

Selection

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Ways to Start Your Project

There are several ways to start your beef project. One is to select a heifer and/or steer from your parent's or your own herd. Another is to purchase an animal from an established beef producer in your county or area. Beef producers provide many outstanding animals each year for sale on the farm or through club calf sales.

Selecting Your Calf

Selection of a project animal should be done carefully, with consideration given to breed, size, and quality. Size and quality are especially important. While management and nutrition have great influence on both, it is a big help to begin with a good animal.

At the same time, however, while you want to select the best calves you can afford, be sure that the price you pay is consistent with your objectives. For the beginner who is learning about feeding, management, etc., good quality calves bought at a modest price may be the wisest investment. Purchasing livestock at high prices does not guarantee success, nor does it mean easier management.

A successful project outcome requires that the calf has a desirable genetic background and an excellent environment while in your care.

The ideal mature market steer weighs 1,100 to 1,350 pounds, has a frame score of 5.0 to 6.5, a quality grade high-select to high-choice, and produces a yield grade of 1.0 to 2.5.

The ideal mature breeding heifer has a 5.5 to 7.0 frame score, with extra capacity and volume, exhibits structural correctness, and is feminine.

In order to succeed in raising these types of beef animals, you must start your project with the selection of an individual that will be able to grow and develop these characteristics. This handbook will give you the information you need to select good quality calves. But before discussing the characteristics of size and conformation that indicate good quality, it will be helpful (1) to review the parts of a beef animal (Figure 2.01 and 2.02) and (2) identify some of the breeds commonly available. (see color picture section in the back of this book)

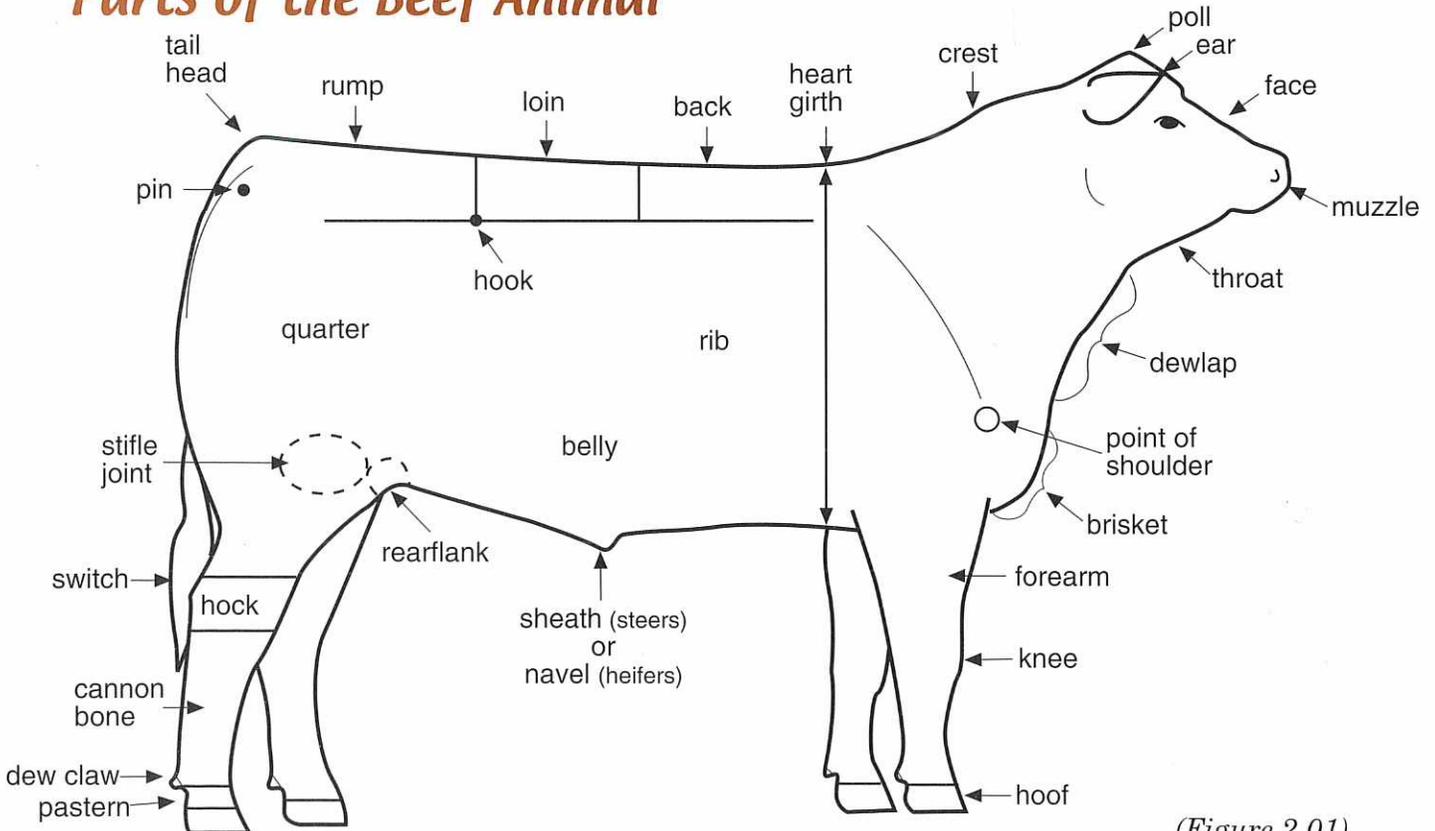


Parts of the Beef Animal

To be successful in raising and selecting beef cattle, you should know the names of the various parts of the animal and their location on the animal's body. This will help you know what to look for and accurately describe what you see.

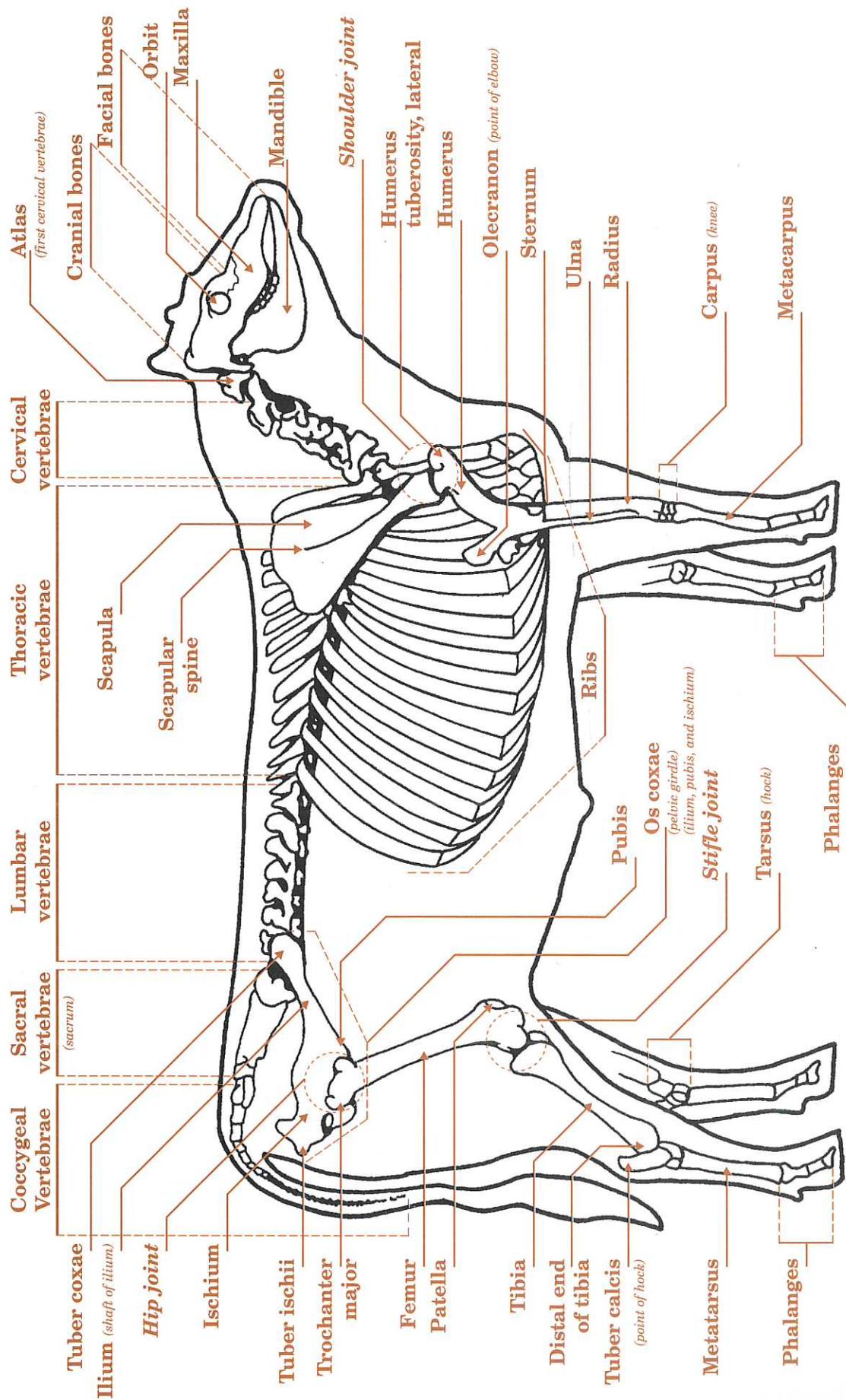
The knowledge should be permanent, at least for as long as you are involved in raising, showing, and marketing beef cattle. When talking to fellow 4-Hers, a breeder/producer, or a judge, you will want to sound knowledgeable about your project. So take some time now to study the following diagrams and become familiar with all of the identified parts of the beef animal. (Figure 2.01 and 2.02)

Parts of the Beef Animal



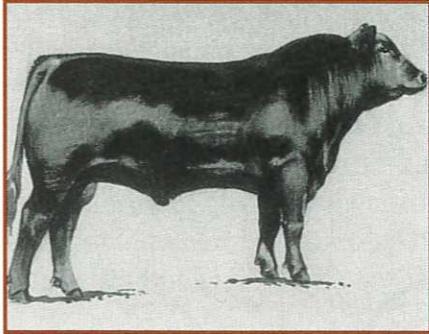
(Figure 2.01)

Bovine Skeletal Diagram



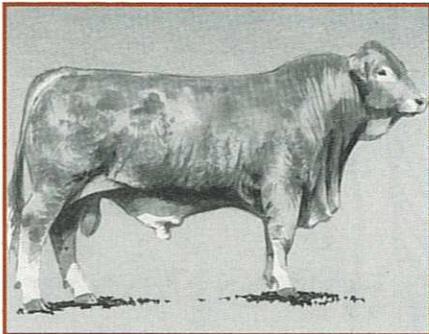
(Figure 2.02)

Breeds of Beef Cattle



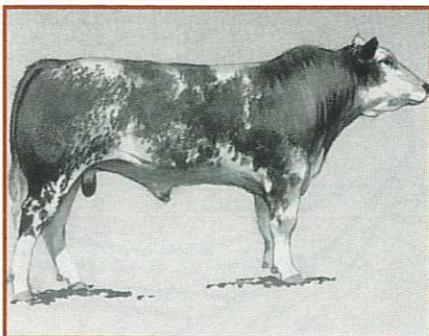
Angus

This breed originated in Scotland. These animals are polled with a black, smooth coat. They are known for their carcass quality and milking, mothering, and reproductive abilities.



Beefmaster

This breed was developed by the Lasater Ranch then headquartered in Texas in 1908. Modern Beefmasters have slightly less than 1/2 Brahman blood and slightly more than 1/4 of Hereford and Shorthorn breeding. Traits for which the breed was developed are known as the Six Essentials – weight, conformation, milking ability, fertility, hardiness and disposition. No selection has been made to characteristics that do not affect the carcass, such as horns, hide or color.

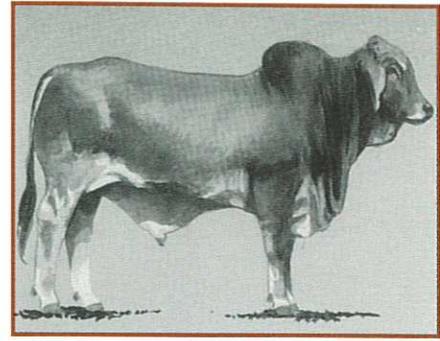


Belgian Blue

These cattle originated in central and upper Belgium. The color can be white, blue roan or sometimes black. The Belgian Blue is a large sized animal with a rounded outline and prominent muscles in the shoulder, back, loin and rump. This breed is gaining acceptance with dairy producers for dairy beef crosses. The breed is known for its quiet temperament. Some sources state poor calving ease scores are a concern and many purebred cows deliver by cesarean due to double muscling.

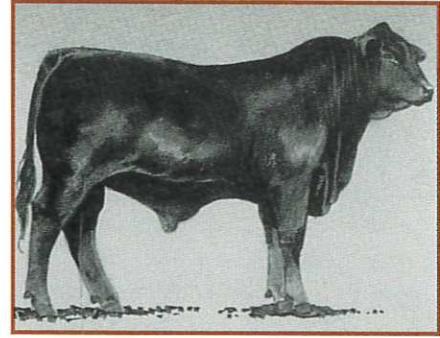
Brahman

This breed was developed in the Southwestern United States by crossing Zebu cattle from India with British breeds. The color of these animals varies from light gray or red to almost black. They are known for their ability to withstand heat and insects.



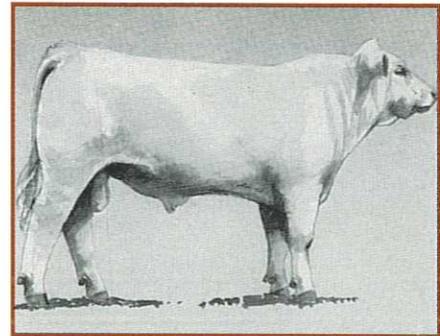
Brangus

This breed was developed by the USDA Experiment Station in Jeanerette, Louisiana in 1932. Registered Brangus must be 3/8 Brahman and 5/8 Angus, solid black and polled. The Brangus breed was created to combine strengths of the Brahman and Angus breeds.



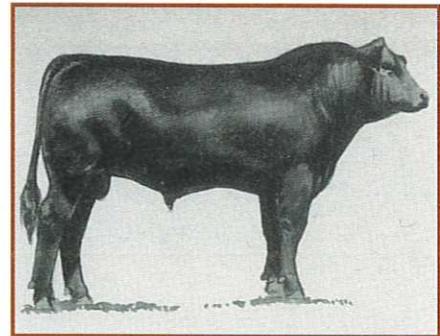
Charolais

This breed was developed in France and imported into the United States from Mexico in 1936. These animals are large and white. They are noted for their fast growth and lean meat.



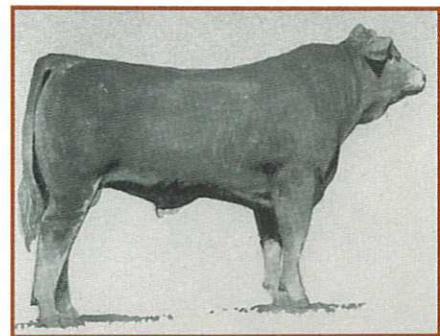
Chianina

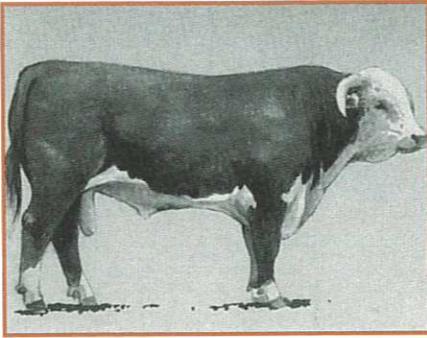
This breed was developed in Italy. These animals are white with black skin pigmentation. They are large: a mature bull can weight up to 4000 pounds and stand 6 feet tall. They are noted for their working, mothering, and beef producing abilities.



Gelbvieh

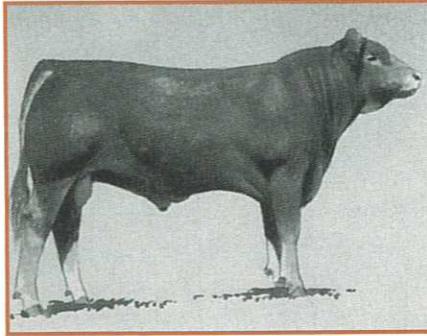
This breed originated in Germany. They are solid cream to reddish-yellow in color. These animals are known as a general-purpose breed with good milking abilities.





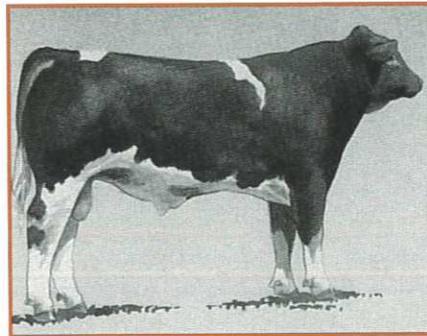
Hereford

This breed was developed in England and brought to the United States in 1817. These animals have red bodies with white faces. They are known for their foraging ability, vigor, hardiness, and quiet dispositions.



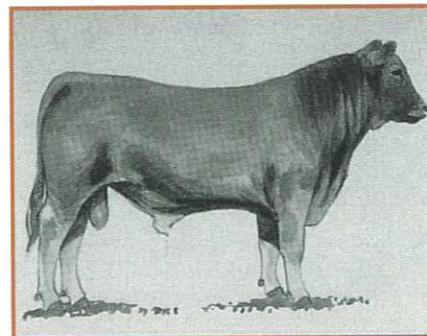
Limousin

This breed originated in the west-central part of France. They are solid-to golden-red in color with lighter circles around the eyes and muzzle. When slaughtered at an early age, these animals yield a high percentage of lean meat with a minimum amount of fat.



Maine-Anjou

This breed originated in the northwestern part of France. The coloring is a very dark red with white markings on the head, belly, and rear legs and tail. The Maine-Anjou evolved as a dual-purpose breed, with the cows used for milk production and the bull calves fed for market.

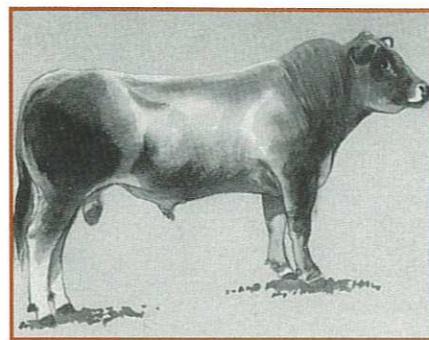


Murray Grey

This breed originated in southern New South Wales, Australia. The preferred color is silver-gray, although there are numerous variations in the shading of gray. They are a polled breed and are known for good mothering and milking abilities and good growth rates for calves.

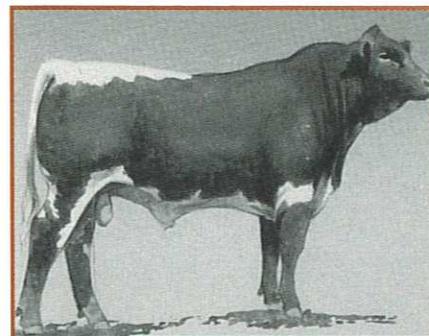
Piedmontese

This breed originated in the Piemonte region of Northwest Italy from the Auroch and the Zebu breeds. They are white or pale gray with black points. This breed is known for their double muscling.



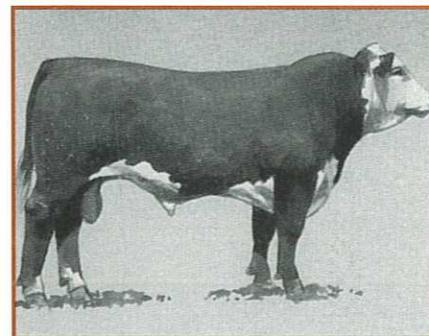
Pinzgauer

This breed first appears in Salzburg, Austria in the 1600's. Horned or Polled, Pinzgauers have pigmented skin under a chestnut red coat and white markings on the back, tail and barrel. They are known for above average weaning weights, gainability, feed conversion, and easy calving ability.



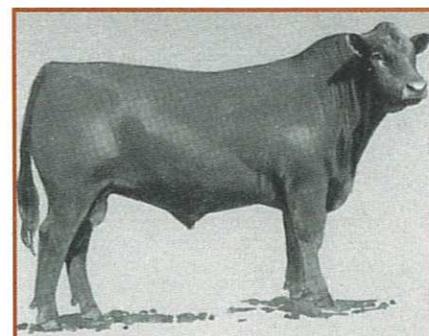
Polled Hereford

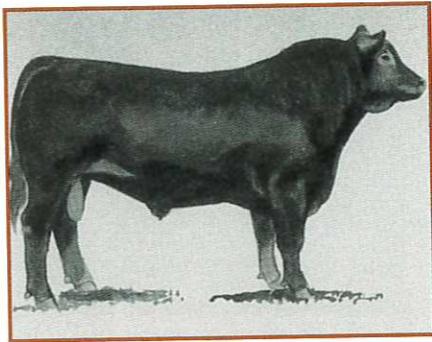
This breed was developed in the United States from the Hereford breed. Except for the polled trait, these animals exhibit the same characteristics as the Hereford breed and are registered through the American Hereford Association.



Red Angus

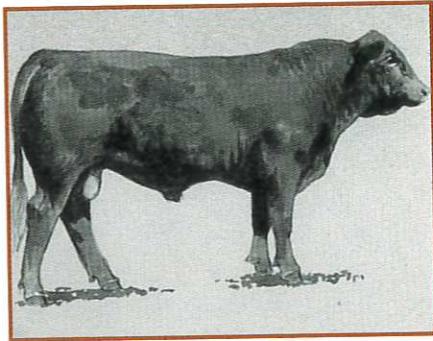
The Angus breed originated in the British Isles and recorded reference to the appearance of red cattle dates back to 1805. Hugh Watson of Keilor, Scotland arbitrarily decided that black was the proper color for the Angus breed, and therefore disregarded red ones. Red Angus possess the same qualities for which Black Angus are known and the only difference is that they are red in color.





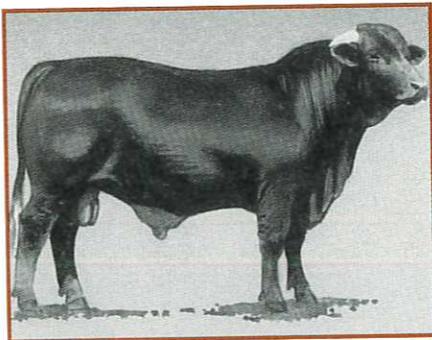
Red Poll

This breed originated in the counties of Suffolk and Norfolk, England. These cattle are polled and blood red in color. Current selection criteria on Red Poll in the U.S. are primarily for beef production or easy fattening.



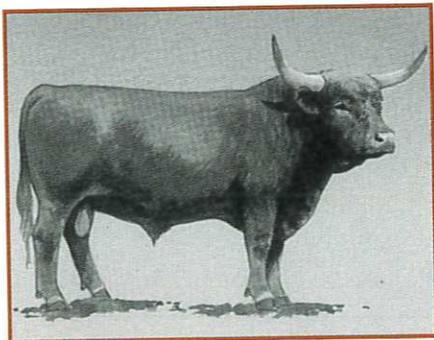
Salers

This breed is native to the Auvergne region of south France. They are typically horned and dark mahogany red in color. They are known for rapid gain, hardiness and adaptability.



Santa Gertrudis

This breed was developed on the King Ranch in Texas. These animals are 5/8 Shorthorn and 3/8 Brahman. They are known for their growth rate, long life, and hardiness.

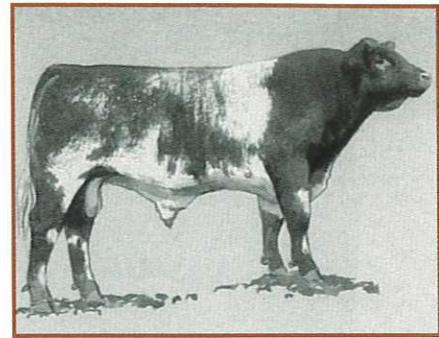


Scotch Highland

This breed has origins in the Scottish Highlands. They may be red, black, yellow, dun or silver-white in color. Despite long horns, long hair and an unusual appearance, Scottish Highland cattle are considered even-tempered animals. This is a disease resistant breed with lean, well-marbled and flavorful meat.

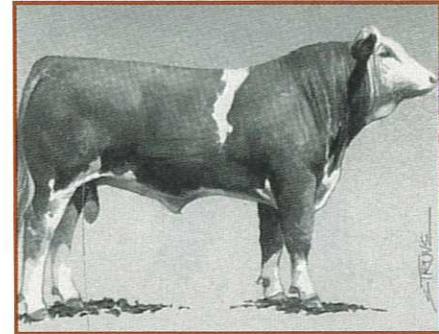
Shorthorn

This breed was brought to the United States from England in 1783. These animals can be red, white, or roan in color. They are noted for their good disposition, mothering, and milking abilities.



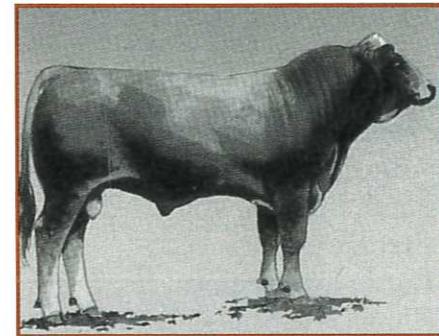
Simmental

This breed was imported into the United States from Switzerland, France, and Germany. These animals have red to dark red, spotted bodies with white to light straw faces. They are noted for their fast growth and milking abilities.



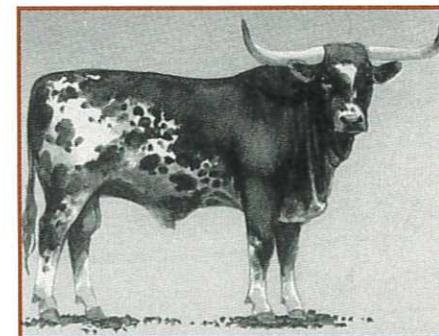
Tarentaise

This breed originated in the Tarentaise Valley in the French Alpine Mountains. These animals are solid wheat colored, ranging from cherry to dark blonde, and they have black hair around the eyes and pigmented udders and teats. They are noted for easy calving due to adequate pelvic capacity and small calves.

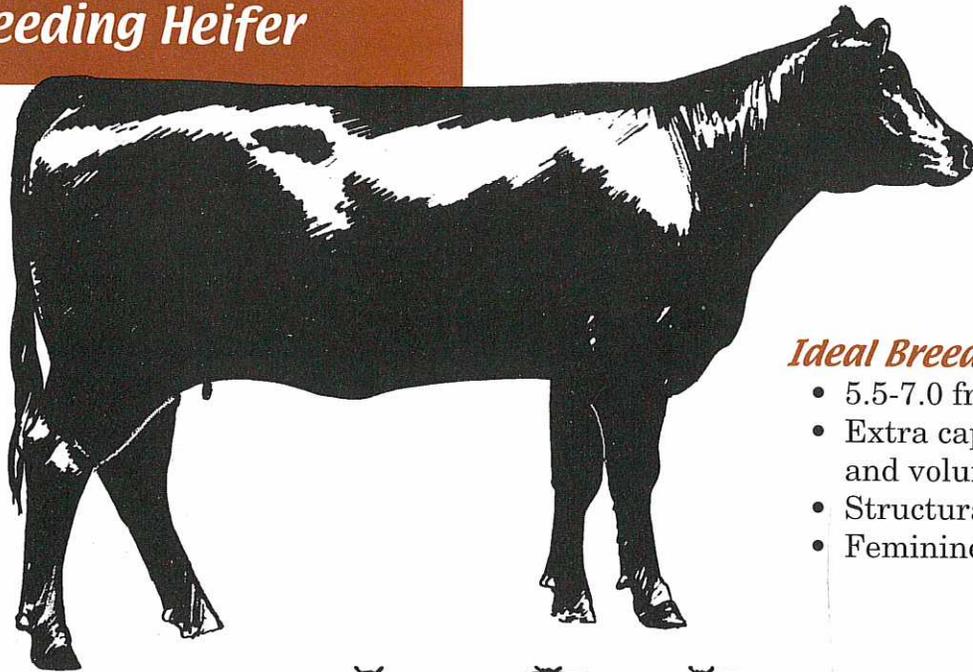


Texas Longhorn

This breed originated from Spanish Andalusian cattle. These animals have long horns and several different color patterns. They are known for their longevity, hardiness, strong survival instincts, and resistance to disease and parasites.



The Ideal Breeding Heifer



Ideal Breeding Heifer

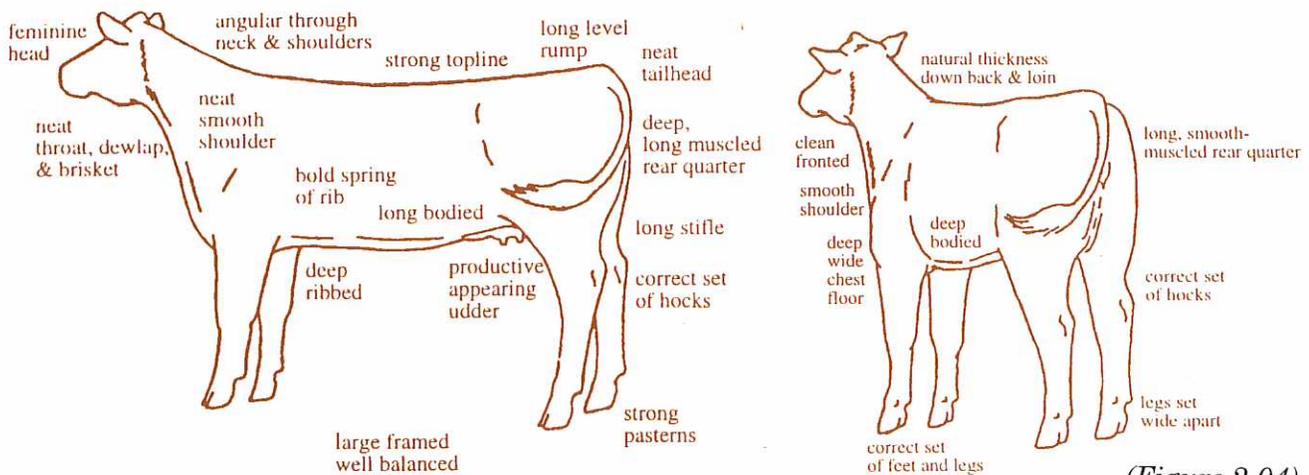
- 5.5-7.0 frame score
- Extra capacity and volume
- Structurally correct
- Feminine

(Figure 2.03)

Describing the Ideal Heifer

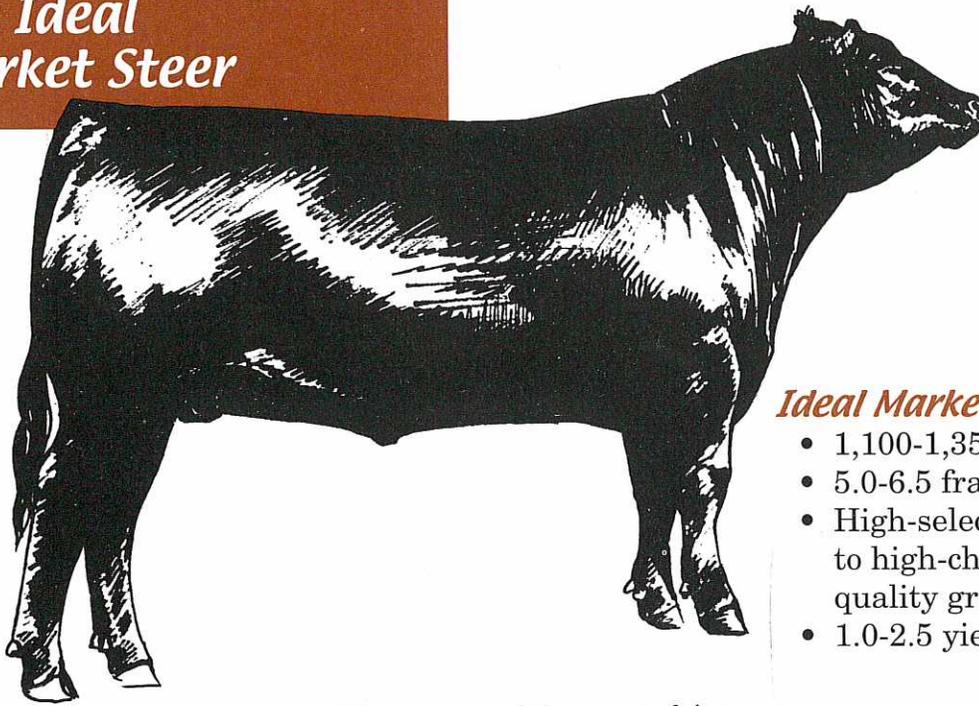
(Figures 2.03 and 2.04)

- Feminine head
- Neat throat, dewlap, and brisket
- Angular through neck and shoulders
- Neat, smooth shoulder
- Strong topline
- Long, level rump
- Smooth tailhead
- Deep, long smooth muscled rear quarter
- Long stifle
- Correct set of hocks
- Strong pasterns
- Productive appearing udder
- Long-bodied
- Bold spring of rib
- Deep-ribbed
- Large frame, well balanced
- Natural thickness down back and loin
- Legs set wide apart
- Correct set of feet and legs
- Deep-bodied
- Deep, wide chest floor
- Clean-fronted



(Figure 2.04)

The Ideal Market Steer



Ideal Market Steer

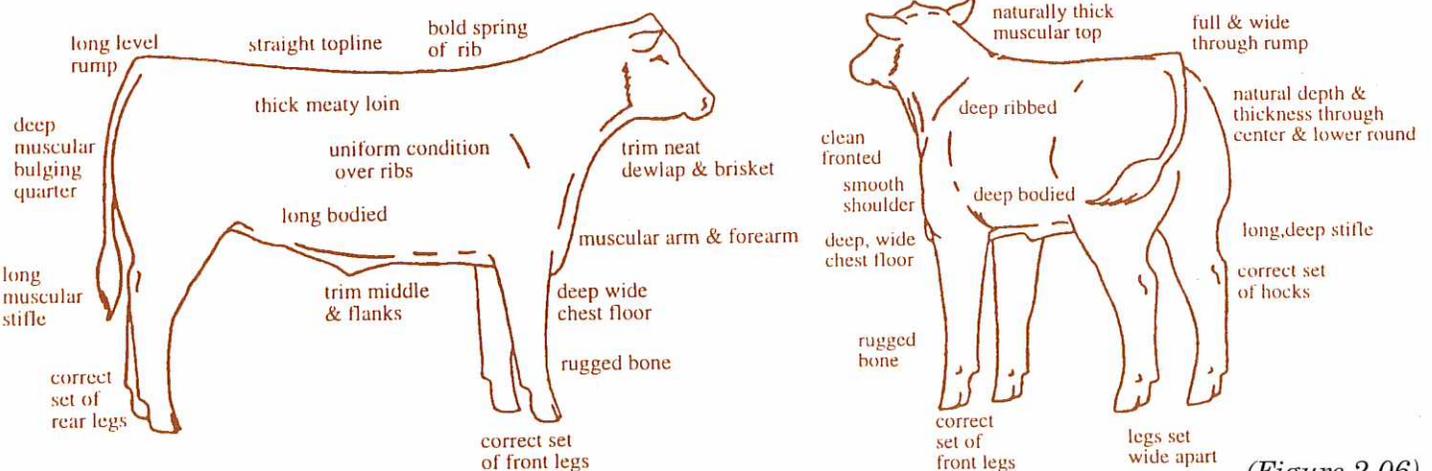
- 1,100-1,350 pounds
- 5.0-6.5 frame score
- High-select to high-choice quality grade
- 1.0-2.5 yield grade

(Figure 2.05)

Describing the Ideal Market Steer

(Figure 2.05 and 2.06)

- Long, level rump
- Straight topline
- Bold spring of rib
- Thick, meaty loin
- Uniform condition over ribs
- Trim, neat dewlap and brisket
- Muscular arm and forearm
- Deep, wide chest floor
- Rugged bone
- Correct set of front legs
- Trim middle and flanks
- Long-bodied
- Correct set of rear legs
- Long, muscular stifle
- Deep, muscular bulging quarter
- Naturally thick, muscular top
- Full and wide through rump
- Natural depth and thickness through center and lower round
- Long, deep stifle
- Correct set of hocks
- Legs set wide apart
- Smooth shoulder
- Clean fronted
- Deep-ribbed
- Deep-bodied



(Figure 2.06)

Structural Differences

- **Splayfooted or Knock Kneed** – When viewed from the front, the knees are close together and the feet toe out away from each other. This problem is often seen in extremely light-muscled, narrow-chested cattle when the legs are naturally set too close together.

- **Pigeon Toed or Bowlegged** – When viewed from the front or rear, the knees set too far out, causing the toes to turn inward.

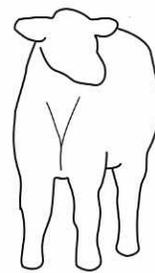
- **Cow Hocked** – When viewing the hind legs from the rear, the hocks are turned inward or are placed too close together, causing the toes to turn outward.

- **Buck Kneed** – When the calf is “over at the knees,” or buck kneed, full extension of the knee cannot occur. When observed from the side the legs appear slightly bent. This is usually seen in cattle that are too straight in the shoulder.

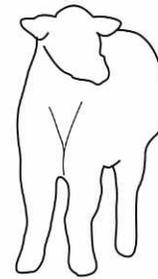
- **Calf Kneed** – This is the other extreme, the opposite of buck kneed, where the calf stands “back at the knees” when viewed from the side.

- **Sickle Hocked** – When viewing the rear legs from the side, the hock has too much angle or set, causing the steer to stand too far underneath himself. Often these calves will droop excessively from hocks to pins.

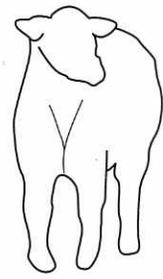
- **Postlegged** – The hock has too little angle or set. The calf is too straight through the joint, resulting in very stiff, restricted movement because of the lack of flexibility. More cattle become unsound because of being postlegged than sickle hocked.



correct



knock kneed or splayfooted



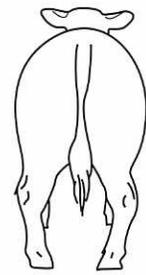
bowlegged or pigeon toed



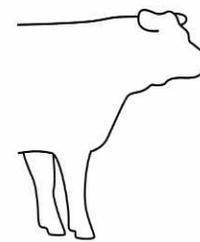
correct



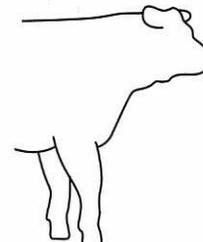
cow hocked or splayfooted



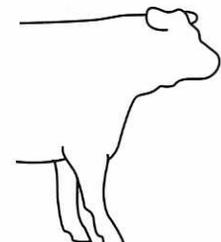
bowlegged or pigeon toed



correct



buck kneed



calf kneed



correct



sickle hocked



postlegged

(Figure 2.07)



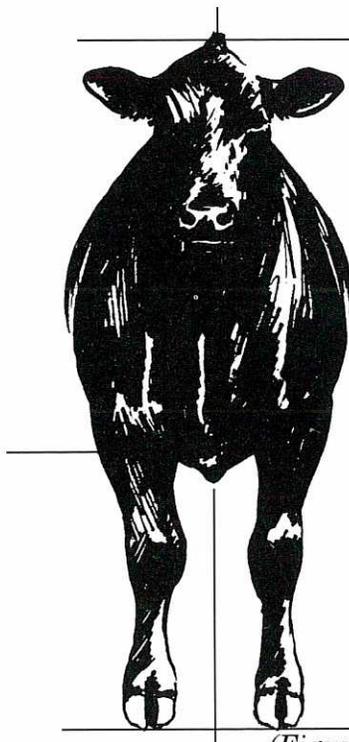
Evaluation of Breeding Cattle

When evaluating breeding cattle, several important characteristics must be examined. Body composition, frame size, structural correctness, sex character, and overall balance must be considered when evaluating a breeding animal. Traits that contribute to productivity and longevity must be emphasized. (Figures 2.08a and 2.08b)

Volume and Capacity

Current emphasis is placed on animals with more three-dimensional (length, width, and depth) volume and capacity, natural muscling, and fleshing ability. Traits that contribute to this include:

- spring of rib
- depth of rib
- width of chest
- more natural thickness and shape down the top
- thickness of quarter
- width and depth of stifle



(Figure 2.08a)

Frame Size

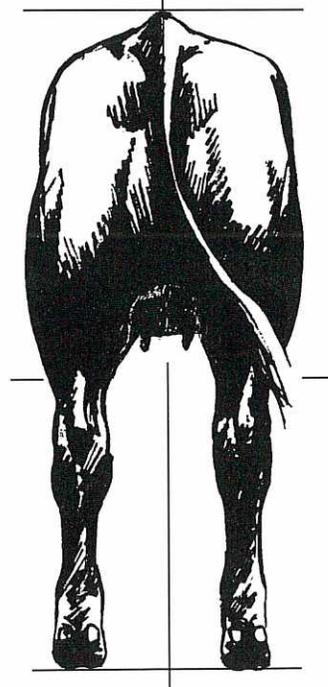
Modern breeding cattle must exhibit adequate growth for their age. Skeletal height in relationship to age contributes to the animal's overall frame score. Cattle should be above average in height but not extremely tall, and should possess extra length of body. Traits that are desirable in regard to frame score are:

- above average hip height (frame score 6.0-7.0)
- extra length of body
- long rump
- above average weight per day of age

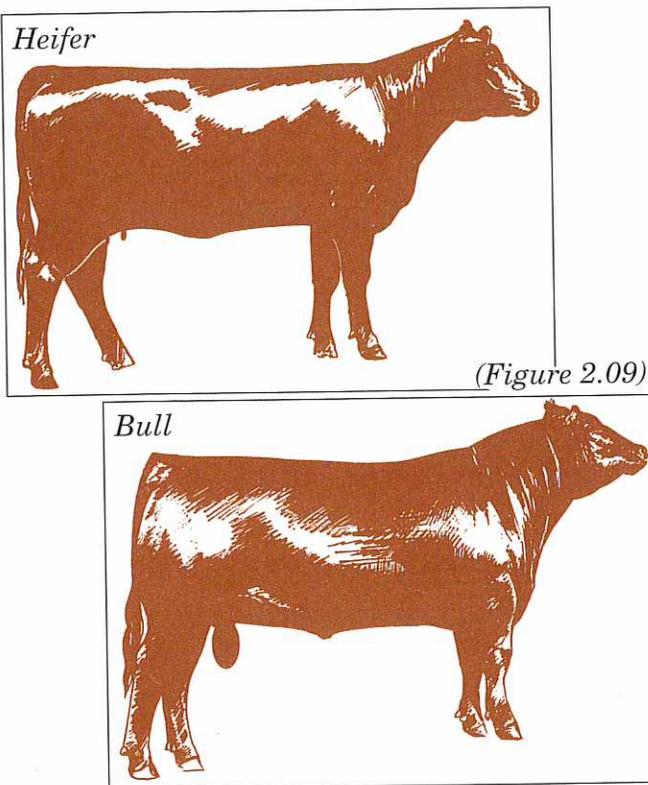
Structural Correctness

Animals that are more structurally correct will be better able to withstand the rigors of pasture conditions and thus increase their odds of being productive for longer periods of time. Structural correctness is emphasized more in breeding cattle than in market cattle. Look for animals that have the following characteristics:

- stand squarely on front and rear legs
- heavy boned
- move with a long, reaching stride
- level from hooks to pins
- possess adequate set (flex) to the hocks
- proper slope to the shoulder
- large round foot with deep heel



(Figure 2.08b)



Sex Character

Differences in sex character are important when judging breeding cattle. There are important differences between females and males. (Figure 2.09)

Femininity is exhibited by a long, refined head that is sharp about the poll. Females should possess a long, trim neck and be smooth about the shoulders.

Masculinity is exhibited by a long head that is slightly broader between the eyes and flatter about the poll. Males should be long necked and display a crest of the neck. Testicular development should be evident and increase with maturity.

Balance

Traits that relate to balance contribute to the overall appearance of an animal. Characteristics that are considered desirable include:

- straightness of lines
- strong topped
- level rump
- smoothness of shoulder
- clean and trim brisket
- balanced underline

Evaluation of Market Cattle

When selecting and evaluating market cattle, 4-Hers must keep in mind the purpose of these animals. The primary function of market animals is meat production. Therefore, traits such as muscling and finish are emphasized. Frame size and structural correctness are examined but to a slightly lesser degree than in breeding cattle. (Figures 2.10a and 2.10b)

Muscling

Modern market cattle should exhibit extra muscling down their top and through their quarter. These are the areas from which the high-priced cuts come. Traits that are found in the ideal market steer include:

- natural thickness down the top
- muscular loin
- long, level rump
- wide through the center of the quarter
- wide, deep stifle

Finish

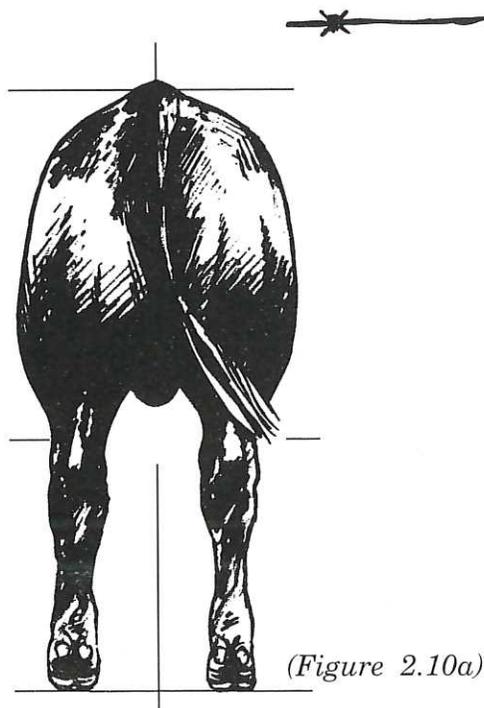
Finish refers to the amount of fat cover a market animal possesses. An ideal market animal should have the minimal amount of body fat and still be able to reach the Choice quality grade. Desirable traits in regard to finish include:

- smooth and uniform fat cover over ribs
- uniform depth of body
- freedom from fat patches around tailhead
- no excessive fullness in brisket

Frame Size

Current trends in market cattle frame size have shifted toward moderation. Market cattle should have enough frame to enable them to reach an acceptable market weight (1,100-1,350 lbs.) at 12-18 months of age. Acceptable traits for today's frame size include:

- moderate hip height (frame size 5.0-6.5)
- extra length of body
- long rump

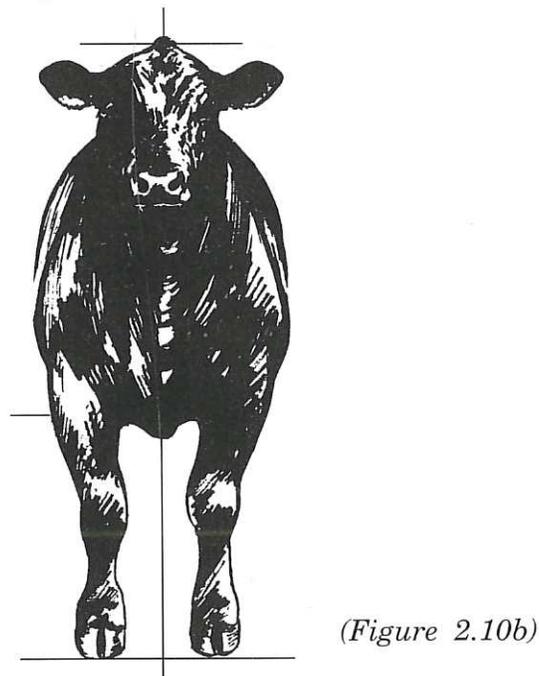


(Figure 2.10a)

Structural Correctness

While it is not emphasized as greatly as it is with breeding cattle, structural correctness is an important selection criteria when judging market animals. As with breeding cattle, look for animals that:

- stand squarely on front and rear legs
- heavy boned
- move with a long, reaching stride
- nearly level from hooks to pins
- possess adequate set (flex) to the hocks
- have a proper slope to the shoulder



(Figure 2.10b)

For more information on selection of beef animals refer to the Ohio 4-H bulletin # 103R Beef, Sheep and Swine Selection and Evaluation and # 104R the Pennsylvania 4-H Livestock Judging Manual

Evaluation of Feeder Calves

The selection and evaluation of feeder calves is very similar to that of market cattle. Keep in mind the feeder calf will eventually become a market animal so meat production should be emphasized. One significant difference when evaluating feeder calves is that finish, or fat cover, is not a priority. In fact, excessively fat feeder calves can be an indication of small frame size or very early maturity.

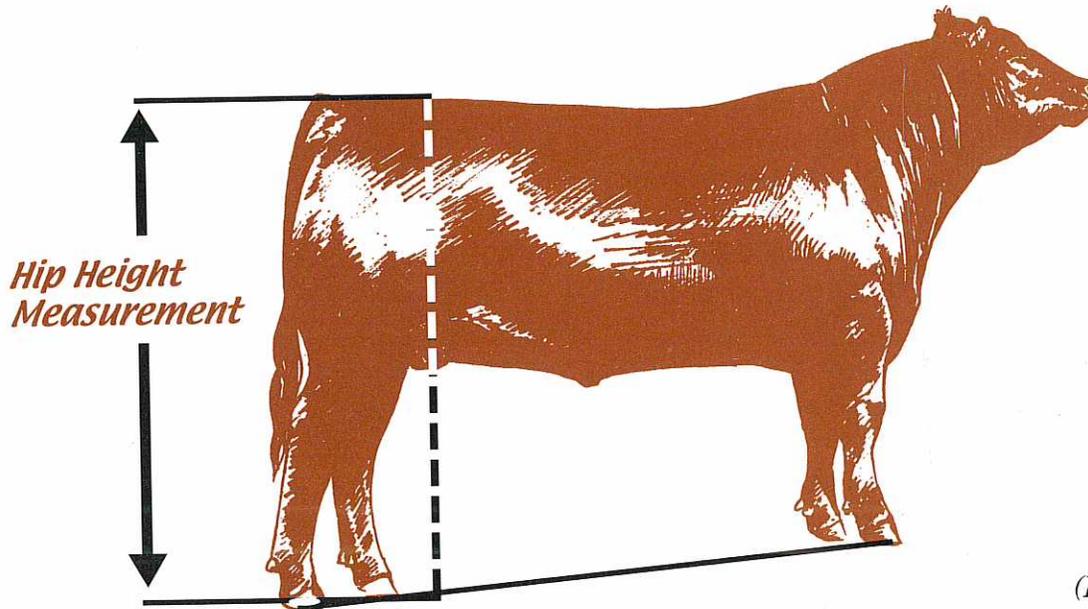


Frame Score

Frame scores are a way of estimating what size cattle will be when they are fully grown. It is based on the height of an animal at the hips, at different ages. When selecting an animal consider the size and weight it will be at maturity.

In order to determine the frame score of your animal you will need to know the birth date and hip height measurement. The height is found by using a level measuring instrument. Place the device directly over (and barely touching) the hip bones (hooks) with the animal standing correctly and on level ground. (Figure 2.11) Use *Tables 2.02* and *2.03* to determine the frame score for your animal.

How to Measure Your Beef Animal



(Figure 2.11)

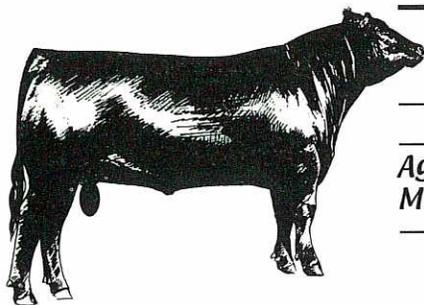
The hip measurement should be taken at a point directly over the hip bones (hooks) with the animal standing on a level surface. (Figure 2.11)



Frame Scores

| Potential Mature Cow and Steer Slaughter Weights | Frame Score |
|--|-------------|
| 750 - 850 | 1 |
| 851 - 950 | 2 |
| 951 - 1,050 | 3 |
| 1,051 - 1,150 | 4 |
| 1,151 - 1,250 | 5 |
| 1,251 - 1,350 | 6 |
| 1,351 and above | 7 |

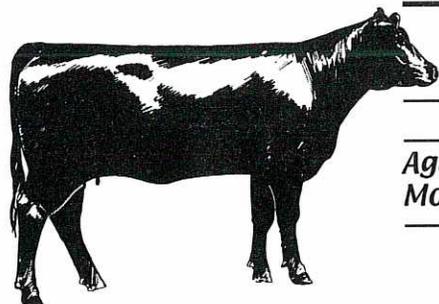
Table 2.01



Frame Score Chart Bulls

| | | Hip Height (inches) | | | | | | | | |
|---------------|-------------|---------------------|------|------|------|------|------|------|------|--|
| Age In Months | Frame Score | | | | | | | | | |
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | |
| 5 | 33.5 | 35.5 | 37.5 | 39.5 | 41.6 | 43.6 | 45.6 | 47.7 | 49.7 | |
| 6 | 34.8 | 36.8 | 38.8 | 40.8 | 42.9 | 44.9 | 46.9 | 48.9 | 51.0 | |
| 7 | 36.0 | 38.0 | 40.0 | 42.1 | 44.1 | 46.1 | 48.1 | 50.1 | 52.2 | |
| 8 | 37.2 | 39.2 | 41.2 | 43.2 | 45.2 | 47.2 | 49.2 | 51.3 | 53.3 | |
| 9 | 38.2 | 40.2 | 42.3 | 44.3 | 46.3 | 48.3 | 49.3 | 52.3 | 54.3 | |
| 10 | 39.2 | 41.2 | 43.3 | 45.3 | 47.3 | 49.3 | 51.3 | 53.3 | 55.3 | |
| 11 | 40.2 | 42.2 | 44.2 | 46.2 | 48.2 | 50.2 | 52.2 | 54.2 | 56.2 | |
| 12 | 41.0 | 43.0 | 45.0 | 47.0 | 49.0 | 51.0 | 53.0 | 55.0 | 57.0 | |
| 13 | 41.8 | 43.8 | 45.8 | 47.8 | 49.8 | 51.8 | 53.8 | 55.8 | 57.7 | |
| 14 | 42.5 | 44.5 | 46.5 | 48.5 | 50.4 | 52.4 | 54.4 | 56.4 | 58.4 | |
| 15 | 43.1 | 45.1 | 47.1 | 49.1 | 51.1 | 53.0 | 55.0 | 57.0 | 59.0 | |
| 16 | 43.6 | 45.6 | 47.6 | 49.6 | 51.6 | 53.6 | 55.6 | 57.5 | 59.5 | |
| 17 | 44.1 | 46.1 | 48.1 | 50.1 | 52.0 | 54.0 | 56.0 | 58.0 | 60.0 | |
| 18 | 44.5 | 46.5 | 48.5 | 50.5 | 52.4 | 54.4 | 56.4 | 58.4 | 60.3 | |
| 19 | 44.9 | 46.8 | 48.8 | 50.8 | 52.7 | 54.7 | 56.7 | 58.7 | 60.6 | |
| 20 | 45.1 | 47.1 | 49.1 | 51.0 | 53.0 | 55.0 | 56.9 | 58.9 | 60.9 | |
| 21 | 45.3 | 47.3 | 49.2 | 51.2 | 53.2 | 55.1 | 57.1 | 59.1 | 61.0 | |

Table 2.02



Frame Score Chart Heifers

| | | Hip Height (inches) | | | | | | | | |
|---------------|-------------|---------------------|------|------|------|------|------|------|------|--|
| Age In Months | Frame Score | | | | | | | | | |
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | |
| 5 | 33.1 | 35.1 | 37.2 | 39.3 | 41.3 | 43.4 | 45.5 | 47.5 | 49.6 | |
| 6 | 34.1 | 36.2 | 38.2 | 40.3 | 42.3 | 44.4 | 46.5 | 48.5 | 50.6 | |
| 7 | 35.1 | 37.1 | 39.2 | 41.2 | 43.3 | 45.3 | 47.4 | 49.4 | 51.5 | |
| 8 | 36.0 | 38.0 | 40.1 | 42.1 | 44.1 | 46.2 | 48.2 | 50.2 | 52.3 | |
| 9 | 36.8 | 38.9 | 40.9 | 42.9 | 44.9 | 47.0 | 49.0 | 51.0 | 53.0 | |
| 10 | 37.6 | 39.6 | 41.6 | 43.7 | 45.7 | 47.7 | 49.7 | 51.7 | 53.8 | |
| 11 | 38.3 | 40.3 | 42.3 | 44.3 | 46.4 | 48.4 | 50.4 | 52.4 | 54.4 | |
| 12 | 39.0 | 41.0 | 43.0 | 45.0 | 47.0 | 49.0 | 51.0 | 53.0 | 55.0 | |
| 13 | 39.6 | 41.6 | 43.6 | 45.5 | 47.5 | 49.9 | 51.5 | 53.5 | 55.5 | |
| 14 | 40.1 | 42.1 | 44.1 | 46.1 | 48.0 | 50.0 | 52.0 | 54.0 | 56.0 | |
| 15 | 40.6 | 42.6 | 44.5 | 46.5 | 48.5 | 50.5 | 52.4 | 54.4 | 56.4 | |
| 16 | 41.0 | 43.0 | 44.9 | 46.9 | 48.9 | 50.8 | 52.8 | 54.8 | 56.8 | |
| 17 | 41.4 | 43.3 | 45.3 | 47.2 | 49.2 | 51.1 | 53.1 | 55.1 | 57.0 | |
| 18 | 41.7 | 43.6 | 45.6 | 47.5 | 49.5 | 51.4 | 53.4 | 55.4 | 57.3 | |
| 19 | 41.9 | 43.9 | 45.8 | 47.7 | 49.7 | 51.6 | 53.6 | 55.5 | 57.4 | |
| 20 | 42.1 | 44.1 | 46.0 | 47.9 | 49.8 | 51.8 | 53.7 | 55.6 | 57.6 | |
| 21 | 42.3 | 44.2 | 46.1 | 48.0 | 50.0 | 51.9 | 53.8 | 55.7 | 57.7 | |

Table 2.03



Feeder Calf Grading

An important part of raising and marketing feeder cattle in the beef industry involves the feeder calf grades. Because of the wide variation in the type of feeder calves produced, the United States Department of Agriculture (USDA) has established the feeder calf grading system. This system helps categorize calves based on differences in body type. The system provides the buyers uniform information on the kind of calves being purchased. The parts of the USDA Feeder Calf grading system include:

- Frame Size
- Thickness or Muscling
- Thriftiness

Thriftiness

Thriftiness refers to the apparent health of the calf, size for its' age, alertness, and its' estimated ability to gain weight rapidly and reach market weight quickly and efficiently.

Thickness or Muscling

The thickness or muscling of the feeder calf refers to the amount of natural muscling the calf exhibits. The thickness grades given to USDA feeder calves range from 1, which designate a calf with a heavy amount of natural muscling to 4, which is a very light muscled calf. Most of all graded feeder calves are muscle thickness score 1. (Figure 2.13a - 2.13d)

Each Feeder calf receives two grades
One is a letter grade given for the frame size (Figures 2.12a-2.12c).

- L** = Large Frame
- M** = Medium Frame
- S** = Small Frame

The other is the number designating thickness (Figures 2.13a-2.13d).

- 1** = Thrifty, moderately thick throughout, predominate beef breeding
- 2** = Thrifty, slightly thick throughout, high proportion beef breeding and slight dairy breeding
- 3** = Thrifty, thin through the forequarter and middle part of the rounds.
- 4** = Thrifty, less thickness than minimum required for No. 3.

Example

A medium framed, healthy beef cattle with a moderate amount of muscling would be given a grade of "M-1."

**For more information on the feeder calf grading system,
go on-line to the USDA web site at:**

<http://www.ams.usda.gov/lsg/stand/st-pubs.htm#Official>

(click on October 2000 under Official U.S. Standards for Grades of: Feeder Cattle)



There are 13 possible grades of feeder cattle

- L-1** = Large Frame with moderate Muscle Thickness
- L-2** = Large Frame with slight Muscle Thickness
- L-3** = Large Frame with thin Muscle Thickness
- L-4** = Large Frame with less Muscle Thickness than #3
-
- M-1** = Medium Frame with moderate Muscle Thickness
- M-2** = Medium Frame with slight Muscle Thickness
- M-3** = Medium Frame with thin Muscle Thickness
- M-4** = Medium Frame with less Muscle Thickness than #3
-
- S-1** = Small Frame with moderate Muscle Thickness
- S-2** = Small Frame with slight Muscle Thickness
- S-3** = Small Frame with thin Muscle Thickness
- S-4** = Small Frame with less Muscle Thickness than #3

Inferior

= Unthrifty cattle and "double-muscled" cattle

The Inferior Grades include those feeder cattle which are not expected to perform normally in the present state (unthrifty) and those that are "double-muscled". Thriftiness refers to the apparent health of the calf, size for its age, alertness, its estimated ability to gain weight rapidly and reach market weight quickly and efficiently. (Figure 2.14a and 2.14b)



Frame Size with Estimated Slaughter Weight

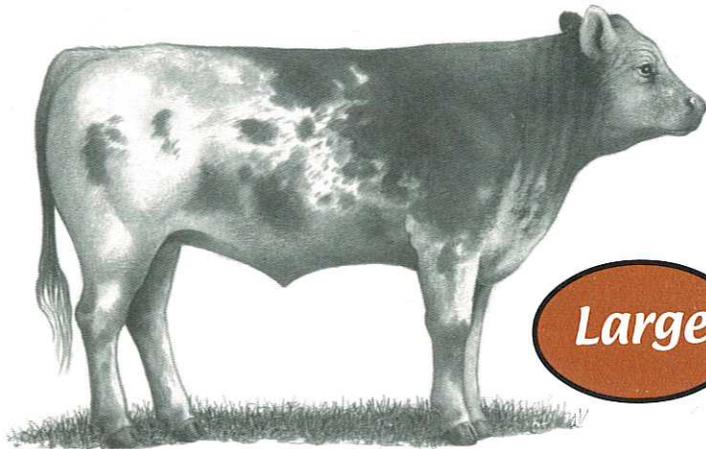
Large (Figure 2.12a)

Steers

1,250 pounds and above

Heifers

1,150 pounds and above



(Figure 2.12a)

Medium (Figure 2.12b)

Steers

1,100-1,250 pounds

Heifers

1,000-1,150 pounds



(Figure 2.12b)

Small (Figure 2.12c)

Steers

1,100 pounds and below

Heifers

1,000 pounds and below



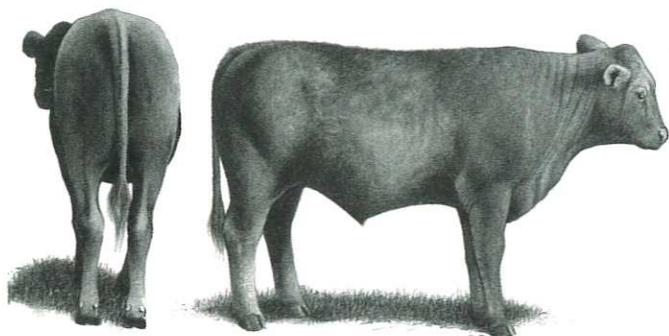
(Figure 2.12c)

Large and medium frame pictures depict grade requirements.
The small frame picture represents an animal typical of the grade.

(Figure 2.12)

Muscle Thickness Scores

No. 1

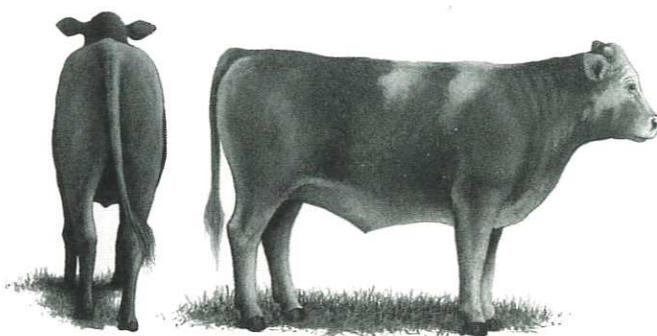


(Figure 2.13a)

No. 1

- Moderately thick muscled throughout
- Predominate beef breeding
- Thrifty

No. 2



(Figure 2.13b)

No. 2

- Slightly thick muscled throughout
- High proportion beef breeding and slight dairy breeding
- Thrifty

No. 3

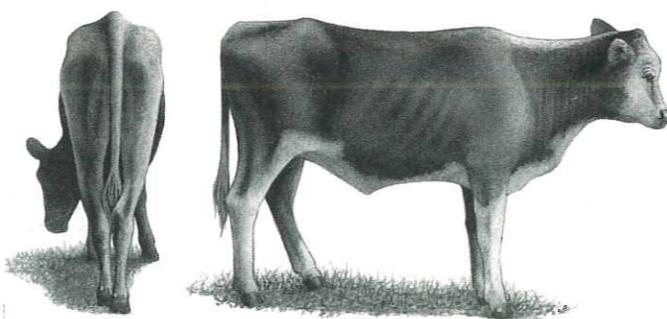


(Figure 2.13c)

No. 3

- Thin through the forequarter and middle part of the rounds
- Thrifty

No. 4



(Figure 2.13d)

No. 4

- Less thickness than minimum required for No. 3
- Thrifty

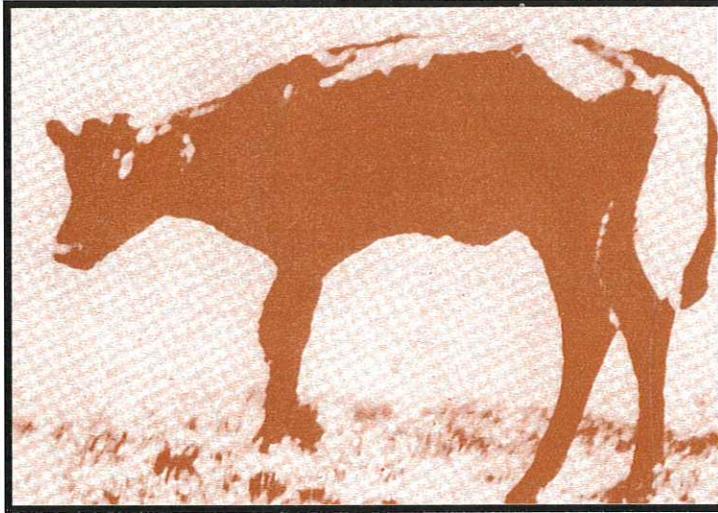
No. 1, No. 2, and No. 3 thickness pictures depict minimum grade requirements.
The No. 4 picture represents an animal typical of the grade.

(Figure 2.13)

Copies of the *Official United States Standards for Feeder Cattle* (October 2000) are available upon request from: United States Department of Agriculture, Agricultural Marketing Service - Livestock and Seed Program, Washington, DC 20250

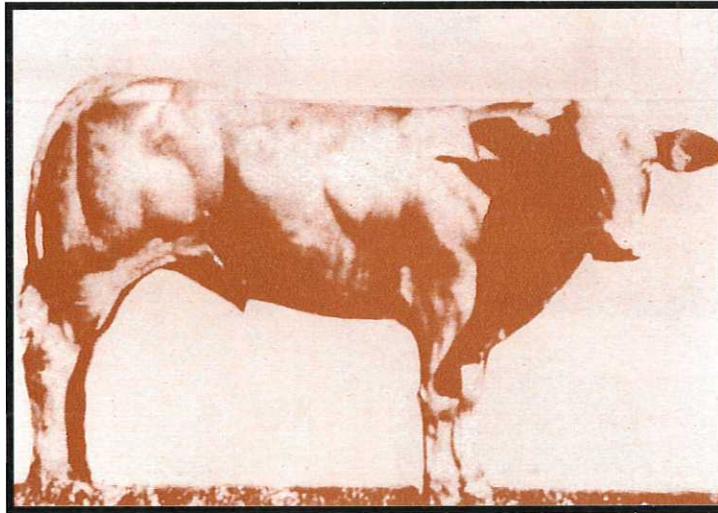


Unthrifty



(Figure 2.14a)

“Double-muscled”



(Figure 2.14b)





Disposition

The disposition of a beef animal is a trait that often does not receive enough emphasis in the selection process. A quiet, gentle calf will make the time and effort spent on a beef project a much safer and enjoyable experience for everyone involved. A quiet disposition should be a high priority when selecting an animal for the less experienced 4-H member.

There are some definite disadvantages to working with a calf that possesses a poor disposition. A wild calf will be more difficult to halter break. A nervous animal can be a safety risk to people at home and the fair. Frequently, animals with a poor disposition will have a lower rate of gain. Wild animals also have a tendency to produce more carcasses that are classified as “dark cutters” than animals with quiet dispositions.

Be realistic with your expectations regarding a calf’s disposition. Not every calf will be calm and quiet. A sense of trust needs to be developed between the handler and the animal. The earlier you begin working with an animal and the younger the animal, the easier it is to break it to lead and develop its trust.

Management Practices

In this chapter

- *Space Requirements*
- *Herd Management Calendar*
- *Winter Care of Cows*
- *Calf Management*
- *Identification Procedures*
- *Breaking and Training Your Beef Project*
- *Tying Practical Knots*

Space Requirements

To obtain maximum performance, you must provide adequate space for your market steer, heifer, or feeder calf. This is one step that can be accomplished before purchasing your animal. Space requirements change as your animal grows and you should select a pen or barn based on the market size of your animal. Space requirements for a stall and exercise lot are 30-40 square feet and 400-600 square feet per head respectively (Figure 3.01).

The building or area

The general building or area where you keep your animal should provide shade in the summer, be cool, and draft free. Adequate space for exercising and access to fresh air and sunlight should also be

considered when selecting a building or pen. Be sure to provide adequate bedding to keep the animal warm and dry. Some common bedding sources are sawdust, newspaper, leaves, wood shavings and straw. Sometimes cattle will eat the bedding, especially straw and leaves instead of their ration. Ways to prevent this problem are to make sure your animal(s) is fed properly, and provide exercise time to help prevent boredom. If these ideas do not work, switch to another type of bedding. Always provide plenty of clean, fresh water in a place where the water can drain away if spilled. Choose a feeding area and keep it free of manure, urine, and bedding.

Your animal's pen

Prepare the pen before your animal arrives. Some animals can be frightened easily when they are moved to a new environment. They may try to escape by

jumping, pushing, or squeezing out of the pen. Therefore, the pen should be a safe, secure place. Many animals will test new surroundings, looking for ways to escape. This can become a problem, especially if the animal finds a way out during the first few days, because the animal may repeat this behavior. With some foresight, you can prevent this problem.

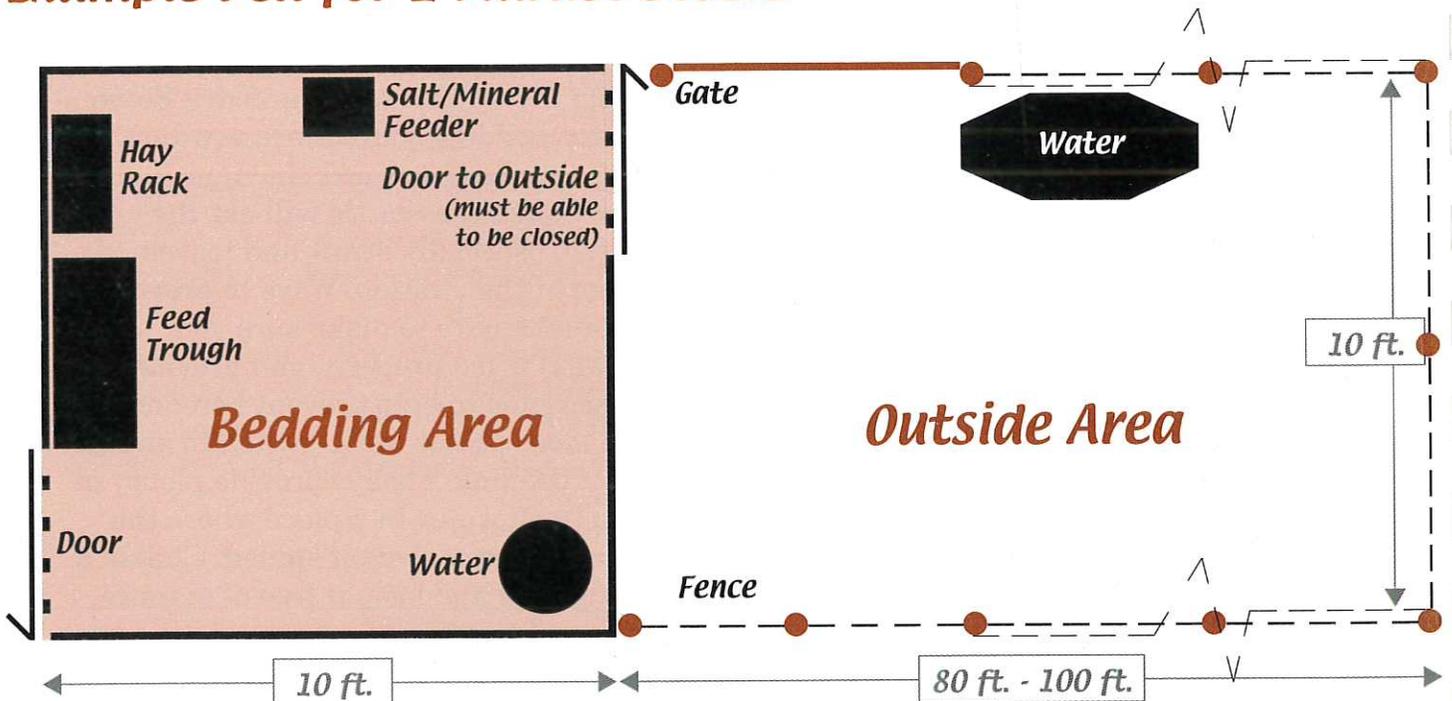
Make sure all gates and doors can be easily closed. Latches should fit snugly, and a sturdy chain should be used for added security. An outside lot should be fenced with materials strong enough to hold your animal as it grows. Woven wire fence, cattle panels, boards, and high tensile fences are all good building

materials for your lot. Barbed wire could be used as a top strand for your fence but not as the primary fencing system for your lot.

Animal safety is a major concern, and steps should be taken to reduce the chance of injury (to you or your animal) by removing hazards from the pen. Check for protruding nails, broken boards, or exposed wire. Look around and see if the animal can reach any potentially dangerous objects such as: electric wiring and lights, poisonous plants, and holes or high spots in the floor. Think about your animal's pen. Is it safe for you? Is it safe for your animal?



Example Pen for 2 Market Steers



(Figure 3.01)



Herd Management Calendar

This calendar has been set up as a general guideline for spring calving herds that calve in February and March.

January

1. Give close attention to the nutritional status and body condition of your cow herd. Separate cows according to their body condition and provide high quality hay or some grain to cows that are thin or losing condition.
2. Isolate bred heifers from cows to cut down on competition for feed. Give high quality feed to bred heifers.
3. Starting two to four weeks before the first expected calf, feed in the evening to prompt more day time calving (Konefal method of calving).
4. Pour on insecticide for lice, if needed.
5. Collect medicines and supplies for the calving season (iodine, frozen colostrum for weak calves, vaccines, and medicine).

February

1. Provide protection (from bad weather and other cows) for cows that are calving and check at least twice a day after calving starts. Pay special attention to first calf heifers; keep them near a barn to check for calving problems.
2. Be available to assist with difficult births, iodine naval cords, and be sure calves nurse.
3. Castrate bull calves.
4. Dehorn all calves that are not polled.

5. Follow the Blackleg vaccination program recommended by your local veterinarian.
6. Put orphan calves on any cows that lose their calves.
7. Increase feed for cows as they calve. (A cow's nutrient requirements increase after calving because she is producing milk for her calf.)
8. Be sure to feed first calf heifers adequately before calving. Lack of proper nutrition may increase calving difficulty, calf mortality, and the time to the first estrus following calving.

March

1. Provide the best feed during this time and supplement with vitamin A.
2. Continue dehorning and castrating calves.
3. Cull cows that did not calve.
4. Provide magnesium oxide with salt for livestock in grass tetany risk areas (for example, heavy milkers on lush pasture).

April

1. Put cows on permanent pasture as soon as it is four inches tall.
2. Continue to supplement magnesium oxide for livestock on lush pasture.
3. Watch for bloat if cattle are placed on legume pasture.
4. Check your herd bull for fertility. Increase calving percentage by 1) checking testicle size; 2) checking general "libido" or sex drive of the bull; 3) attempting to purchase a semen tested bull; or 4) testing semen through University Veterinary Clinics.

May

1. Turn your herd bull in with the cows on May 1. Use the following bull to cow ratios: yearling bull, 10 to 12 cows; two-year-old bull, 20 to 25 cows; mature bull, 35 to 40 cows.
2. Supply salt and mineral supplements free choice. (More salt is eaten on early, lush pasture.) Recommended salt mineral mix (based on 100 pounds):
 - 68 pounds trace mineral salt with selenium
 - 4 pounds magnesium oxide (54 percent or more magnesium)
 - 28 pounds dicalcium phosphate or bone meal
3. Control flies with back rubbers, face mops, or fly tags.
4. Observe cows in heat and record breeding dates.
5. Rotate pastures.

June

1. Continue to check for cows coming back in heat.
2. Watch for and treat pinkeye early.
3. Rotate pastures.
4. Yearling replacement heifers' breeding season should start one heat cycle earlier than cows and continue for 45 days.
5. Yearling replacement heifers should be bred to easy calving bulls. This can be done by: 1) using A.I. sires whose progeny have been easy calvers; 2) using natural sires or "unproven" bulls that had low birth weights themselves; or 3) using A.I. sires noted for producing daughters with first calf calving ease.

July

1. End the breeding season after 60 days.
2. Separate bulls from females.
3. Rotate pastures and feed supplemental feed if pastures are extremely short.
4. Implant calves that will not be kept or sold for breeding purposes with an approved growth stimulant. Reimplant as indicated on the product label.

August

1. Control horn flies and lice.
2. Check for pinkeye and apply controls.
3. Rotate pastures and feed supplemental feed if pastures are extremely short.
4. Consider all marketing alternatives of feeder calves.

September

1. Select larger, structurally sound heifers as replacements. Vaccinate for IBR, PI₃, Lepto, and BVD.
2. Consider holding lightweight calves from the market and backgrounding them to market at a later date.
3. Recheck calves for proper castration and make sure calves are hornless.
4. Vaccinate for Lepto, pregnancy test, and treat all females for grubs, lice, and worms, if necessary.
5. Sell open cows and those with poor performing calves.
6. Rotate pastures.
7. Stockpile fescue and orchardgrass for late fall pasturing.

October

1. Follow through on the marketing program you have selected.
2. Separate replacement heifers from the rest of the herd and feed them to gain approximately 1.5 pounds daily.
3. Have ration evaluation done on winter feed supply.
4. Rotate pastures.

November

1. Turn cow herd into stalk field or winter pasture.
2. Start feeding cows hay or grain if little or no pasture is available.
3. Continue feeding replacement heifers grain.
4. First calf bred heifers need to be fed to gain about 100 pounds during the winter.
5. Herd bulls should be started on feed if pasture is short and if they need to gain weight.

December

1. Continue to glean stalk fields.
2. Continue feeding once a day if pasture is not available.
3. Observe for lice infestation (hair loss over the shoulders and down the back).

Winter Care of Cows

If breeding is planned correctly, the cows will be in their last trimester of gestation during January, February, and March. This time is critical in the cow's gestation. Her ability to produce a healthy feeder calf, provide an adequate supply of milk, and be ready for re-breeding depends almost entirely on the nutrition and management she receives during this period.





Calf Management

After your feeder calf is born, it should nurse within the first few hours because it must receive the colostrum from the cow. If the calf is weak and cannot nurse, give it warm colostrum with a stomach tube. Consult your veterinarian or an experienced cow-calf producer for the proper way to use a stomach tube. If misused, it can fill the lungs of the calf with milk and the calf will die.

After birth, dip the calf's naval in iodine to protect the animal from infection. You may want to vaccinate the calf for scours and give the calf a Selenium and vitamin E (Bo-Se[®]) and vitamin shot.

Starting with a healthy, fast growing calf is the first step to a successful Feeder Calf project. The second step is to "spread out" the stress points during the calf's life by preconditioning. Calves should be given time to adjust and recover from "stressful" events before they are shown or sold.

A preconditioned calf has been:

- Protected by vaccines against several diseases.
- Treated for internal and external parasites.
- Dehorned, if needed.
- Castrated, if it is a bull calf.
- Started on feed, weaned from the cow, and adjusted to a grain diet.
- Implanted for increased growth rate and improved feed efficiency. (Do not implant replacement heifers.)
- Inspected for health and vigor.

If all of these procedures are done at one time, there is an increased chance that the calves may become sick and/or die. It is very important that you "spread out" these stress points in the feeder calf project.

"Spread out" the stress points by dehorning, castrating, and implanting the calves before turning out to summer pasture. The calves should be introduced to creep feed two months prior to weaning. All vaccinations and internal and external parasite control should be done one month before weaning. The feeder calf should be weaned at least one month before going to market (or the county fair). Following these basic guidelines will reduce the chances that your feeder calf will become sick, go off feed, stop growing, or die because of any of these stressful processes.

If you are planning to exhibit your project at the county fair, introduce the calf to creep feed as early as possible. Design an area that will allow the calf to eat feed where the cow cannot. Select a high quality creep feed that is palatable to the calf. Several commercially prepared creep feeds are available or you may wish to formulate your own.

If you are mixing your own creep feed, some type of grain processing such as cracking corn, rolling barley or crimping oats will aid in digestion and palatability. Molasses added to the ration will help control dust and tastes good to a young calf. Five percent molasses is sufficient. More than that will attract flies and bees in the summer and cause clumping in the winter.



Identification Procedures

Even if it's not required by your local county 4-H program, it is a good idea to have some form of identification for your beef project, especially if it is being raised with other animals. Depending on the goal for identification, there are four basic types to consider: nose printing, ear tagging, tattooing, or freeze branding.

A nose print is required for exhibition at some fairs, and is just as reliable for identifying cattle as finger prints are for humans. A nose print can be done by almost anyone for only the cost of a file card and an ink pad, and is virtually tamper proof.

(Figure 3.02)

Nose printing



(Figure 3.02)

The ear tag is probably the simplest and most easily identifiable. It is relatively inexpensive, can be done very quickly by even inexperienced persons, and is not much more painful to the animal than having an ear pierced is for a person.

(Figure 3.03)

Ear tagging



(Figure 3.03)

The tattoo is more permanent than an ear tag and is also easily accomplished with a tattoo kit that most veterinarians and purebred seedstock producers possess. In some cases, the tattoo may be used in addition to an ear tag. The ear tag offers quick and easy identification from a distance while the tattoo serves as the more permanent identification method.

(Figure 3.04)

Tattooing



(Figure 3.04)

The **hot brand is not a desirable form of identification**, simply because of the damage it causes to the hide, the stress on the animal, and the special equipment that is required. Freeze branding is practiced by some counties during their annual initial weigh-in of market steers, however, it results in damage to the hide as well.

Breaking and Training Your Beef Project

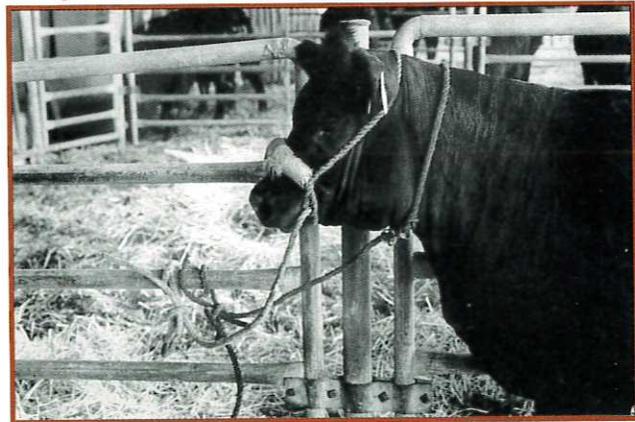
Breaking a calf to lead with a halter and training it to cooperate while being presented to a judge are probably the most challenging aspects of any beef project. Even as a feeder calf, a steer is often five times as large as the youth that is handling it, plus, it has four feet on the ground for traction. Yet, there is nothing that compares to the emotion experienced when an exhibitor feels a 1,250 pound market steer responding appropriately to a tug on the halter. The key to making all of this happen is breaking and training the animal properly from the beginning of the project.

Despite what can sometimes be the intimidating size of a beef animal, it is important that the initial breaking process be done as gently as possible. Animals have the innate ability to sense anxiety and frustration of a handler and react negatively to it. On the other hand, if the animal senses a quiet confidence in the ability of the individual to control it, the animal is likely to respond with confidence, because the handler is doing things that are in the animal's best interest. If this confidence and trust between the animal and handler are betrayed early in the breaking process, training an animal to respond appropriately in the show ring can become a very difficult task.

The first step in breaking a beef animal is allowing it to settle down for a few days after arrival so it can become used to the new surroundings, and to you and your family. Upon arrival, your animal should be placed in a relatively small, escape-proof pen or box stall that is free of obstacles that could cause injury. It's a good idea during the first several days to simply spend time with your animal as it eats, allowing it to understand that only positive experiences result when you are around it. Once your animal gains confidence and understands that you do not plan to harm it, the actual halter breaking process can begin.

Start by putting the halter on your animal and tying it to something solid for a couple of hours. It is best if the animal is placed in a head-gate or squeeze chute in order to place the halter on the animal. As an alternative, walking between a gate and the wall is effective. The tying process should continue daily until the calf stands quietly, no longer pulling against the halter (Figure 3.05). Also, to ensure the calf is not injured, never leave it alone while haltered until it has learned to stand quietly.

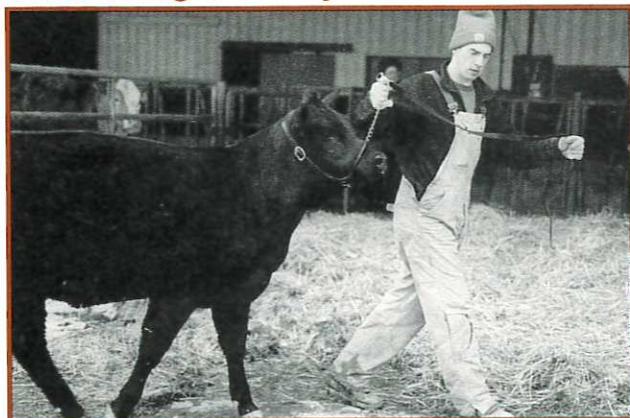
Calf tied with Quick Release Knot



(Figure 3.05)

After the animal has learned that the halter won't hurt as long as it stands quietly, the training process can begin. As you begin to teach the calf to walk in response to the halter, it is important to remember that, despite the fact it is strong enough to do almost anything it wants, the animal must never find this out. Also, a calf can only go where its nose goes first. If the handler effectively controls the animal's nose (and head) with the halter, the animal will seldom escape. (Figure 3.06)

Controlling the calf's head



(Figure 3.06)

If you have ever observed a steer escaping from his handler, the steer usually drops his head first. If the handler never allows the animal's head to drop, a steer or heifer will seldom escape. Finally, in regard to breaking a beef animal to lead, you must understand that as you do so, you are normally standing in front of its shoulder or "flight zone." This means that the natural tendency for the

animal as you pull on its halter from the front is to back up or escape in the "flight zone" to the rear.

With all this in mind, it is best to proceed teaching the animal to lead with the halter in a small paddock, a large box stall, or in an area within the barn. Begin by walking your heifer/steer in a clockwise direction in tight circles and allowing it to keep moving at a steady pace. During the first several attempts at walking your animal, it is often helpful to have an assistant who can walk in front of an aggressive animal or behind an animal that does not want to move at all. Keep in mind that your calf can only go where its nose goes and only at the speed its nose travels. If you keep its head up and its nose under control, the rest will follow.

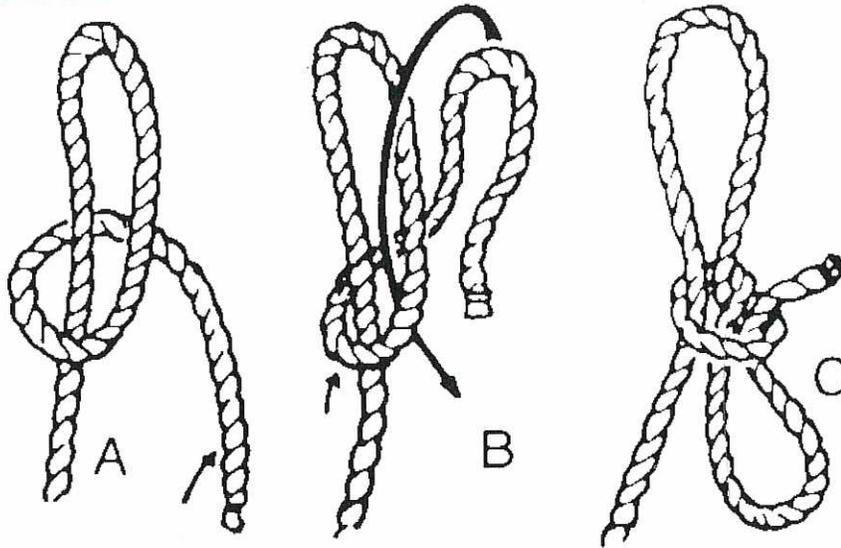
During the early stages of training, it is a good idea to conclude each session by taking your animal to water, feed, or another environment in which it is comfortable. It is also better to work frequently with the animal for brief periods of time as opposed to infrequent, longer sessions that neither you nor your animal will enjoy.

Keep in mind, cattle are somewhat like growing children that can not focus on a single subject for long periods of time. If worked frequently for brief periods, calves quickly realize that the exercise is painless and is often followed by a pleasant experience. As they mature, their temperament will also mature to the point they can be exercised or worked for longer periods of time.





Quick Release Knot



(Figure 3.07)

Quick Release Knot

The quick release knot (also known as the bowknot or reefer's knot) is the standard knot used to tie an animal to a post or stall at the fair. Like the square knot, it is a good nonslip knot to tie the ends of a rope together. It has the added advantage of being able to be untied under tension—an important feature needed in restraining livestock. (Figure 3.07)

To tie a quick release knot, start with a simple overhand knot, coming from right over left (A).

Begin to tie the second overhand knot, coming from left to right, by laying the new left hand strand over the new right hand strand (B).

Instead of inserting the running end of the new left hand strand into the loop formed by the crossing strands, form a bight, or small loop, in the new left hand strand and insert it into the loop (C).

Grasp the bight with the thumb and index finger of your right hand and pull it part way through the loop.

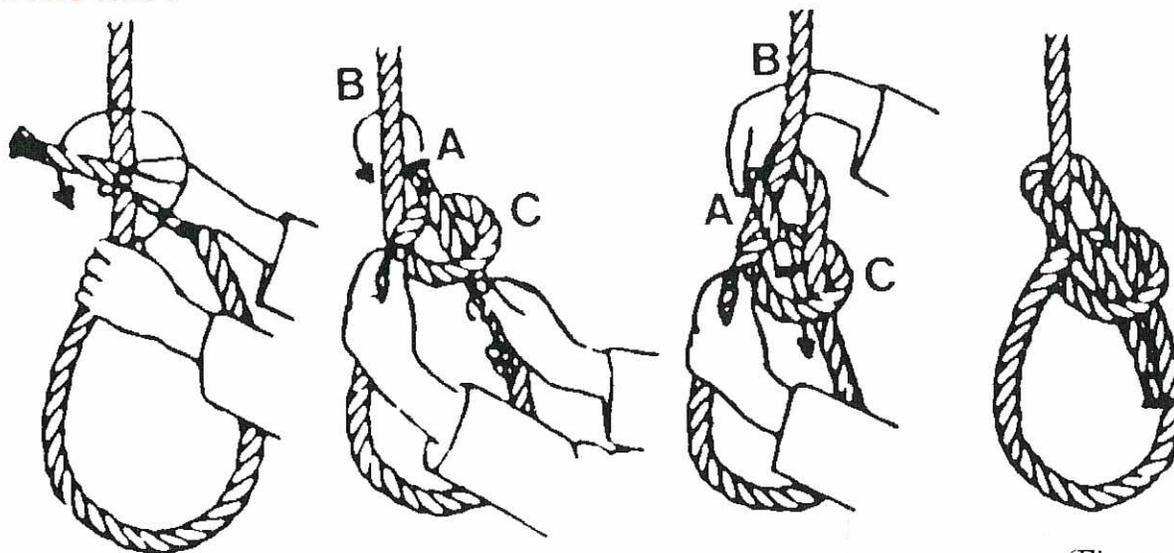
Grasp the left-hand strand and left working end in your left hand and the right-hand strand in your right hand. Pull to shape and secure the knot. Be certain that the end of the bight is “trapped” in the center of the knot.

Some animals have a habit of biting on the knots restraining them and freeing themselves. To prevent this with the quick release knot, insert the running end of the rope into the bight.

In an emergency, the free end of the bight can be pulled sharply, immediately releasing the knot.

Practice tying a quick release knot.

Bowline Knot



(Figure 3.08)

The Bowline Knot

Knot users consider the bowline knot one of the most useful knots. It is a nonslip knot, and as such it can be used to form a loop that will not tighten or drawdown when placed around an animal's body or a post. Moreover, it is relatively easy to untie. (Figure 3.08)

To tie a bowline knot, position the rope so that the standing part is to your left, the working end to your right. Form a right hand loop by passing the working end of the rope over the standing part.

Secure the loop by positioning the strands where they cross between the thumb and index finger of your left hand (A).

Insert the working end of the rope into the loop from the back (B).

Cross the working end over the top of the standing part and wrap it around the rear of the standing part. Reinsert the working end into the loop from the front (C).

Grasp the working end of the rope and the right-hand strand of the loop in your right hand, and the standing part of the rope in your left hand. Pull to shape and secure the knot. The size of your loop will depend on the amount of working end originally allowed for use.

A common way to remember how to tie a bowline knot is the following story. If you consider the first loop to be a "rabbit hole," the standing part to be a "tree," and the working end to be the "rabbit," remember that the rabbit comes out of the hole, runs around the tree and goes back down his hole.

