Beef Selection and Evaluation

A. Major Parts and Wholesale Cuts

Parts of a Beef Animal
Beef Carcass Wholesale Cuts

High Priced cuts*:
1. Loin
2. Rib
3. Round

Low Priced cuts:
1. Brisket
2. Chuck
3. Flank
4. Plate
5. Shank

*The loin, rib and round together account for about 50% of carcass weight and about 70% of carcass value.
A. Examining the Ideal Breeding Heifer

Ideal Breeding Heifer
* 6.0-8.0 frame score
* Extra capacity & volume
* Structurally correct
* Feminine
B. The Ideal Market Steer

Ideal Market Steer
* 1100-1350 pounds
* 5.0-7.0 frame score
* High-Select to High-Choice Quality Grade
* 1.0-2.5 Yield Grade
C. Structural Differences

Splayfooted and knock kneed - When viewed from the front, the front 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 where the legs are naturally set too close together.

Pigeon toed and bowlegged - When viewed from the front or rear, the knees set too far out, causing the toes to turn in toward each other in a pigeon-toed manner.

Cow hocked - When viewing the rear legs from the rear, the hocks are turned in or placed too close together.

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. This is usually seen in cattle that are also too straight in their shoulder.

Calf kneed - This is the other extreme 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 also will droop excessively from hooks to pins.

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

Volume and Capacity

*Current emphasis is placed on animals with more internal volume and capacity, natural muscling and fleshing ability. Traits that contribute to this include:

- more spring of rib
- depth of rib
- wider chest
- more natural thickness and shape down the top
- thicker quartered
- more width and depth to stifle

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 - 8.0)
- extra length of body
- longer rumped
- 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 are:

- standing squarely on front and rear legs
- heavier boned
- moving with a long, reaching stride
- more nearly level from hooks to pins
- possessing adequate set to the hocks
- displaying slope to the shoulder
Differences in sex character are important when judging breeding cattle. There are important differences between females and males. They are as follows:

- Femininity is exhibited by a longer, more refined head that is sharper about the poll. Females should possess a long, trim neck and be smooth about the shoulders.
- Masculinity is exhibited by a longer head that is slightly broader between the eyes and flatter about the poll. Males should be long necked and display more crest as well as more testicular development as they mature.

Balance

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

- straightness of lines
- stronger topped
- level rump
- smoothness of shoulder
- cleaner and trimmer brisket
- trimmer middle

E. Evaluation of Market Cattle

When selecting and evaluating market cattle, the 4-H member 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.

Muscling

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

- more natural thickness down the top
- more muscular loin
- long, level rump
- thicker through the center of the quarter
- wider, deeper 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 about 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 (1100 - 1350 lbs.) at an age of 12 - 18 mos. Acceptable traits for today's frame size include:
  • moderate hip height (frame size 5.0 - 7.0)
  • extra length of body
  • longer rump

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 are:
  • standing squarely on front and rear legs
  • heavier boned
  • moving with a long, reaching stride
  • more nearly level from hooks to pins
  • possessing adequate set to the hocks
  • displaying slope to the shoulder
F. Developing A Beef Evaluation System

**Rear View**

When you view a class of cattle from the rear, compare them for:
1. Fat deposits at tailhead
2. Depth of quarter (length of muscle)
3. Width through center of quarter
4. Depth of twist - inverted "U" shape (fat) or V shape (trim) in crotch
5. Heaviness of bone
6. Structural correctness
7. Width between hind legs
8. Squareness of rump

![Diagram of cattle rear view](image)

**Steer “A”: Ideal**
- No excessive fat about tailhead - 1
- Thick, deep bulging quarter - 2
- Extra width of quarter - 3
- Neat and trim in cod and twist - 4
- Heavy boned - 5
- Correct feet and legs - 6
- Feet set wide apart - 7

**Steer “B”: Inferior**
- Excessive fat deposits about tailhead - 1
- Shallow, flat quarter - 2
- Narrower through center of quarter (lighter muscled) - 3
- Deep and full in cod and twist - 4
- Lighter boned - 5
- Feet set close together - 7
**Side View**

When you view the class of cattle from the side, compare them for:

1. Balance
2. Height
3. Length of body
4. Depth of rib
5. Levelness of rump
6. Length of rump
7. Depth and fullness of quarter
8. Trimness of flank
9. Trimness of middle
10. Correctness of feet and legs
11. Length of head and neck
12. Trimness of brisket

**Steer “A”: Ideal**

- Extra length of body - 3
- Adequate depth of rib - 4
- Adequate length of rump - 6
- Deep, muscular quarter - 7
- Trim flank - 8
- Trim brisket - 12

**Steer “B”: Inferior**

- Short bodied - 3
- Excessively deep ribbed - 4
- Flat, soft quarter - 7
- Full flanks - 8
- Wasty middled - 9
- Shorter, thicker neck - 11
- Deep, full brisket - 12

**Steer “C”: Inferior**

- Average length of body - 3
- Shallow ribbed - 4
- Steep rumped - 5
- Flat, shallow quarter - 7
- Cut up in flank - 8
- Extremely trim brisket - 12
When you view a class of cattle from the front, compare them for:
1. Smoothness of shoulder
2. Forearm muscling
3. Structural correctness
4. Trimness of brisket
5. Width of chest
6. Heaviness of bone
7. Shape of head and breed character (breeding)

Steer “A”: Ideal
Muscular shoulder - 1
Muscular forearm - 2
Correct leg structure - 3
Trim brisket - 4
Heavy boned - 6

Steer “B”: Inferior
Light muscled shoulder - 1
Light muscled forearm - 2
Extremely full brisket - 4
Lighter boned - 6
Top View

When you view cattle from the top view (up close), compare them for:
1. Smoothness of shoulder
2. Rib cage capacity (spring of rib)
3. Width of loin
4. Thickness of rump
5. Shape of top - Look for the "coke bottle" shape; a slim, clean neck that blends into muscular shoulders. A heavy muscled lean calf should be wider on the ends than in the middle.
6. Degree of finish

Steer “A”: Ideal
Muscular shoulder - 1
Extra width of loin - 3
Thick rump - 4
Heavy muscled, trim calf exhibiting "coke bottle" shape - 5

Steer “B”: Inferior
Light muscled shoulder - 1
Narrow rump - 4
The widest part of the body is the middle, indicating a light muscled, wasting calf lacking definition of shape - 5
G. Evaluation of Beef Carcasses

Beef carcass evaluation is accomplished through two grading systems: quality grading and yield grading. While these two grading systems are based on completely different standards, they both can be used to accurately evaluate the value of a beef carcass. An accomplished livestock judge is able to evaluate live animal traits and accurately relate them to the end product.

Quality Grading

*Quality grading is an evaluation of the factors that affect the palatability (flavor, juiciness, tenderness) of meat. Beef carcass quality grades are based upon marbling and maturity, as well as color, firmness and texture of the lean muscle.

Fat is the primary factor upon which quality grades are based. As a general rule, fatter animals tend to have higher quality grades. The quality grades are as follows:

- Prime
- Choice
- Select
- Standard
- Commercial
- Utility
- Cutter
- Canner

Yield Grading

*Yield grading is based upon the yield of boneless, closely trimmed retail cuts from the round, loin, rib and chuck. Factors used in the formula to calculate yield grade include: (1) fat thickness at the 12th rib; (2) ribeye area; (3) hot carcass weight; and (4) percentage kidney, pelvic and heart fat (KPH).

Yield grades are expressed in numerical scores ranging from 1 through 5. Yield grade 1 is the most desirable as these carcasses are the leanest. As the carcass becomes fatter, the numerical yield grade becomes higher. Yield grade 5 is considered the least desirable.
Other Carcass Measurements

*Loin eye area refers to the area of the longissimus dorsi muscle measured on the exposed cross section when the carcass side is ribbed between the 12th and 13th ribs. Ribeye area is an important indicator of muscling. A typical 600 lb. carcass should have an 11.0 square inch ribeye. Ribeye size will vary with the muscularity of the animal and the carcass weight.

*Dressing percentage is calculated by taking the carcass weight and dividing it by the liveweight and multiplying by 100. Example: A thousand pound steer yielding a 625 pound carcass would have a dressing percentage of 62.5%. Heavier muscled animals tend to have a higher dressing percentage. Animals with a higher degree of finish usually have a higher dressing percentage. The more weight that is contained in parts such as the rumen, hide, head, etc., the lower the dressing percentage will be. The average dressing percentage for steers and heifers is 60% but can vary greatly with changes in the type of cattle.

A side (A) and a top view (B) of a steer showing the approximate location of the 12th rib which is where fat thickness and ribeye area are estimated. In the side view (A) the location of the 12th rib is identified with a heavy white line and indicated by an arrow. In the top view (B) fat thickness is estimated at the point indicated in the figure by an X on the right and left side of the topline. Illustration (C) shows the procedure for measuring or estimating fat thickness on the ribeye.
I pledge
My Head to clearer thinking,
My Heart to greater loyalty,
My Hands to larger service,
and My Health to better living,
for My Club, My Community,
My Country, and My World.