# Judging Beef Cattle

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 the 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 unit is to:

• Give you background knowledge of the structure and function of the 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

Manitoba
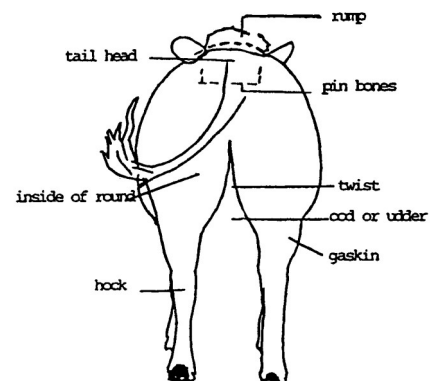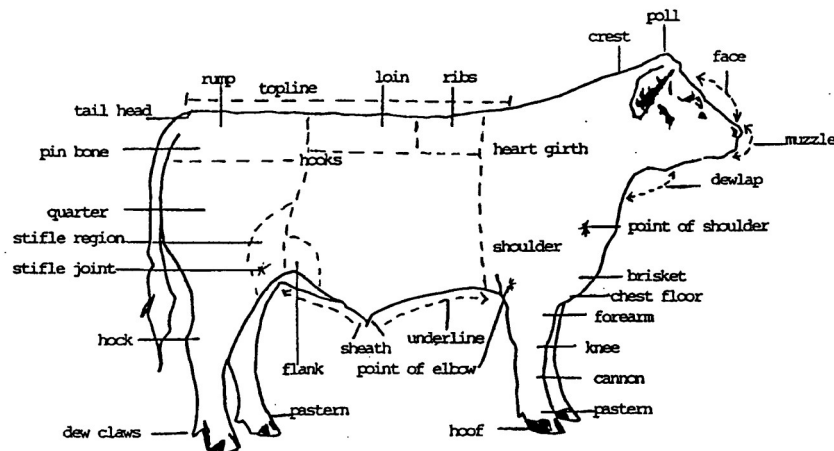
Beef Terminology

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	-	red meat or lean
	-	that part of the carcass which is not bone or fat
Carcass	-	the part of the animal which remains after the removal of the head, feet, hide and internal organs
	-	the carcass is composed of bone, muscle, fat and connective tissue
Finish	-	the amount of fat covering on a market animal
	-	overfinished – the animal has too much fat cover
	-	underfinished – the animal doesn't have enough fat cover to fall into a desired grade
Cutability	-	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	-	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 bone
Structure	-	must be sound or free from any defects, which inhibit performance
	-	must be correct and show the desired structural traits
Balance	-	the overall view of the animal, including how well the parts blend into one another and how freely and smoothly the animal moves
Trimness	-	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	-	the description a carcass receives based on the maturity of the carcass, the quality (color, texture, and firmness of the muscle, marbling and fat) and the meat yield.
Style	-	way of going, alertness, gait, coloring
	-	this is often referred to as eye appeal
Meatiness	-	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, which relate to these qualities.

Conformation	-	the overall structure of the animal
	-	includes all the points mentioned
Masculinity	-	this term is used to describe bulls
	-	massiveness and strength of the animal
	-	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	-	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	-	the shape of head, length of body, height, color markings and other characteristics as defined by the Breed Associations as characteristic of that breed
Condition	-	this means the same thing as finish does for the market animal. It is the amount of fat and muscle that the animal is carrying
Broodiness	-	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	-	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	-	the offspring or 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.

Because, in the beef industry, our product is meat, we need to understand the importance of these characteristics whether we are judging live animals or carcasses.

Connective tissue	-	includes tendons, ligaments and cartilage
	-	these all help to hold the body and organs together

Gristle - 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 colorless ribbons and threads through the meat

Cartilage - connective tissue which 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 - 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

Marbling - amount, size and distribution 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 flavor and tenderness

Fat level - means the fat measurement at the minimum point of thickness in the fourth quadrant of the longissimus muscle between the 12th and 13th ribs

Did you know that all meat would taste exactly the same if it were not for the fat? Lamb, pork and beef would all taste the same. But, because of the type and amount of fat, we have three very different tasting meats.
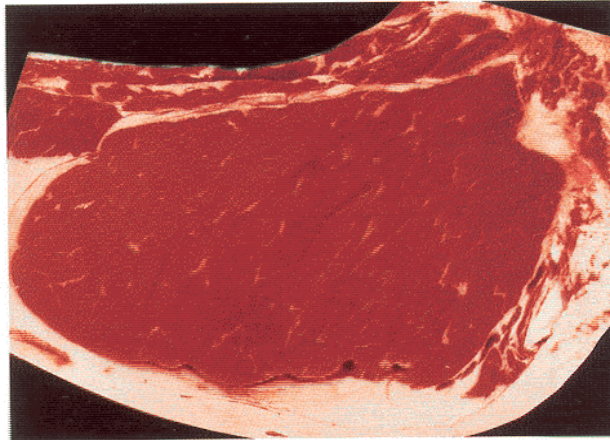
Marbling

Canada AA
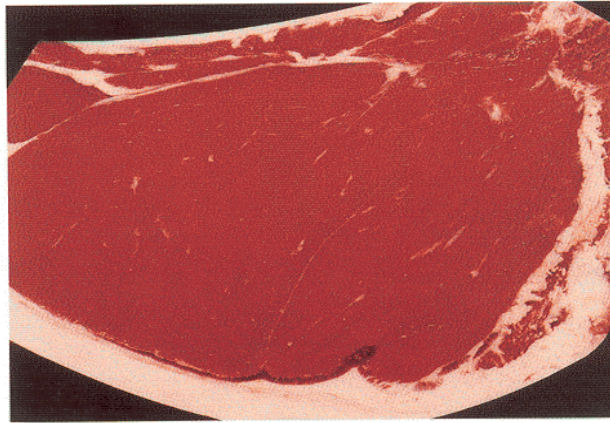
*At the least, a **slight** amount, but less than a small amount*

YES: The carcass has qualified for Canada AA

Slight*
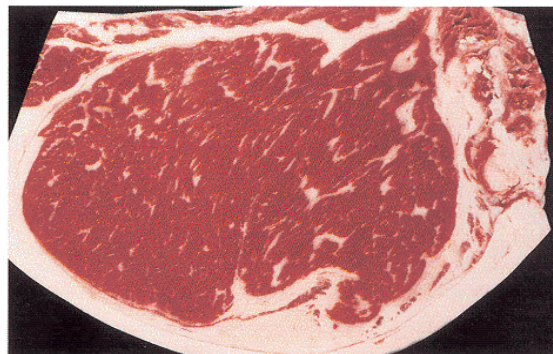

Canada AAA

*A **small** amount or more*

YES: The carcass has qualified for Canada AAA

Small*

Canada Prime

***Slightly abundant** or more.*

Yes: The carcass has qualified for Canada Prime
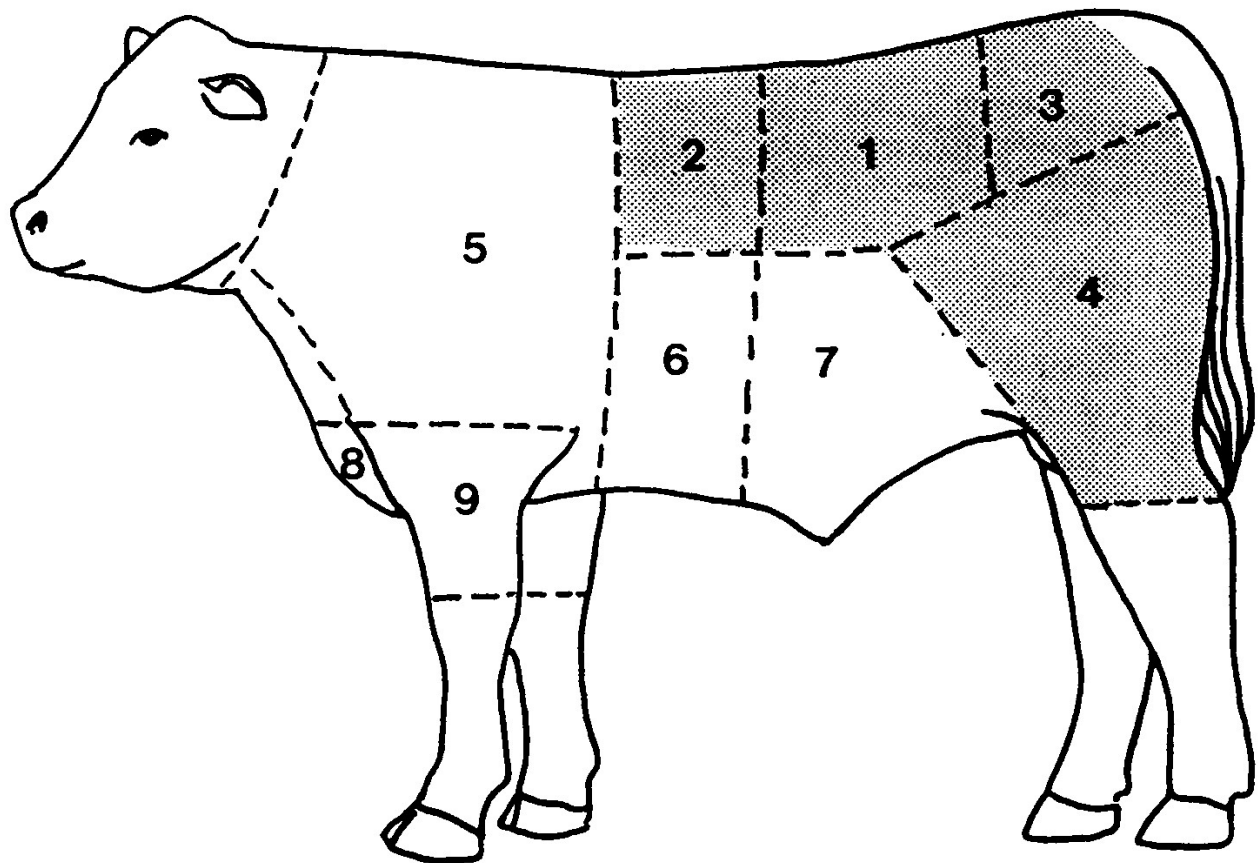
Slightly Abundant*

Before we learn about the 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 color, tenderness, juiciness, flavor and the amount of fat or marbling.
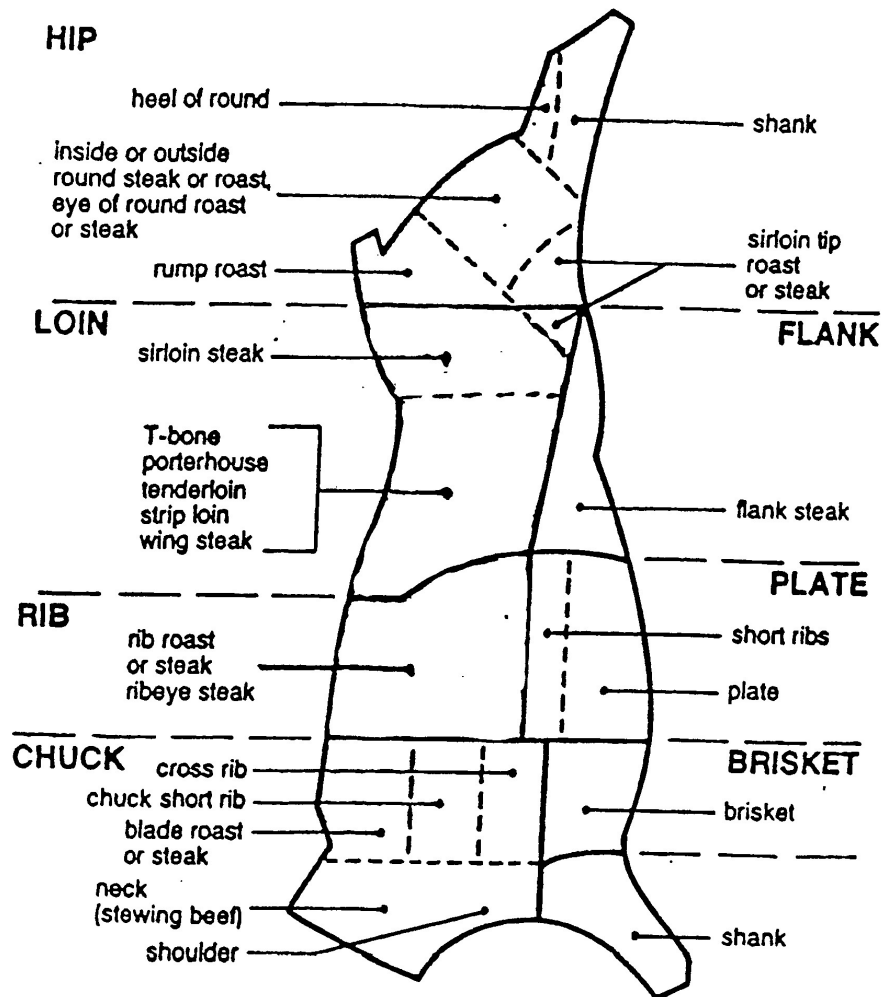
Cuts of Beef

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

Wholesale Cuts of a Beef Carcass

High Priced		Low Priced	
1.	Loin	5.	Chuck
2.	Rib	6.	Plate
3.	Rump	7.	Flank
4.	Round	8.	Brisket
		9.	Shank

Beef Cuts Chart

HIP
- heel of round
- inside or outside round steak or roast, eye of round roast or steak
- rump roast
- shank
- sirloin tip roast or steak

LOIN
- sirloin steak
- T-bone, porterhouse, tenderloin, strip loin, wing steak

FLANK
- flank steak

RIB
- rib roast or steak
- ribeye steak

PLATE
- short ribs
- plate

CHUCK
- cross rib
- chuck short rib
- blade roast or steak
- neck (stewing beef)
- shoulder

BRISKET
- brisket
- shank

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 which will grade Canada Prime. 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 color 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 Prime carcass must be greater than or equal to 2 mm.

Look for a carcass that has ample red meat. The muscles should be large 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 muscles 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.

The Canadian beef grading system fulfils the primary purpose of dividing the population of cattle carcasses into uniform groups to facilitate marketing. The system provides an effective means of describing product that is easily understood by both buyers and sellers.

In Canada, beef grading is provided through the Canadian Beef Grading Agency in abattoirs, which receive either federal or provincial government meat inspection services. Grade standards and regulations are enforced by Government of Canada (Canadian Food Inspection Agency) employees.

There are thirteen (13) beef grades in the Canadian system. They are:

> Canada A, Canada AA, Canada AAA, Canada Prime
> Canada B1, Canada B2, Canada B3, Canada B4
> Canada D1, Canada D2, Canada D3, Canada D4
> Canada E1

The key grading criteria for the quality grades are:

- Carcass maturity
- Muscling
- Meat quality
- External fat covering
- Marbling

For full details on the "Specifications for Canada's Beef Carcass Grading Regulations", please refer to the "4-H Beef Program – Manitoba Livestock Education System" binder or visit www.cbef.com

More About Beef

Let's learn a few simple rules about beef cattle. You can apply these to judging both market animals and breeding stock. Circle "Truth" or "Not".


Tell Me – "Is this the Truth...or Not?"

Rule #1	Cattle grow and develop in a genetically determined way. We cannot change the composition of cattle.	Truth	OR	Not
Rule #2	Muscle and fat are laid down evenly over the body of the beef animal.	Truth	OR	Not
Rule #3	Of the three components of cutability (bone, muscle, and fat), bone changes the least from one animal to the next.	Truth	OR	Not
Rule #4	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.	Truth	OR	Not
Rule #5	An animal lays down all its muscle before laying down fat.	Truth	OR	Not

Yes, all of the rules are **truths**. Let's take a closer look at each of these rules to help you understand how the beef machine works.

Rule #1

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.
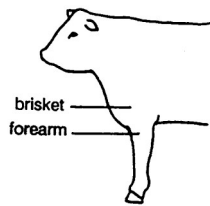

Rule #2

Muscle and fat are developed evenly in the 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 proportions of one muscle type to the next are 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 proportions 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 hindquarter, then he will be well muscled over his entire body.

This same principle applies to fat. Fat accumulates in certain places on the 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.
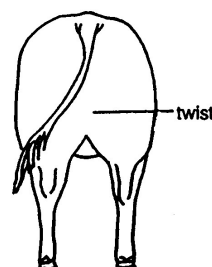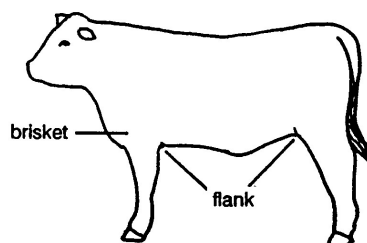

9

Rule #3

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 and 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 skeleton. What could account for the difference you see in their size and weight? It must be either muscle or fat.
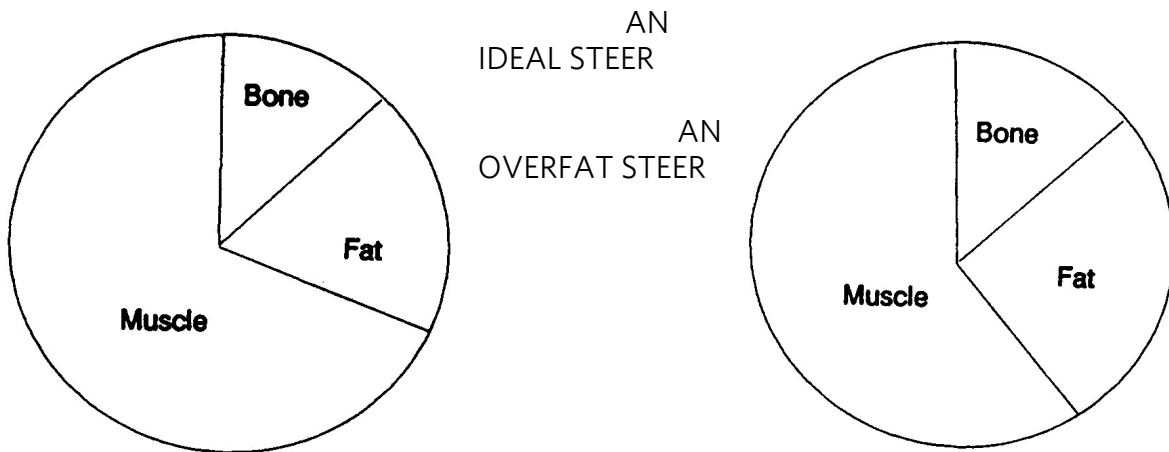
AN
IDEAL STEER

AN
OVERFAT STEER

Rule #4

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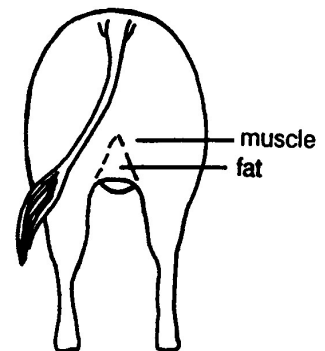
The same goes for the twist area. All beef are cut up in the twist. The muscle located in the twist is long and flat and cuts up high into the hip. If your live steer is full in the twist most of the way down to the hock, you know that this area must be filled with fat as muscles do not and never will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

Rule #5

Animals grow and develop in a set way. They always lay down muscle before they lay down any significant amount 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.
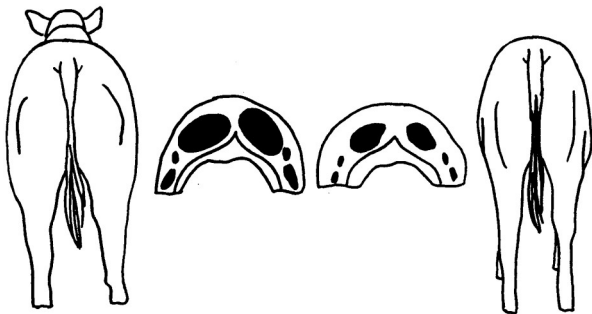
Both of these steers have finished developing muscle. If you continue to feed them they will lay down more fat, but no more muscle or meat.

Class Live Scoring

Live scoring consists of a live evaluation of Lean Yield, Usefulness of Animal and Gain and Quality Grade Score. Use the 4-H Market Livestock Education System – Beef Score Card to place the live animals.

Lean Yield: When a carcass qualifies for Canada Prime or any of the Canada A Grades a prediction of yield is also made. It is an estimation of the percentage of the carcass that is red meat. Meat yield is influenced by the degree of muscling and thickness of fat. The larger the rib eye the greater amount of fat the animal can carry to achieve a higher yield grade. Scan data of back and rib eye area can assist in determining a lean yield.

Usefulness: Total muscling, total trimness, growth/frame and structure/balance of the animal is evaluated on a scale of low to excellent. Traditional judging equates this with "seeing the animal".

Gain & Quality: Looking at the live animal the judge estimates if it is a B, A, AA or Better. Referring to the rate of gain information the grid will score the animal. Usually the greater the fat thickness the greater the marbling that has occurred (breed differences influence the degree of marbling).

Manitoba Livestock Education System

Number		Weight	A.D.G.		Scan Data	

LEAN YIELD

Yield Grade		Range	Score	
High	1	>61.0%	20	
Medium	1	60.0-60.9	18	
Low	1	59.0-59.9	16	
High	2	58.0-58.9	14	
Medium	2	56.0-57.9	11	
Low	2	54.0-55.9	8	
	3	<53.9%	5	
Maximum Score Available 20			**Score**	

USEFULNESS EVALUATION
Score Range 1 – 9

Trait	Low	Fair	Avg.	Good	Excellent	
Total Muscling	1	3	5	7	9	
Total Trimness	1	3	5	7	9	
Growth/Frame	1	3	5	7	9	
Structure/Balance	1	3	5	7	9	
Maximum Score Available 36					**Score**	

GAIN & QUALITY GRADE

A.D.G.	B	A	AA or Better	
2.4 or <	14	30	42	
2.6	17	33	45	
2.8	19	35	47	
3.0	21	37	49	
3.2	23	39	51	
3.4	25	41	53	
Maximum Point Spread/Grade 11			**Score**	

Comments:	Beef Live Weight Bonuses	
	<1050	0	
	1051-1150	+3	
	1151-1350	+5	
	1351-1450	+3	
	>1451	0	**TOTAL (Max. 114)**

Printed Sept. 2001

Live Weight Bonuses: Bonuses for animals that are ideal for market conditions.

Judging the Market Animal

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 others in the beef industry. Live animal appraisal techniques are used in the showing, the feedlot, on pasture and at the auction sale to assess the quality of beef animals. This is what is referred to as "judging beef" – the art of visually comparing and ranking beef cattle.

The ideal market steer weighs 1100 – 1250 pounds and possesses enough size and scale to carry this weight with a minimum of finish. The steer should demonstrate enough finish to indicate a high quality carcass (Canada AAA or USDA choice grade), but yet a minimum of finish to increase carcass cutability. Heavy muscling is desired in the high priced cuts.

Selecting Slaughter Animals – Some Main Points to Remember

The meat type animal of today has a high percentage of muscle and low percentage of fat. The best indicators of muscling are:

- Thickness through the rear quarter
- Natural thickness and turn over the edge of the top
- Muscling in the forearm
- Natural width of leg placement

When you judge market steers, 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 BODY WEIGHT

There are three components influencing cutability. These 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 eye 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.

The 5 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 5 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.
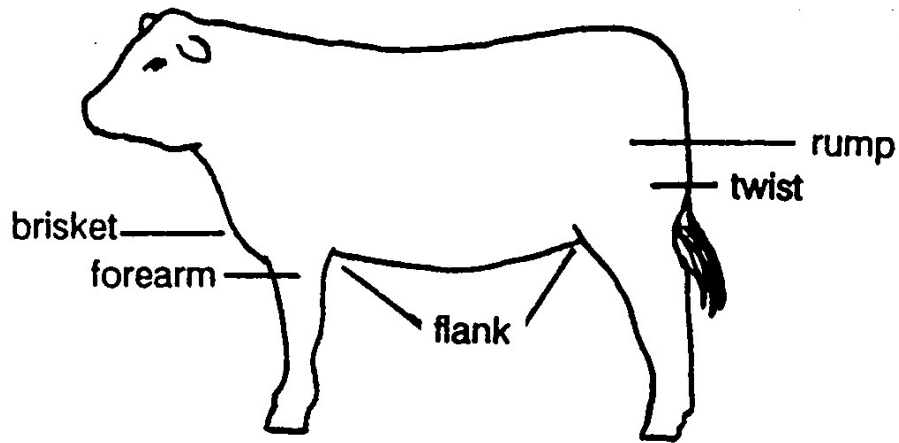

The Brisket (view from the front and the side)

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.

Ideal Steer   Overfat Steer
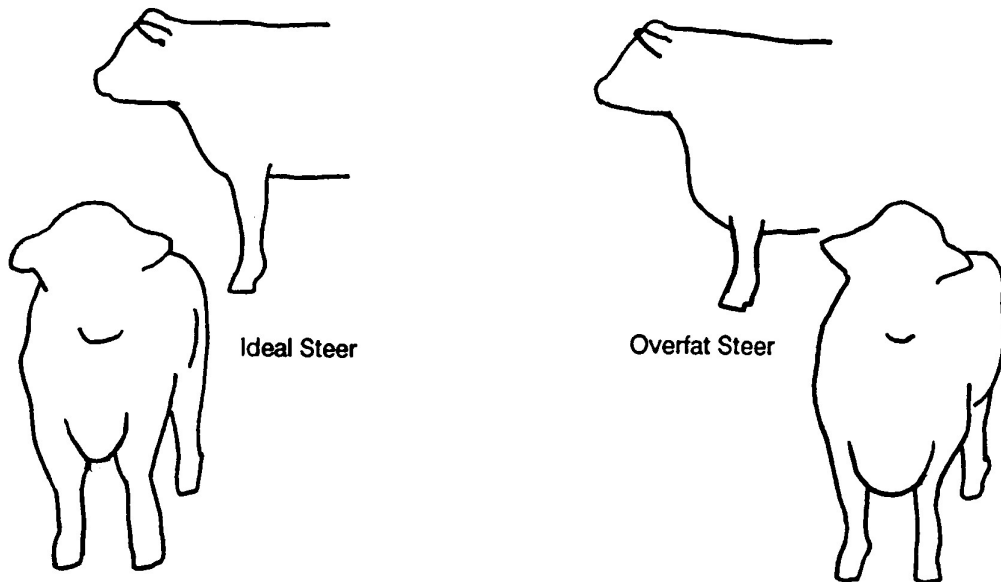
The Flank (view from the side)

If we look at the muscular structure of the 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.
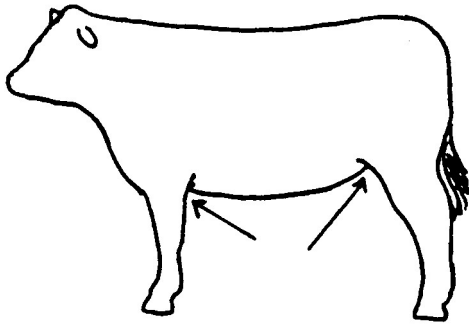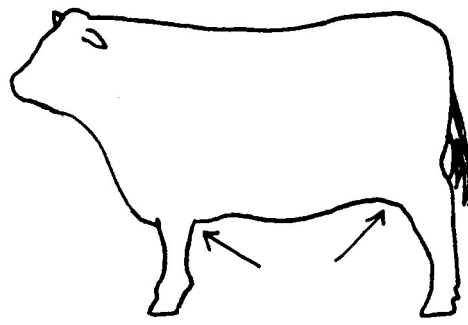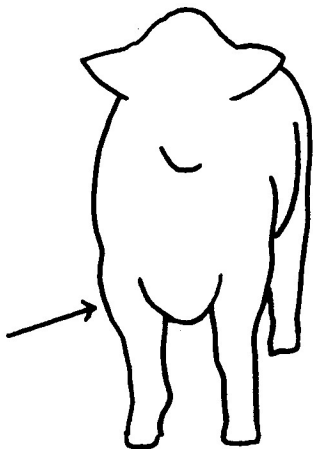
Ideal Steer   **Overfat Steer**

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.
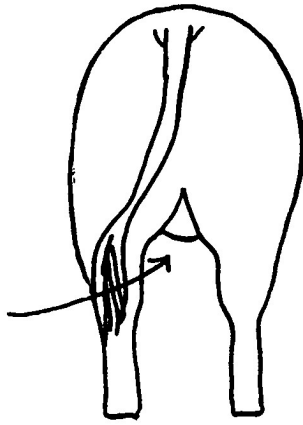
Ideal Steer   **Overfat Steer**

14

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.


| Ideal Steer | Overfat Steer |

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 the steer has a flat, square rump, it cannot be full of muscle because muscles are not square and rectangle. 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.
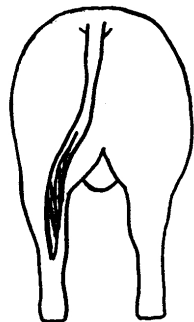
| Ideal Steer | Narrow Steer |

15
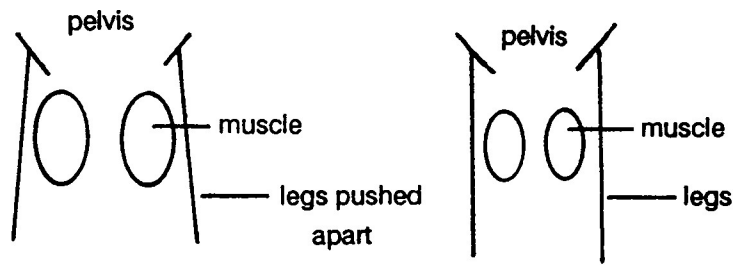
Once you have viewed the animal at a distance and evaluated 5 areas, move in for a closer look. There are points on the steer that contain no muscle or meat, just bone and hide, and…if the animal is finished, a certain amount of fat.

Evaluating Finish

A steer should be muscular with indications of a high meat yield. He should show muscling when viewed from any angle plus have the necessary fat cover. This muscling is indicated by bulges and creases rather than smoothness, as seen in over-finished or less muscular steers.

A muscular, correctly finished steer is:

- Thick or widest through middle of the rounds.
- Wide at pins. Stands and walks wide on hind legs. Wide, thick back, loin and rump with correct onset shape or turn over top. Carries muscling well down on legs. Tailhead may be prominent – no excessive fat deposits.
- Muscle creases evident.
- Large rib-eye with minimum covering of finish.

An average muscled, over-finished steer is:

- Wide at the top but tapers in width from top to bottom of round.
- Full deep twist denoting excess fat.
- Lacks muscle in the middle round.
- Flatness over the rump and loin indicating muscle and excessive finish. Rib-eye muscle is smaller with excessive finish.

The easiest place to determine the finish of the steer is over the ribs. Feel the ribs about half way 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 be only 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 fingertips. The tips of your fingers tickle the animal and make it prone to kick or fidget.

16
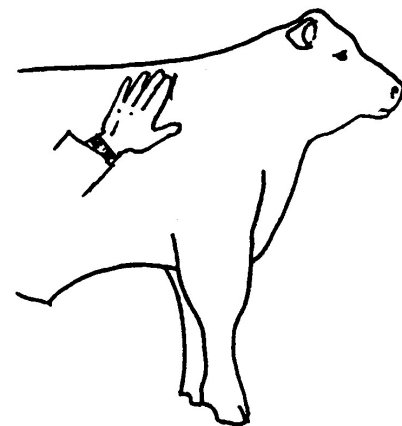
In the showring, market animals are also evaluated on the way they walk, style and eye appeal, shape of the head, etc. Remember that these things do not affect the quality of meat so don't place more importance on these points than you do on muscling and fat. When placing your class of steers, consider 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!
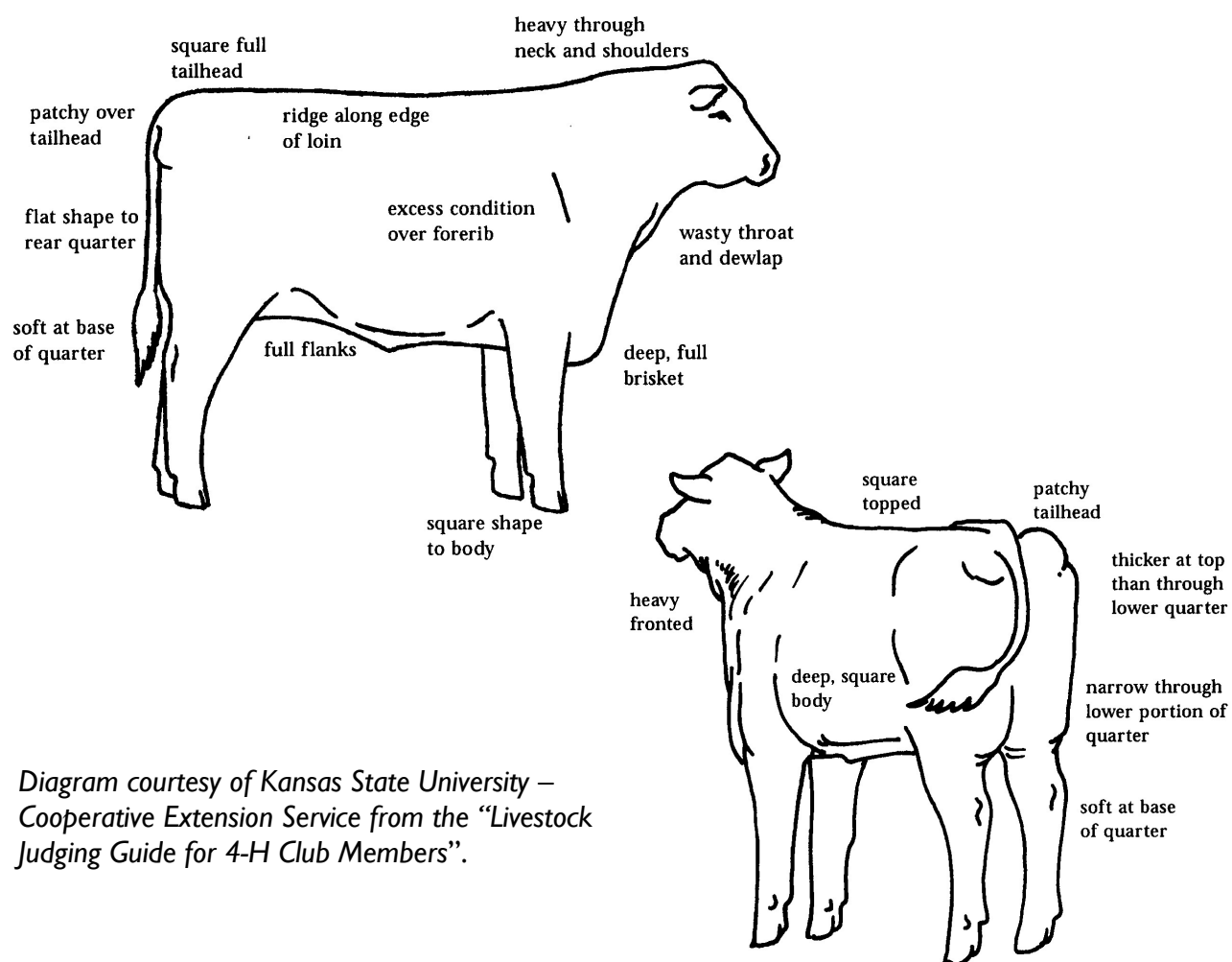
The Ideal Steer

heavy through
neck and shoulders

square full
tailhead

patchy over
tailhead

ridge along edge
of loin

flat shape to
rear quarter

excess condition
over forerib

wasty throat
and dewlap

soft at base
of quarter

full flanks

deep, full
brisket

square shape
to body

square
topped

patchy
tailhead

heavy
fronted

thicker at top
than through
lower quarter

deep, square
body

narrow through
lower portion of
quarter

soft at base
of quarter

*Diagram courtesy of Kansas State University –
Cooperative Extension Service from the "Livestock
Judging Guide for 4-H Club Members".*

Narrow, Shallow, Light-muscled Steer

narrow topped

tight ribbed

flat, shallow rear quarter

light-muscled forearm

shallow, narrow chest floor

narrow stifle

cut up in flank

legs set close together

fine boned

narrow topped

tapering rump

shallow ribbed

narrow through lower quarter

shallow bodied

shallow quarter and stifle

narrow chest floor
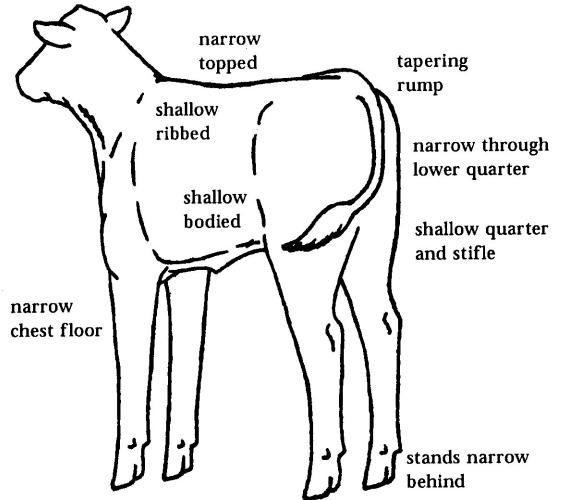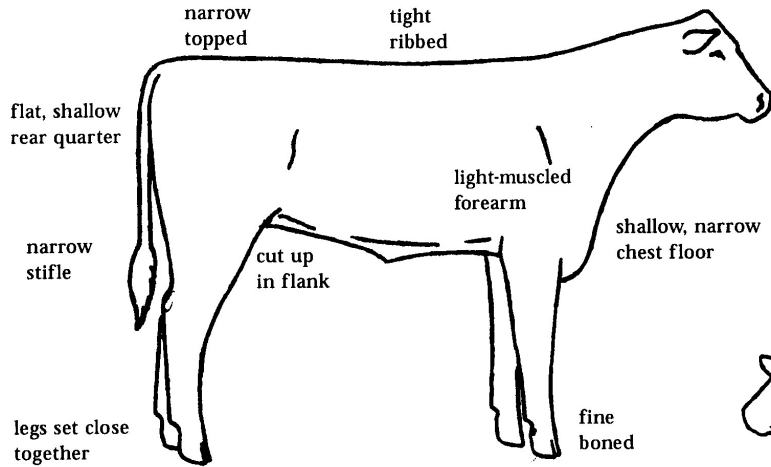
stands narrow behind

Diagram courtesy of Kansas State University – Cooperative Extension Service from the "Livestock Judging Guide for 4-H Club Members".
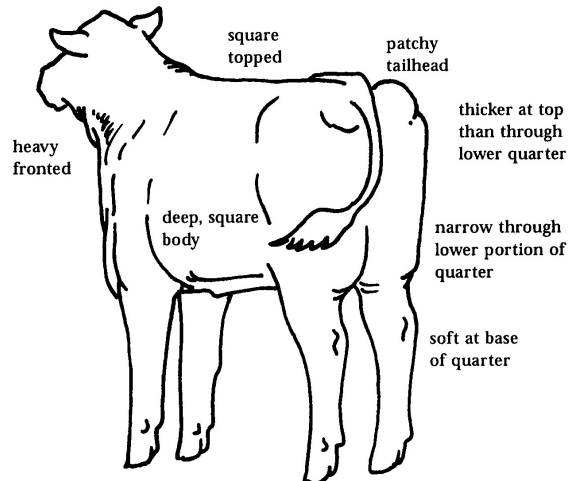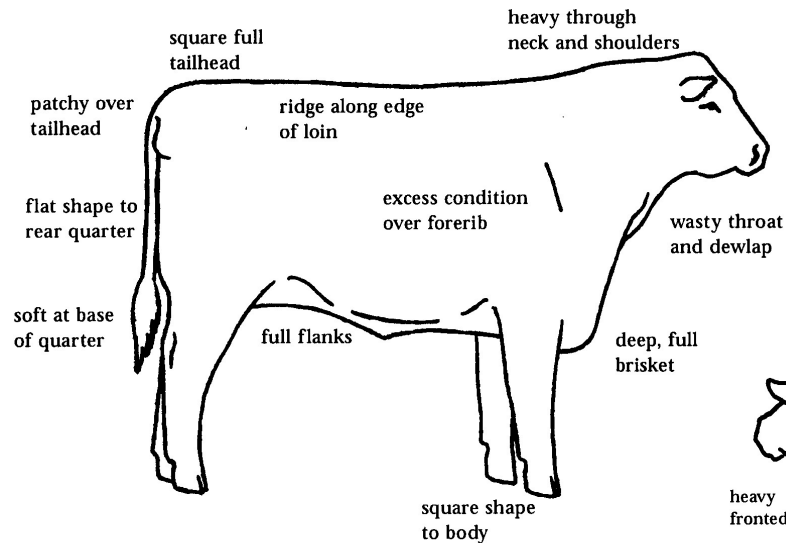
Over-conditioned, Light-muscled Steer

heavy through neck and shoulders

square full tailhead

patchy over tailhead

ridge along edge of loin

flat shape to rear quarter

excess condition over forerib

wasty throat and dewlap

soft at base of quarter

full flanks

deep, full brisket

square shape to body

square topped

patchy tailhead

heavy fronted

thicker at top than through lower quarter

deep, square body

narrow through lower portion of quarter

soft at base of quarter

Diagram courtesy of Kansas State University – Cooperative Extension Service from the "Livestock Judging Guide for 4-H Club Members".

Judging Breeding Animals

There is more to judging the breeding animal than just evaluating muscle and fat. The breeding animal must be able to last substantially longer than the 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 animals has not gone to waste! First, let's look at the ideal breeding animal.
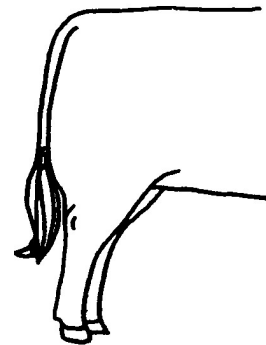
Feet and Legs

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 dewclaws should also be short and without any curl.
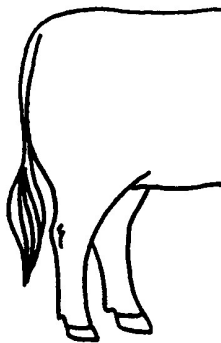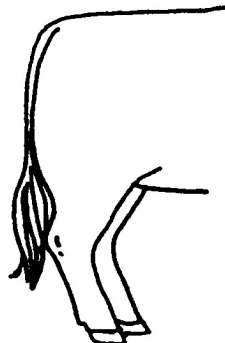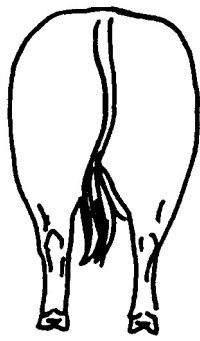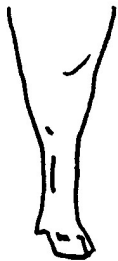

| Correct | Sickle-Hocked | Post-Legged |

Correct **Bow-Legged** **Cow Hocked**

Rear Leg: Correct Pastern Set **Rear leg: Weak Pastern**

Correct Pastern Set And Straight Front Leg **Straight Front Leg And Weak Pastern** **Back at the Knee** **Buck-Kneed**

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.

The bull should have more muscle definition than the cow or heifer and his muscles should bunch or ripple when he walks. Remember that the 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 the 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 through 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 showring. 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 the heifer
	-	udder balanced 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 which produces an inferior calf will not be profitable to you. We want cows which 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 which are not fat.

There must be a desirable amount of muscle expression in both the sire and dam for the offspring to have the 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 cow. Females should show good muscling even though the muscles will not be as pronounced as in bulls.
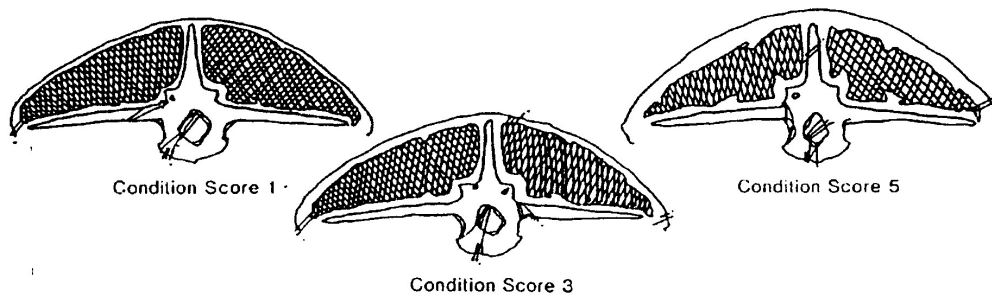
Body Condition Scoring

Something to consider if you are selecting replacement beef cows or heifers for your herd is Body Condition Scoring (BCS). BSC is a system of classifying breeding females by degrees of relative body fatness. In Canada, a five point scoring system is used. The fat cover over the loin area and tailhead is evaluated and scored.

A condition score of 1 means the animal is extremely thin. On the other end of the scale, a BSC of 5 would mean the animal is obese.
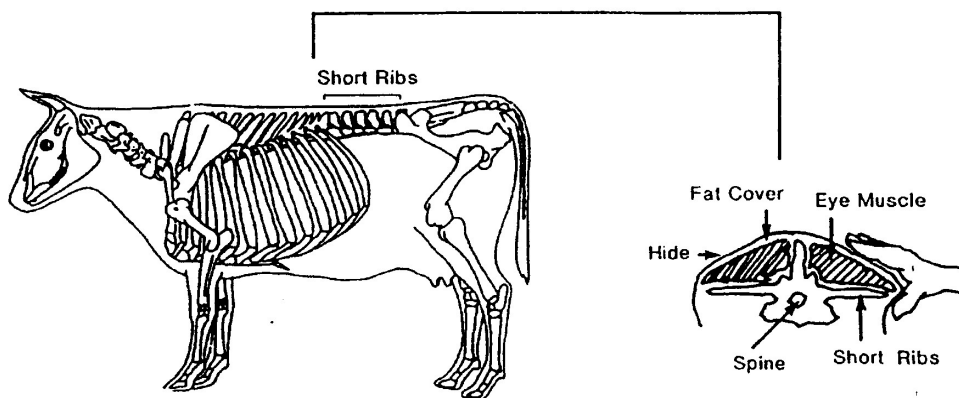
Location to Condition Score

Condition Score 1

Condition Score 5

Condition Score 3

Typical Fat Cover Over The Short Ribs in Cows in Various Body Condition Scores

Breeding females should be in moderate to good body condition (scoring 2.5 to 3) at calving time in order to:

- produce a strong, healthy calf;
- realize potential milk production; and
- regain ability to cycle again for rebreeding within 60 days of calving.

This condition scoring system enables producers to closely monitor and meet the nutritional needs of the cow herd.

Scoring should be done:

- Prior to weaning. If the animals are thin, decide whether to wean the calves and / or supplement herd.
- Prior to calving. Thin cows result in a decreased live calf crop while fat cows experience more calving difficulties.
- Prior to breeding. Animals should score no less than 2.5 at breeding. Feed animals to achieve desired body condition score for maximum reproduction performance.

Environmental and nutritional stresses can cause cows and heifers to lose condition rapidly. Adjustments must be made to the feeding program to meet the target score if cows are too thin or too fat.

Structure

Structure is the skeleton and frame or size of an animal. While there are differences in structure between the breeds, certain things remain true for all cattle. Good feet and legs are essential for good structure. The 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.
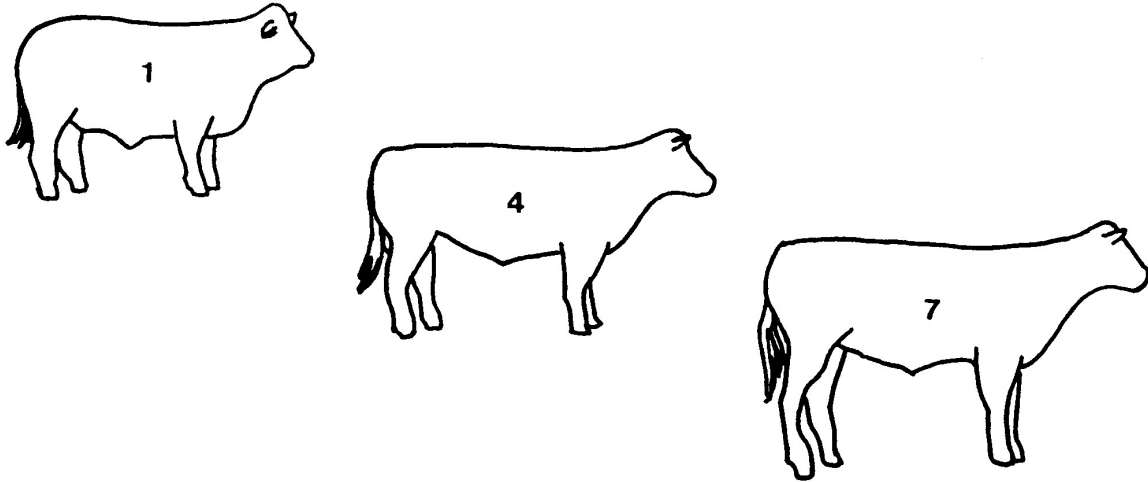
Capacity in the female means the ability to carry a calf, metabolize food, and produce large quantities of lean meat. The pins should be slightly below the hooks and the hind end should be large and wide.

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 6 to 8 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.

Ideal Heifer

feminine head

angular through neck & shoulders

long, level rump

strong topline

neat tailhead

neat, smooth shoulder

deep, long muscled rear quarter

neat throat, dewlap, & brisket

bold spring of rib

long bodied

long stifle

correct set of hocks

deep ribbed

productive appearing udder

strong pasterns

long bodied well balanced

natural thickness down back & loin

clean fronted

smooth shoulder

deep bodied

long, smooth-muscled rear quarter

deep, wide chest floor

correct set of hocks

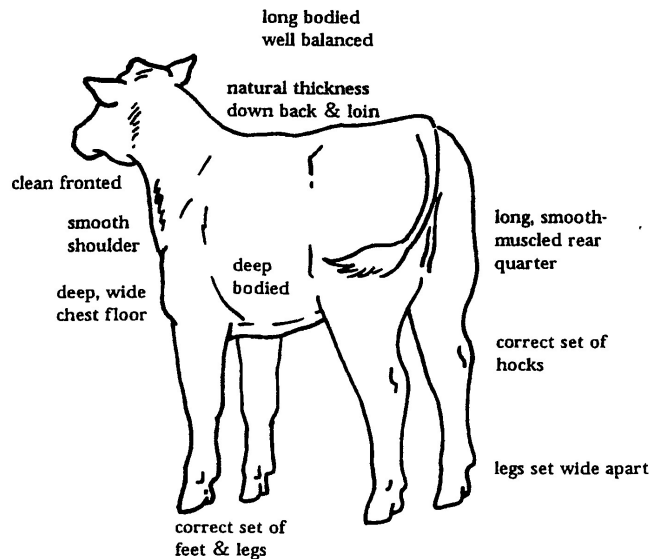legs set wide apart

correct set of feet & legs

Diagram courtesy of Kansas State University – Cooperative Extension Service from the "Livestock Judging Guide for 4-H Club Members".

24

Ideal Bull

strong masculine head

bold spring of rib

strong back

long, level rump

neat tailhead

thick muscular loin

deep, muscular bulging quarter

neat dewlap & brisket

smooth shoulder

long bodied

long, muscular stifle

muscular arm & forearm

sound reproductive organs

correct set of hocks

rugged bone

strong pasterns

long bodied well balanced

natural thickness down back & loin

wide through center & lower portion of quarter

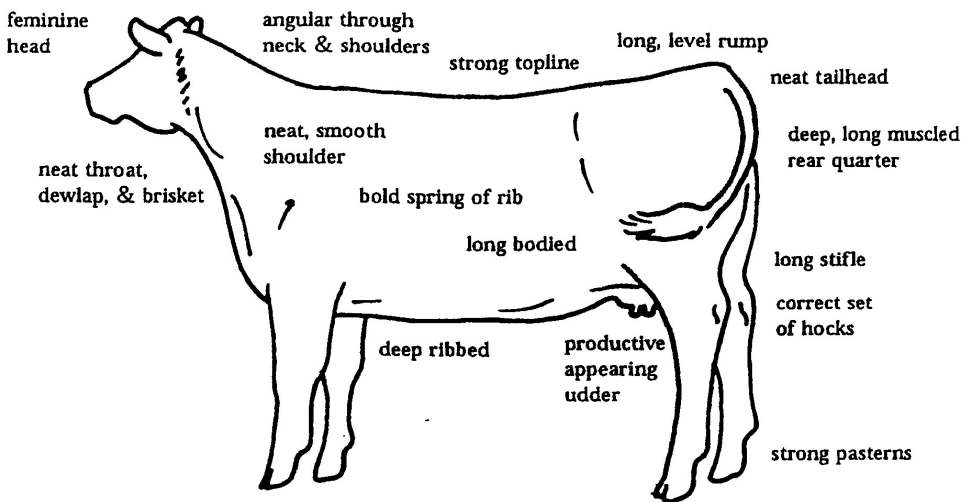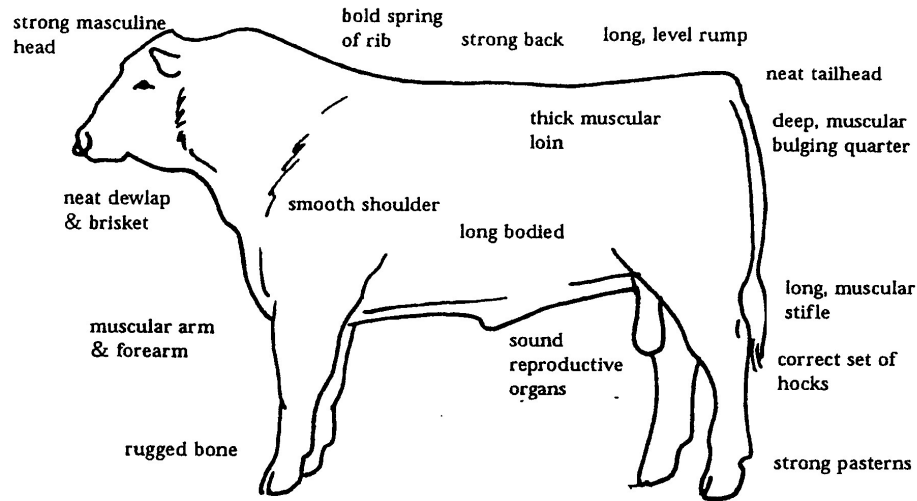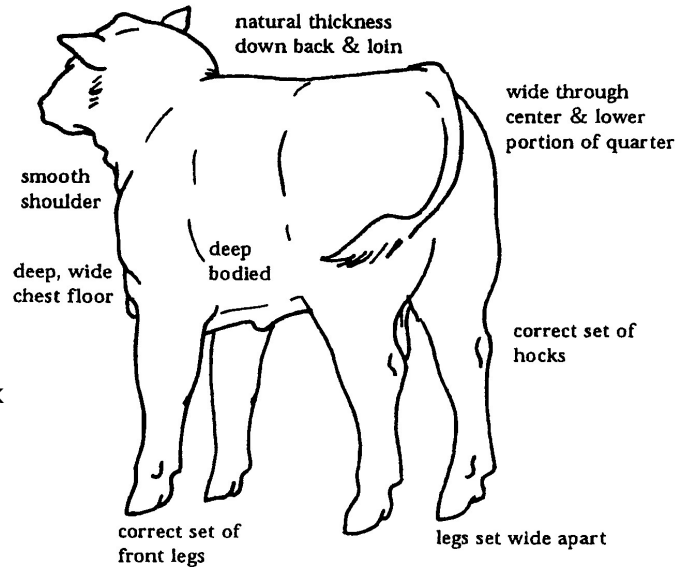smooth shoulder

deep, wide chest floor

deep bodied

correct set of hocks

Diagram courtesy of Kansas State University – Cooperative Extension Service from the "Livestock Judging Guide for 4-H Club Members".

correct set of front legs

legs set wide apart

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

| Breed Character | - | exhibits characteristics according to breed standards |

| 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
	-	moves straight and with ease

About Beef Breeds…

In the beef cattle industry, there are many different breeds. There are important differences between these breeds, which 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 color. 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 the breeds by looking at cattle magazines, breed books, promotional material printed by the Breed Associations and by attending cattle events.

Familiarity with the 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 the market steer and the breeding animal. The problem is actually picking out these things in the showring, 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 showring will help you when you go to the auction mart to buy a heifer, the neighbor's pasture to pick next years' calf, or the feedlot to pick the steers which are ready for market.

Judging will never be an exact science, but with a lot of patience 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 8 to 10 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 to feet and legs
- length of neck
- finish over ribs and forequarters

When the animals walk, watch for:

- style, freedom of movement
- correct set to 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 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 center part of the round
- freer 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 bodied, longer hipped
- 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

Sample Oral 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.

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 wasty 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 then more specific within each pair
- the reasons are positive and avoid criticizing the animals
- minimum of 3 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.

Good luck!

4-H Manitoba Contact Information

1129 Queens Avenue Brandon, MB   R7A 1L9
Phone: 204-726-6136
Fax: 204-728-9040
Email: learns@4h.mb.ca
www.4h.mb.ca