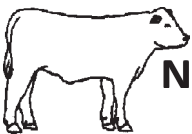
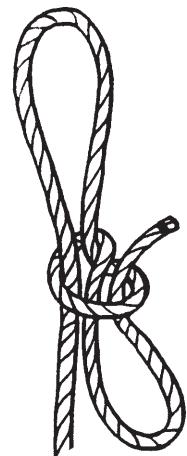
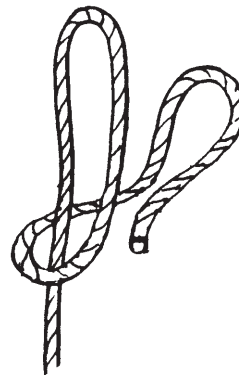
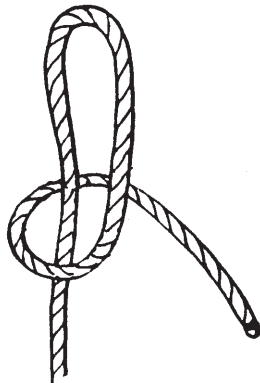
When tying your beef cattle, always use the quick release knot. It has this name because it can always be quickly released to free your animal.

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 be used only to tie your animal to the fence post or corral.

LET'S WORK

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



START

No time to change
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.

I'll just use
this prod...

This heifer won't
move. All the others
are through the
gate.

Make sure she
can see the
others ahead.

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

Don't turn
your back on
the cattle.

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

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

Wrap the shank
around your hand
tight.

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

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.

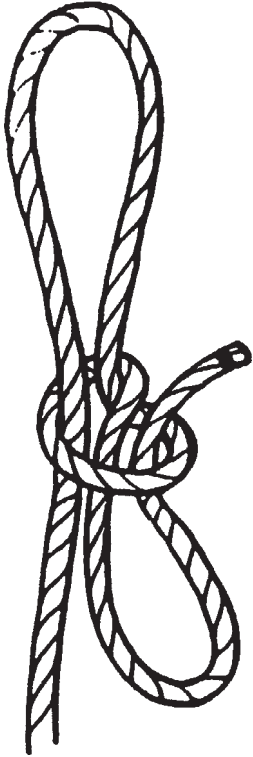
Talk softly as
you approach.

You are entering
another pen full
of cattle.

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

**Activity:****Release It**

Think about the quick release knot and how you would use it. Now, find a word which 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 _____

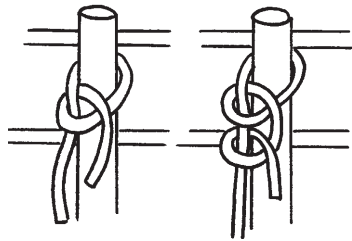
More Knots

Square



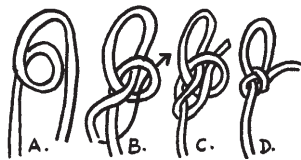
The square knot is used to join two pieces of rope together. It can be used to tie the ends of one rope together to form a loop.

Double Half Hitch



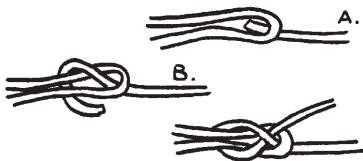
The double half hitch knot is quick to make, easy to tie and acts like a slip knot.

Bowline



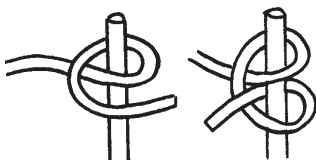
The bowline knot is one of the most useful of all knots. It forms a loop which will not tighten.

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.

Unit Fifteen

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...

land which grows plants put there by man. Pasture land is usually more productive than range land.

Range is...

land that is not suited for growing crops because it is too dry, rocky or rolling. Range land grows native plants; those which naturally grow in that area.

Range and Pasture Management

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 product (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 such 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 which provide an income for the farm.
- With good management, you will always have a reserve of feed. If the cattle are not controlled, they will graze and overgraze the land, eventually killing many of the popular plants. Those plants which are 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 the 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 the 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 which are poisonous and can harm your livestock. You will need to get rid of them or fence them out. Three plants which can poison your cattle are

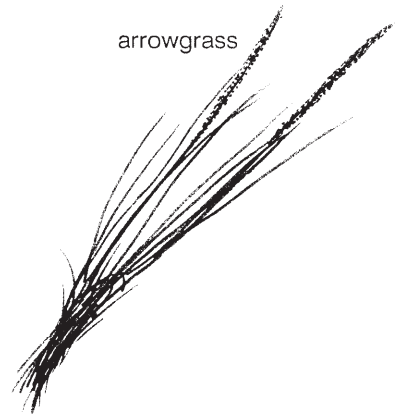
larkspur



water hemlock



arrowgrass



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 our 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. **Grasslike** 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 which winter above the ground and stems which branch near the base of the plant. Examples are sagebrush, wolf willow, rabbitbrush and bitterbrush.



Activity:

Word Scramble

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

ZAERG _____

BROFS _____

RSTUPAE _____

SSSEARG _____

NMGEAA _____

SSHRUE _____

NGREA _____

DGSSEE _____

SSBRHU _____

**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 ...

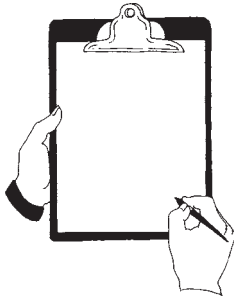
Unit Sixteen**Record Keeping****Roll Call**

What is one record you keep on your (or a neighbour's) farm?

Why keep records?

Records you keep on your farm 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.

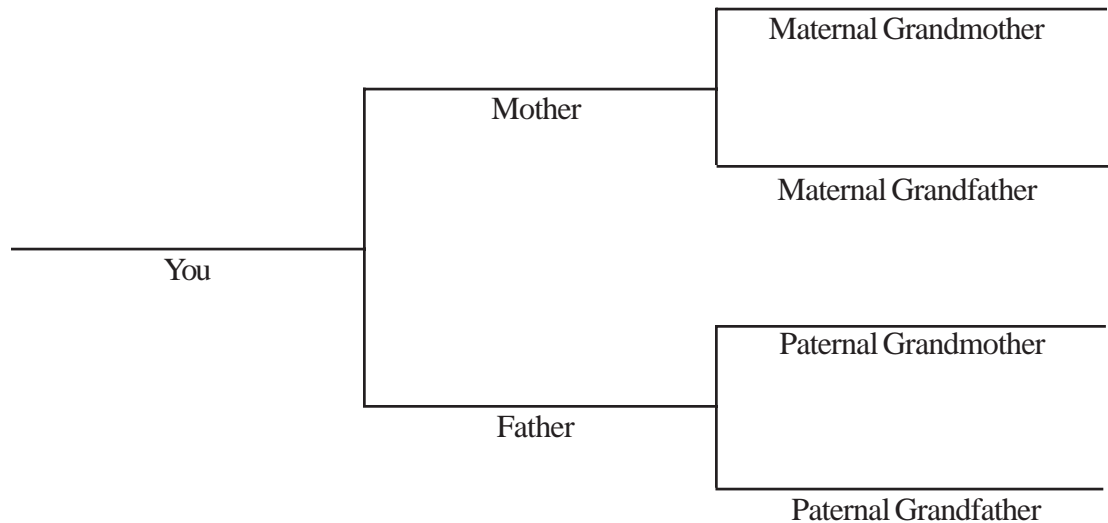
In 4-H, we require that you keep detailed records on your project animal(s). By doing this, we hope that you will realize how important records are.

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 your 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.

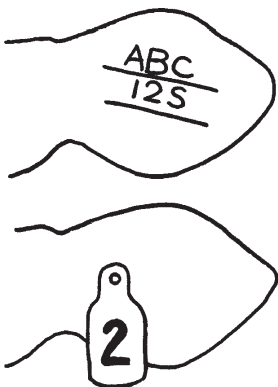
Production Records

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.

Cattle are produced under conditions (housing, feed, labour) which often vary from farm to farm. Therefore, it is important that you be able to identify animals suitable for your operation.

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, in Canada. 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 own 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 (person(s) who owned the dam when she was bred)
- owner (person(s) 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.

Some of the performance traits you can record are

- calving percentage (percentage of your cattle who produce a live calf)
- calving interval (length of the time between birth of the calf and birth of its next calf)
- length of gestation (time from successful breeding to calving)
- cow defects or abnormalities
- calving ease
- calf condition at birth
- birth weight
- growth traits up to 18 months of age
- any other information you feel is important.

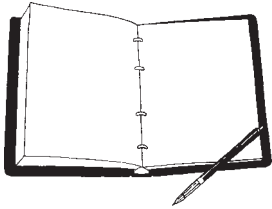
There are many different performance testing programs available across the country. You can use one of these designed for your local area, or design one which fits your own needs.

Financial Records are an important part of any farm operation. They should include the costs of everything from computer and office expenses to feed, farm equipment, land rental and livestock purchases. Good farm records will make it easier for you to complete income tax returns. They can also help you make your decisions about future changes and, or improvements to the farm.



Activity:

Now that you know a little about keeping records on the farm, list some things which might be recorded on a farm. List as many as you can.



_____	_____
_____	_____
_____	_____
_____	_____
_____	_____



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.

What would you do . . .

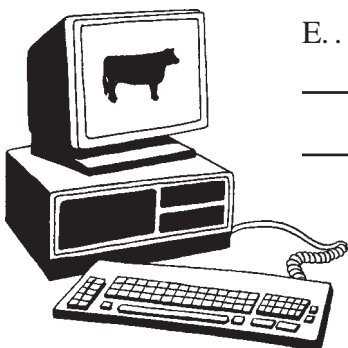
A . . . if three of your cows calved this morning, but you didn't have time to write down the weights of the calves?

B . . . if you aren't sure whether to move your pregnant cows to the 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 the 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 Seventeen

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.

Welcome to the carcass section of the beef project. Your club has some exciting things lined up to help you and your fellow members learn about the beef carcass. It's the most important thing in the cattle industry.

In this unit you will learn

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

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

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

What makes up the carcass?

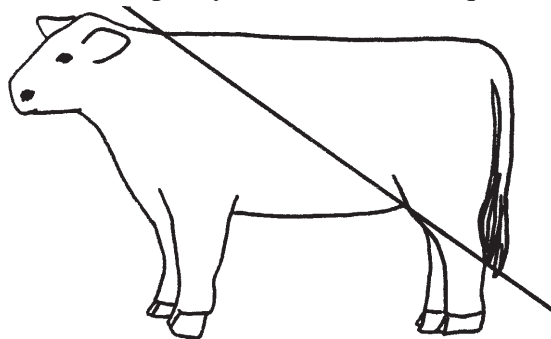
The carcass is the part of the animal that remains after the head, feet, hide and internal organs are removed. What's left?

There are three main parts of the carcass. These are

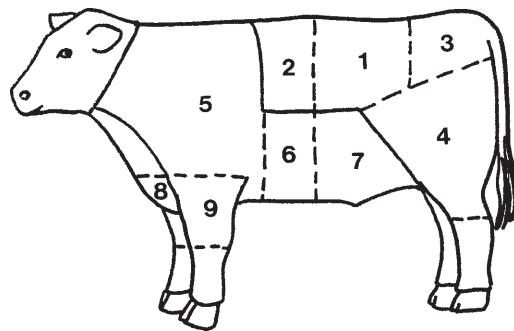
1. _____
2. _____
3. _____

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 diagrams below. You can learn to identify these by practising 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.

Mark the correct answer to each of the following:

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?	
<hr/>	
<hr/>	

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

What is the difference between grading and inspecting?

Grading is

Inspecting is

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 labelling are met. Any carcass that does not meet these standards is condemned and destroyed.

Why is inspection important?

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 the 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.

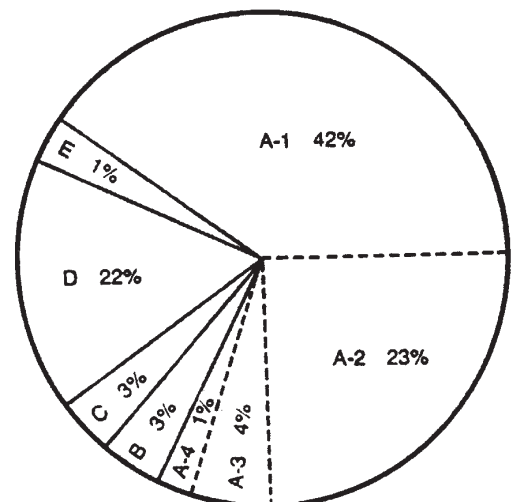
The B grades vary from B1 to B4 depending on fat colour and amount of muscling.

Canada Grade D

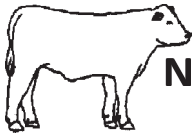
Mature cows which vary from D1 to D4 depending on the amount of muscling and fat cover on the carcass.

Canada Grade E - Mature bulls.

Canadian Beef Grades
Proportion of Each Grade Produced



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



NOTE:

Note that approximately 70% of beef produced in Canada is Grade A beef. Keep in mind that when we talk about beef grades, that 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.

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 _____

**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?

_____	_____
_____	_____
_____	_____

3. Suppose you culled the old bull from your herd.

What would you expect the carcass to grade?

Unit Eighteen

Beef 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.

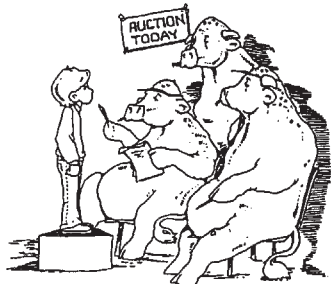
Marketing is . . .

planning and putting into action the development, pricing, promotion and distribution of ideas, goods or services to create an exchange which 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



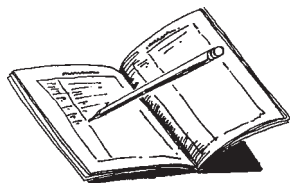
Let's look closely at what is involved in each of these 4 P's of beef marketing.

◆ **Product**

- carcass
- live steer
- replacement heifer
- bull
- individual meat cuts

◆ **Promotion**

- Canadian Cattlemen's Association
- Beef Information Centre
- you the producer
- butcher, supermarket, restaurant



◆ **Place**

- the farm
- auction mart
- packing house
- 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.



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 P's, 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.

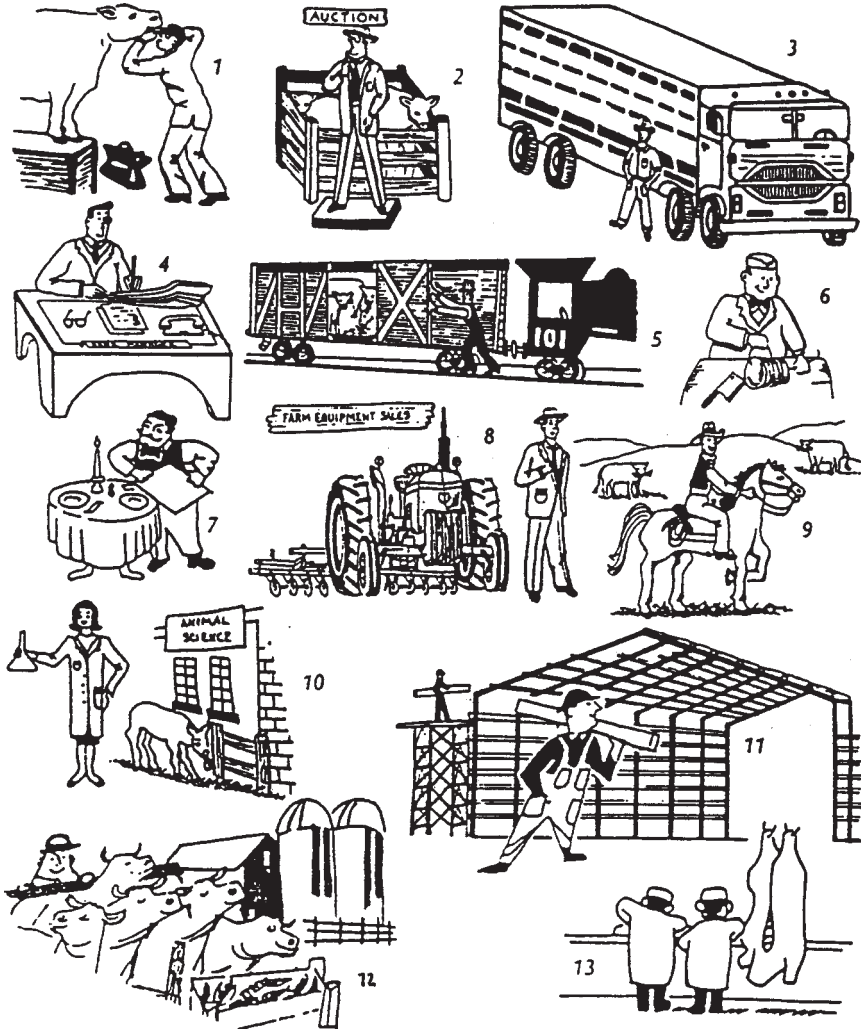
Place - where and who will sell it.

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. _____

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 which is not suited to crop production. This may include areas with poor soil, or land which is too rocky or hilly for farm machinery.
3. Most feed used for the cattle is grown on that farm. The number of cattle the producer keeps depends on the feed available and the current feed prices.
4. Most beef herds use only family labour. This reduces the labour costs and limits the herd size.
5. Beef cattle are often only one part of the farm operation. Most farms also produce and sell grain. This makes it possible for the producers to spread their financial risks over several commodities.
6. Fixed costs, those costs which 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 an 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 which 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.

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 county, district or region.

Unit Nineteen

The Beef Industry Today

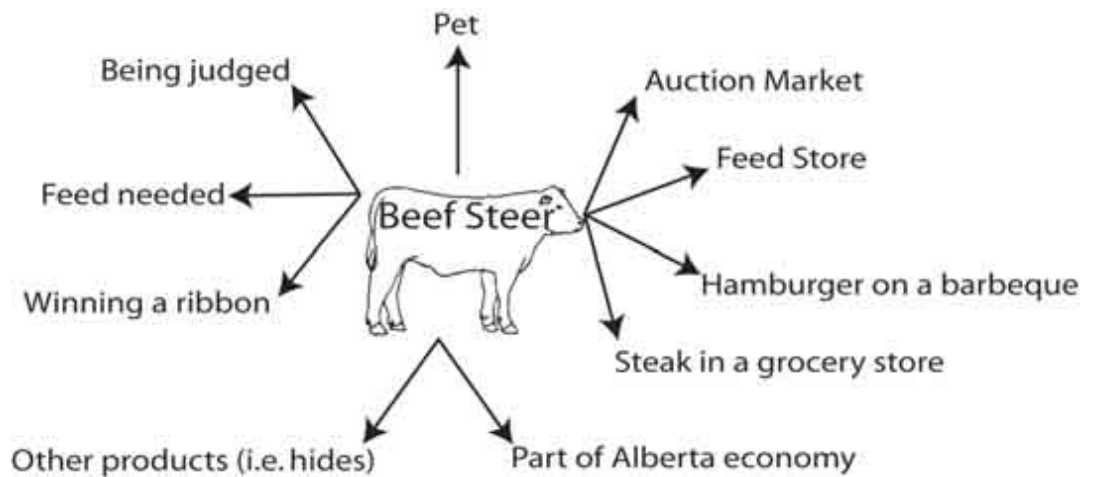
Roll Call

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 which can affect it.



How do you and your beef project animal fit into the beef industry?

What do **you** want to be when you are older?

What do you want to do with your 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 productive.
- 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
- The shopper at the store
- Others

Who will buy your steer?

A consumer is a person like you and me. It's the moms and the 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 beef.

Are you a consumer?

Why or why not?

There are many things, which 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 do you need to raise your 4-H steer?

Where can you get help with your steer if you have a problem?

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 products 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?

What is important to you when you are purchasing something for your steer project?

At Achievement Day, people will be bidding to purchase your steer. What can change the price you get for your steer?



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 the 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

