Breeding Beef Cattle

Section 1

Breeds of Cattle

Bos indicus & Bos taurus

Beefmaster

- Country of Origin – United States
- Color – Variety of Colors
- Show Division- American
- Breed Characteristics
  - ¼ Hereford ½ Brahman ¼ Shorthorn
  - Moderate to Large Framed
  - Horned or Polled
  - Loose Hided – Long Dewlap & Sheath
  - Moderate Crest on Neck
  - Heat Tolerant and Hardy
  - High Fertility
  - Good Maternal Characteristics
  - Growth Oriented
- Associated Registerable Composites
  - Beefmaster Advancer
  - ½ Beefmaster and any other breed
  - Show in ARB Breed in Texas
  - American Show Division

Brangus

- Country of Origin – United States
- Color – Black
- Show Division- American
- Breed Characteristics
  - Originated as an 5/8 Angus 3/8 Brahman
  - Moderate to Large Framed
  - Naturally Polled
  - Moderate Crest on Neck
  - Loose Hided – Long Dewlap & Sheath
  - Disease Resistant
  - Heat Tolerant
  - Good Maternal Characteristics
  - High Fertility
  - Growth Oriented
- Associated Registerable Composites
  - Brangus Optimizer
  - ½ Brangus and any other breed
  - Show in ARB Breed in Texas
  - American Show Division

Charbray

- Country of Origin – United States
- Color – Gray to Cream
- Show Division- American
- Breed Characteristics
  - 5/8-13/16 Charolais 3/16-3/8 Brahman
  - Large Framed
  - Horned or Polled
  - Moderate Crest on Neck
  - Loose Hided – Longer Dewlap & Sheath
  - Heat Tolerant and Rugged
  - High Yielding

Gray Brahman

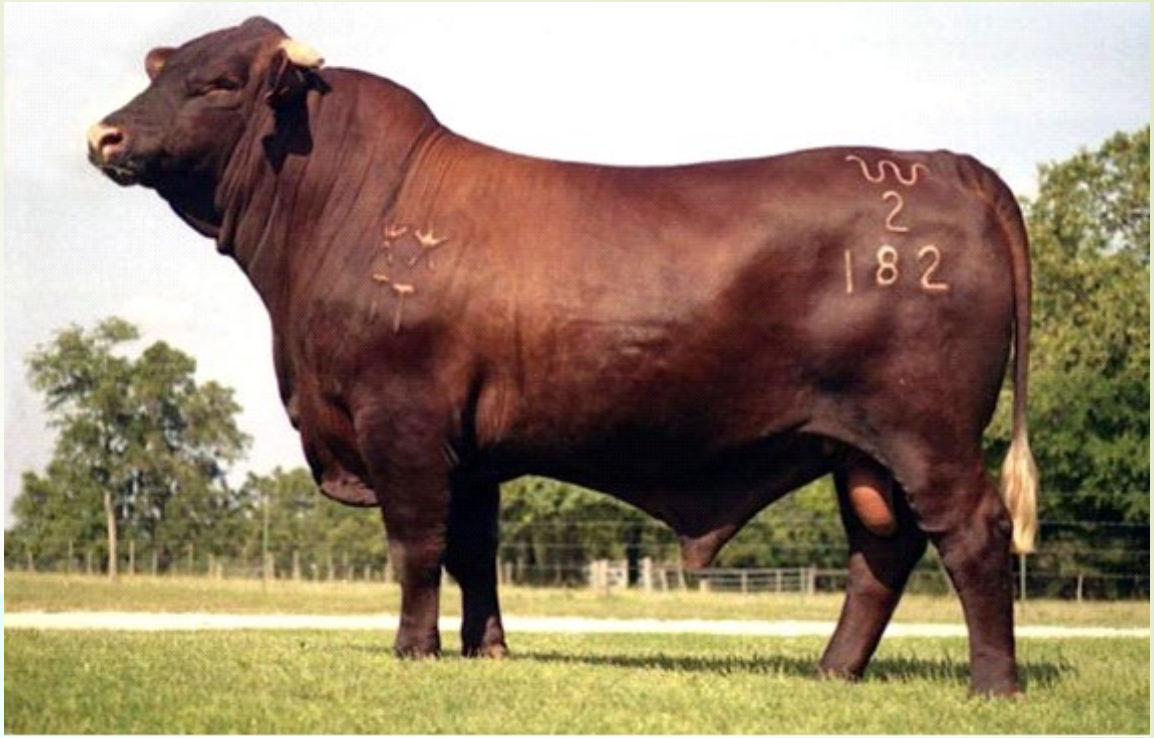
- Country of Origin – USA
  - Developed from crossing Bos indicus breeds: Gujarat, Nelore, Gir, & Krishna Valley
- Color – Gray
- Show Division- American
- Breed Characteristics
  - Large Framed
  - Late Maturing
  - Increased Longevity
  - Naturally Horned or Polled
  - Large Hump on Shoulder/Neck “Rhomboideus muscle”
  - Loose Hided – Long Dewlap & Sheath
  - Heat Tolerant – Highly Developed Sweat Glands
  - Disease Resistant – Glands Release Oils That Repeal Insects
  - Maternal Breed
  - High Yielding

Red Brahman

- Country of Origin – United States
- Color – Red
- Show Division- American
- Breed Characteristics
  - Large Framed
  - Late Maturing
  - Increased Longevity
  - Naturally Horned or Polled
  - Large Hump on Shoulder/Neck
  - Loose Hided – Long Dewlap & Sheath
  - Heat Tolerant – Highly Developed Sweat Glands
  - Disease Resistant – Glands Release Oils That Repeal Insects
  - Maternal Breed
  - High Yielding
  - More popular color with Central and South American Clientele

Red Brangus

- Country of Origin – United States
- Color – Red
- Show Division- American
- Breed Characteristics
  - Originated From a Recessive Red Color Gene
  - Moderate to Large Framed
  - Naturally Polled
  - Moderate Crest on Neck
  - Loose Hided – Long Dewlap & Sheath
  - Disease Resistant
  - Heat Tolerant
  - Good Maternal Characteristics
  - High Fertility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Santa Gertrudis

- Country of Origin – United States
- Color – Red
- Show Division- American
- Breed Characteristics
  - 5/8 Shorthorn 3/8 Brahman
  - All descendants of “Monkey”
  - Naturally Horned
  - Moderate to Large Framed
  - Moderate Crest on Neck
  - Loose Hided – Long Dewlap & Sheath
  - Hardy Breed
  - Highly Adaptable to Different Environments
  - Maternal Breed
  - Growth Oriented
- Associated Registerable Composites
  - Star 5
  - ½ Santa Gertrudis and any other breed
  - Show in ARB Breed in Texas
  - American Show Division


HOUSTON
LIVESTOCK
SHOW AND RODEO
2008
CHAMPION
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Simbrah

- Country of Origin – United States
- Color – Red/White or Red or Black/White or Black
- Show Division- American
- Breed Characteristics
  - 5/8 Simmental 3/8 Brahman
  - Horned or Polled
  - Large Framed
  - Loose Hided – Moderate Dewlap & Sheath Lengths
  - Disease & Insect Resistant
  - Hardy Breed
  - Highly Adaptable to Different Environments
  - Maternal Breed
  - High Fertility
  - Growth Oriented

- Associated Registerable Composites
  - Percentage Simbrah
  - Miniumum 1/8 Simmental
  - Miniumum 1/8 Brahman
  - No more than 3/8 other breeds
  - Show in ARB Breed in Texas
  - American Show Division


6108

Angus

- Country of Origin – Scotland
- Color – Black
- Show Division- British

- Breed Characteristics
  - Naturally Polled
  - Moderate Framed
  - Early Maturing
  - Most popular choice for the maternal base of a cow herd
  - Maternal Breed
  - High Marbling
  - CAB- Certified Angus Beef

Horned Hereford

- Country of Origin – England
- Color – Red with White Face, "Feather", Under Belly, Legs, and Tail
- Show Division- British

- Breed Characteristics
  - Naturally Horned
  - Moderate Framed
  - Early Maturing
  - High Marbling
  - Hardy Breed
  - Prone to Pink-eye

Polled Hereford

- Country of Origin – United States
- Color – Red with White Face, "Feather", Under Belly, Legs, and Tail
- Show Division- British

- Breed Characteristics
  - Naturally Polled
  - Moderate Framed
  - Early Maturing
  - High Marbling
  - Hardy Breed
  - Prone to Pink-eye

Red Angus

- Country of Origin – United States
- Color – Red
- Show Division- British

- Breed Characteristics
  - Originated From a Recessive Red Color Gene
  - Naturally Polled
  - Moderate Framed
  - Early Maturing
  - Known For Feed Efficiency
  - Maternal Breed
  - High Marbling

Shorthorn
The "Durham"Breed

- Country of Origin – England
- Color – Red or Red/White or Roan or White
- Show Division- British
- Breed Characteristics
  - Originated as a Dual Purpose Breed
  - Horned or Polled
  - Moderate Framed
  - High Marbling
  - Maternal Breed
  - Growth Oriented
- Associated Registerable Composites
  - Shorthorn Plus
  - ½ Shorthorn and any other breed
  - Show in ORB Breed in Texas
  - Exotic Show Division


HOUSTON Livestock Show and Rodeo


FORT WORTH STOCK SHOW & RODEO
2015
FORT WORTH STOCK SHOW
GRAND CHAMPION
NATIONAL BRAUNVIEH SHOW
Peri Hughes
UNLIMITED USAGE

Braunvieh

- NOT a Crossbred
- Originated from Switzerland
- "Meat type Brown Swiss"
- Known for Fertility and Milking Ability

Charolais

- Country of Origin – France
- Color – White with pink hide
- Show Division- Exotic

- Breed Characteristics
  - Horned and Polled
  - Large Framed
  - Superior Growth
  - High Yielding
  - Highly Adaptable to Different Environments
  - Disease Resistant
  - Highly Feed Efficient
  - Most popular choice for providing terminal traits
  - Highly influential in Slick Shear Show Steer Production

- Associated Registerable Composites
  - Charolais Composite
  - ½ Charolais and any other breed
  - Show in ORB Breed in Texas
  - Exotic Show Division


THERE'S
NO PLACE
LIKE
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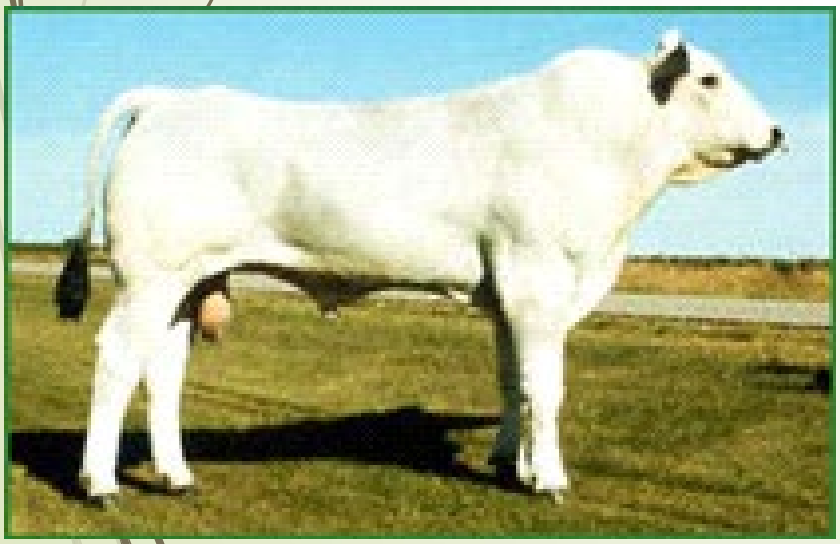
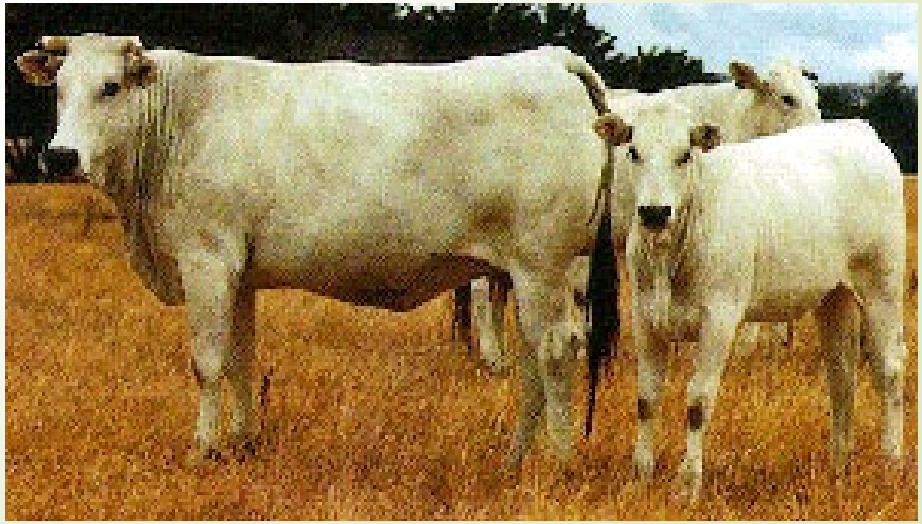
DIVISION
Champion
Focus
Marketing Group





Chianina

- Country of Origin – Italy
- Color – White with a Dark Hide, Black Nose, Ears, Eye, and Tail
- Show Division- Exotic

- Breed Characteristics
  - One of the Oldest Recorded Breeds
  - Large Framed – Modern Chi's are Moderate to Large Framed
  - One of the tallest breeds
  - Horned or Polled
  - Growth Oriented
  - High Yielding
  - Minimum Chianina Percentage required for High Percentage Status: 6.25%
  - Most Chianina Show Cattle will show little resemblance to a Fullblood Chianina Cattle

Gelbvieh

- Country of Origin – Germany
- Color – Red or Black
- Show Division- Exotic

- Breed Characteristics
  - Originally a Dual Purpose Breed
  - Naturally Polled
  - Maternal Breed
  - Calving Ease
  - High Fertility
  - Superior Growth
  - High Yielding
  - Show in ORB Breed in Texas

- Associated Registerable Composites
  - Balancer
  - 25%-75% Gelbvieh and 25-75% Angus or Red Angus
  - Maximum of 12.5% Other Breeds
  - Show in ORB Breed in Texas
  - Exotic Show Division


NATIONAL
WESTERN

Limousin

- Country of Origin – France
- Color – Red or Black
- Show Division- Exotic

- Breed Characteristics
  - Horned or Polled
  - Large Framed
  - Hardy Breed
  - Highly Adaptable to Different Environments
  - Superior Growth
  - High Yielding

- Associated Registerable Composites
  - Limflex
  - 25%-75% Limousin and 25-75% Angus
  - 50% and higher Limousin content will show with purebreds in Texas
  - Less than 50% Limousin will Show in ORB Breed in Texas
  - Exotic Show Division

Maine-Anjou

- Country of Origin – France
- Color – Red/White or Red or Black or Black/White
- Show Division- Exotic
- Breed Characteristics
  - Moderate to Large Framed
  - Originated as a Dual Purpose Breed
  - Good Maternal Characteristics
  - Growth Oriented
  - High Yielding
  - Highly Influential Breed in Show Steer Production
  - Minimum Maine Anjou Percentage required for Purebred Status: 87.5%
  - Minimum Maine Anjou Percentage required for High Percentage Status: 75%
  - Cattle having 75% or more Maine Anjou will show in the Maine Anjou Show
  - Most Maine Anjou Show Cattle will show little resemblance to Fullblood Maine Anjou Cattle

- Associated Registerable Composites
  - Maintainer
  - 25%-75% Maine Anjou and any other breeds
  - Maine Angus
  - Purebred Maine Anjou Mated to a Purebred Angus
  - All show in ORB Breed in Texas
  - All are Exotic Show Division


2009


EDGE


2009

Salers

- Country of Origin – France
- Color – Red or Black
- Show Division- Exotic

- Breed Characteristics
  - Originated as a Dual Purpose Breed
  - Horned or Polled
  - Moderate Framed
  - Hardy Breed
  - Highly Adaptable to Different Environments
  - Maternal Breed
  - Growth Oriented
  - Show in the ORB Breed in Texas


Christy Collins

Simmental

- Country of Origin – Switzerland
- Color – Red/White or Red or Black/White or Black
- Show Division- Exotic
- Breed Characteristics
  - Oldest Breed of Cattle in the World
  - Originated as a Dual Purpose Breed
  - Horned or Polled
  - Large Framed
  - Hardy Breed
  - Highly Adaptable to Different Environments
  - Maternal Breed
  - High Fertility
  - Superior Growth and Milk Production
  - Popular in Maternal Crosses
  - Some posses the diluter gene
  - Minimum Simmental Percentage required for Purebred Status: 87.5%

- Associated Registerable Composites
  - Sim Solution/Percent Simmental
  - 50%-75% Simmental and any other breeds
  - Sim Angus
  - 25%-75% Simmental and 25-75% Angus or Red Angus
  - All show in ORB Breed in Texas
  - All are Exotic Show Division

Breed Divisions

- American
  - Beefmaster
  - Charbray
  - Gray Brahman
  - Red Brahman
  - Red Brangus
  - Santa Gertrudis
  - Simbrah
- British
  - Angus
  - Hereford
  - Polled Hereford
  - Red Angus
  - Shorthorn
- European
  - Braunvieh
  - Charolais
  - Chianina
  - Gelbvieh
  - Limousin
  - Maine-Anjou
  - Saler
  - Simmental

Section 2

Cattle Management

General Terms

- Bovine – Refers to The Cattle Species
- Bull – Intact Male Able to Carry on Reproduction
- Bullock – A Young Bull Usually Less Than 20-24 Months of Age
- Cow – A Female That Has Calved
- Heifer – A Young Female That Has Never Calved
- Heiferette – A Female That was Placed Into Production, But Due to the Lack of Production, the Female is Removed from Production and Placed into Feedlot to be Finished Out For Harvest
- Stag/Cutting Bull – A Castrated Male That Had Already Reached Sexual Maturity Before Castration
- Steer – A Castrate Male of Any Age

General Terms Cont'd…

- Freemartin – A Sterile Heifer Born Twin to a Bull Calf
  - (Free = Sterile, Martin = Bovine)
  - About 90% of These Heifers Will Never Conceive

In The Bovine, The Extraembryonic Membranes Fuse to form a Common Chorion. These Membranes (Chorions) Share The Same Cotyledons. Thus There is a Common Blood Supply Between The Male and Female Fetus (Around Day 39 of Gestation). Because of This Shared Blood Supply, Each Conceptus Will be Exposed to The Same Hormonal Milieu. In The Bovine The Testes Develop Before The Ovaries. In Fact, The Testes are Recognized by Day 40, Whereas The Ovaries Require Several Weeks Longer to Develop. The Testes Produce a Substance Know as Anti-Mullerian Hormone. This Hormone Inhibits The Growth of The Paramesonephric Ducts (Mullerian Ducts) in The Female. Since The Female Twin is Exposed to This Hormone as The Female Reproductive Tract is Developing, The Paramesonephric Ducts do Not Develop Completely. This Incomplete Development Results in a "Blind" Tract and Canalization of The Tract is Not Compete. In Addition to This The Ovaries Cease to Grow and do Not Develop the Appropriate Complement of Germ Cells. Therefore, The Ovaries Can Not Produce Estrogen, and Often Produce Substantial Amount of Testosterone Leaving The Female Sterile.

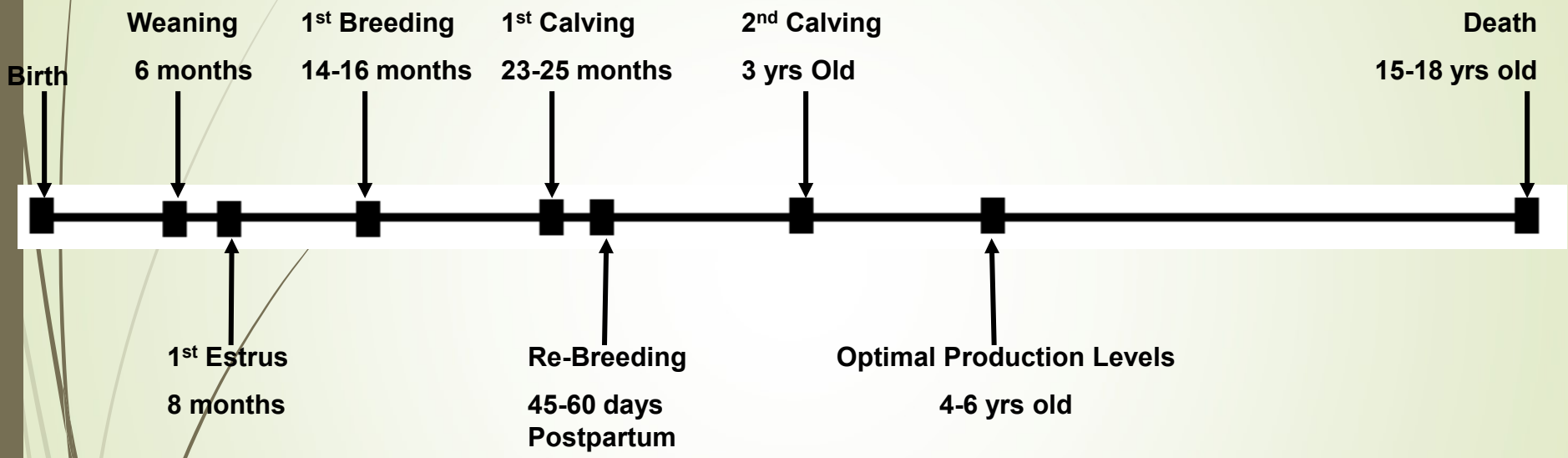
Reproduction

- Bull:
  - First Ejaculate Noticed: 8-10 Months of Age
  - Sexual Maturity: 14-18 Months of Age
  - Minimum Scrotal Circumference at Sexual Maturity: 32cm

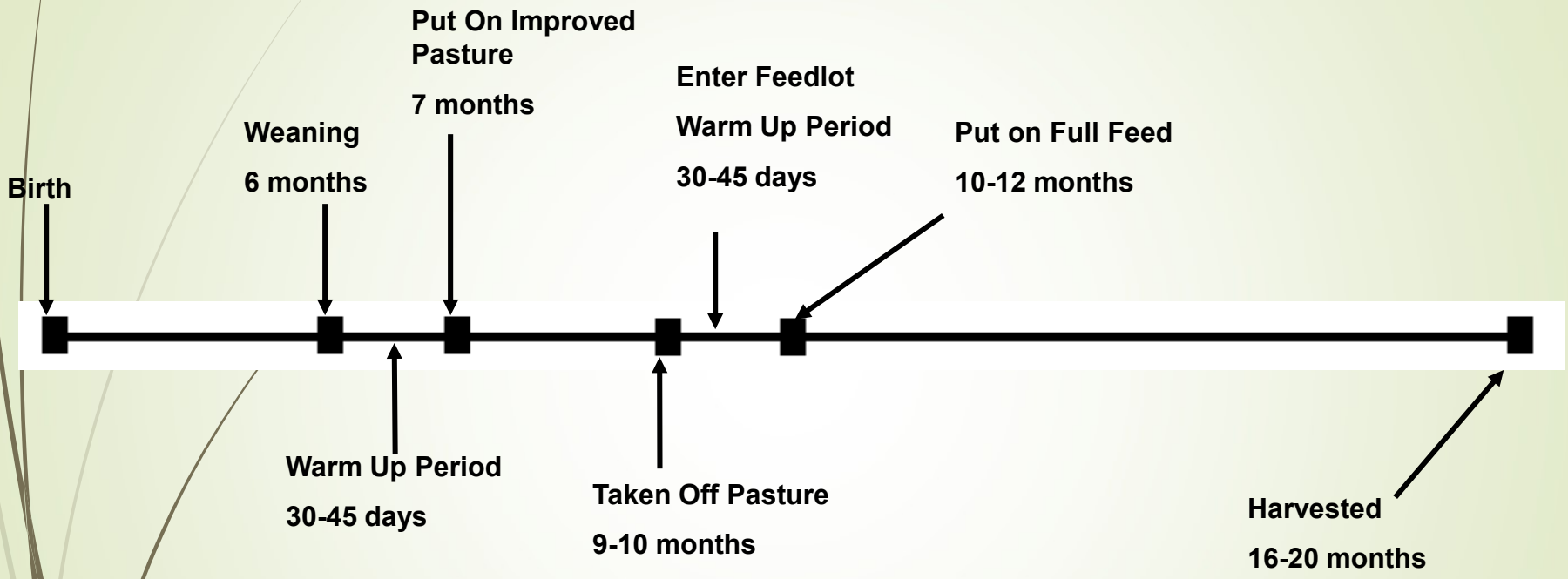
- Heifer / Cow:
  - First Estrus Noticed: 7-8 Months of Age
  - First Breeding: 14-16 Months of Age
  - First Calving: 23-25 Months of Age

  - Length of Estrous Cycle: 18-24 Days
  - Length of Estrus: 12-19 Hours
  - Time of Ovulation: 10-11 Hours
  - Time to AI: 7-18 Hours
  - Gestation: 283 Days

Typical Cow's Life Cycle



Typical Feeder Calf's Life Cycle



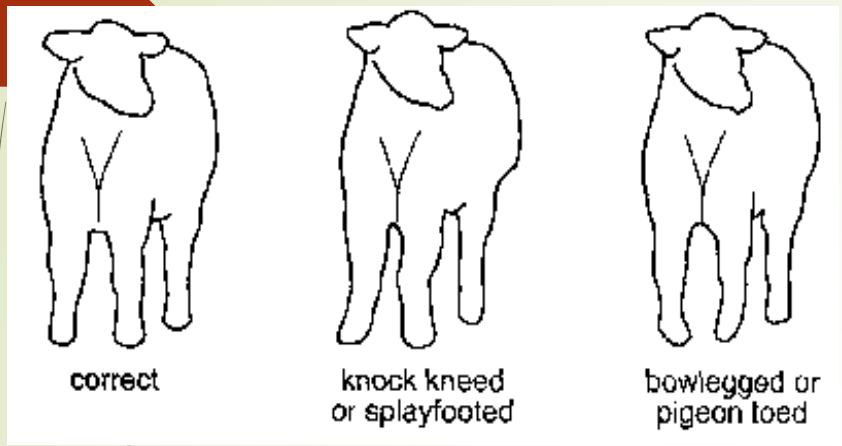
Section 3

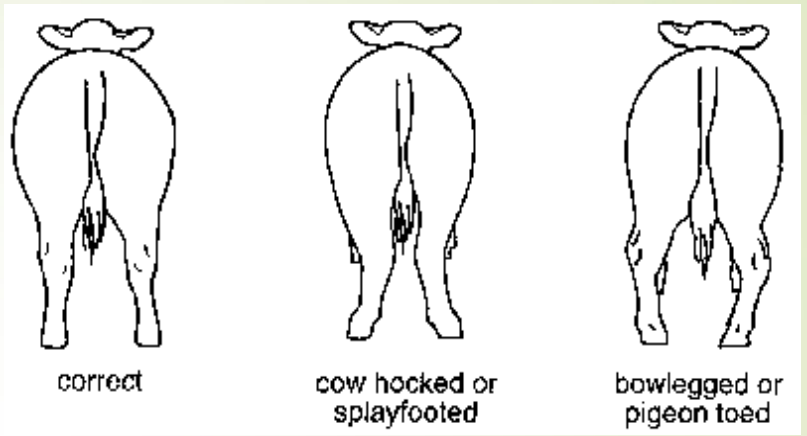
Phenotypic Evaluation

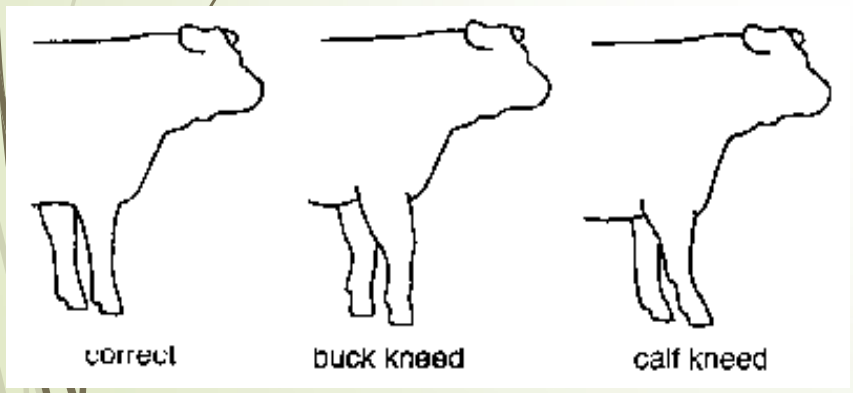
Priorities in Phenotypic Evaluation

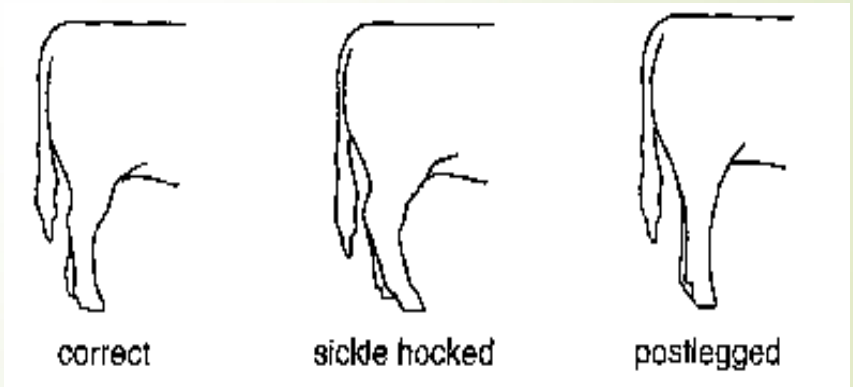
1. Structure
2. Volume
3. Muscling
4. Condition
5. Balance

Evaluating Structure

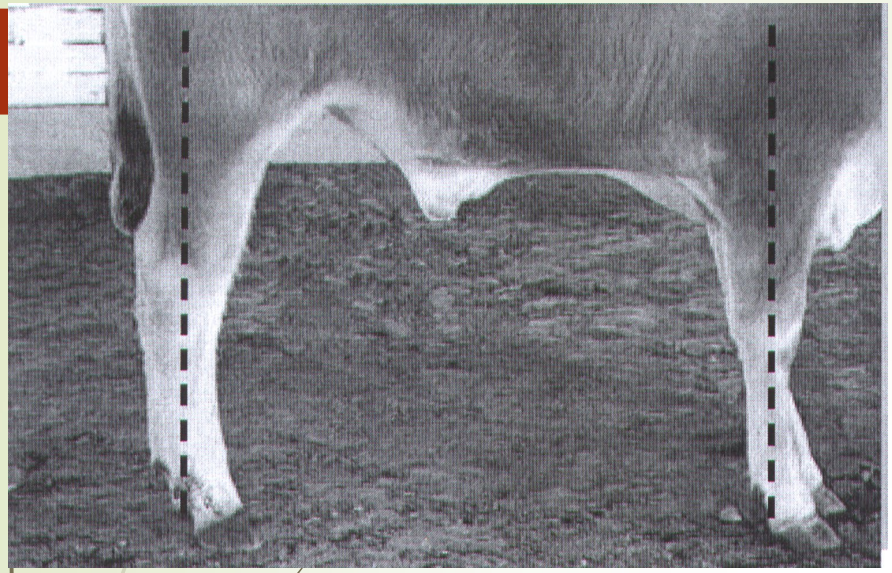




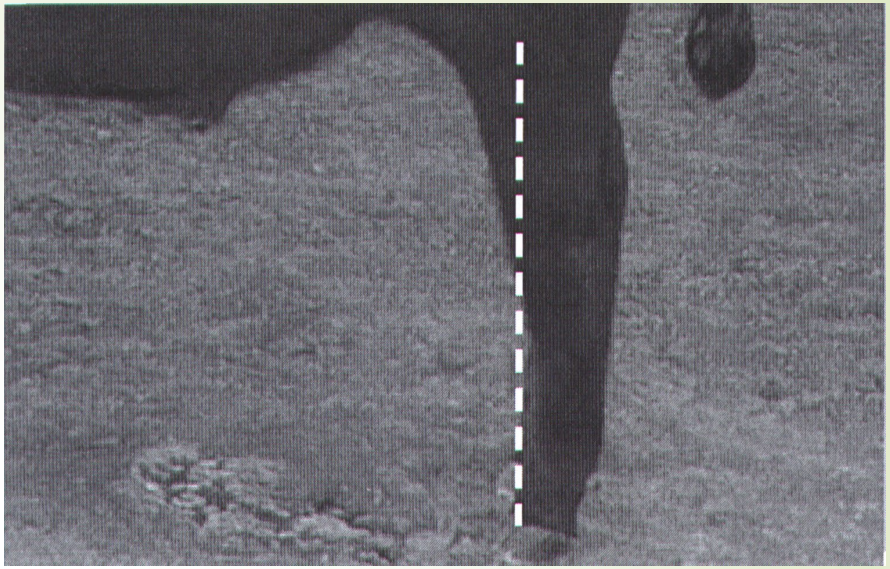




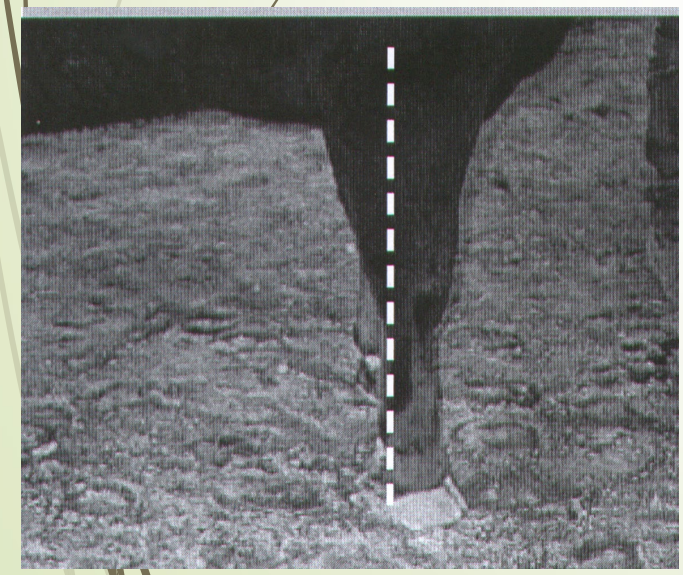
Evaluating Structure



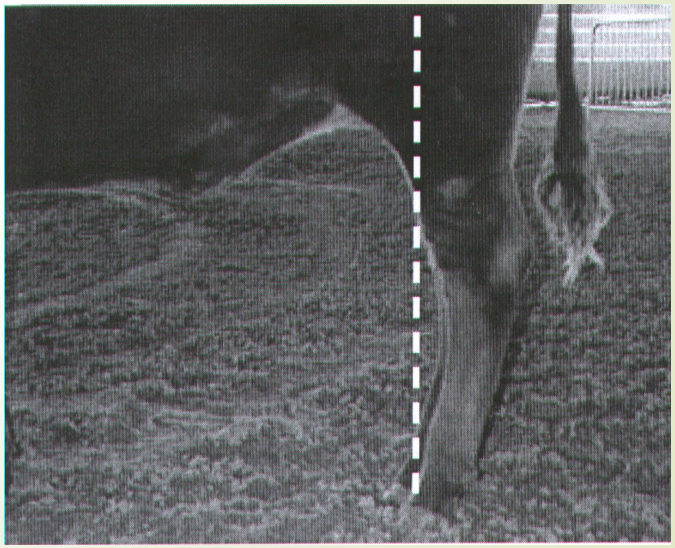
Correct – Feet & Legs Square Under the Body



Post-Legged – Very Little Curvature at the Hock

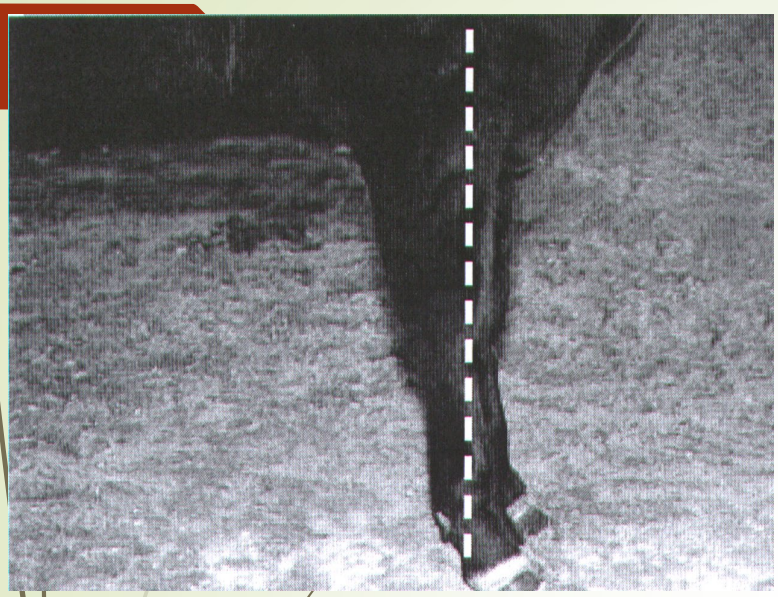


Buck-Kneed – Over-Extension of the Knee Forward

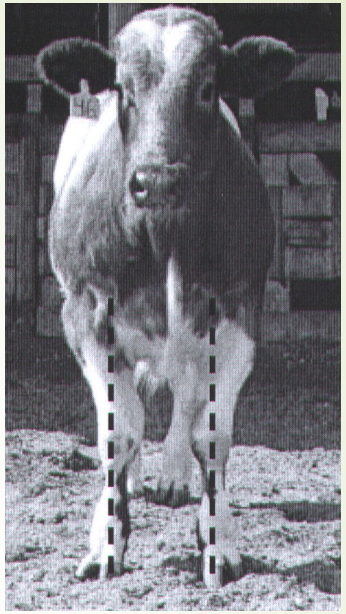


Sickle-Hocked – Extreme Curvature to the Hocks

Evaluating Structure

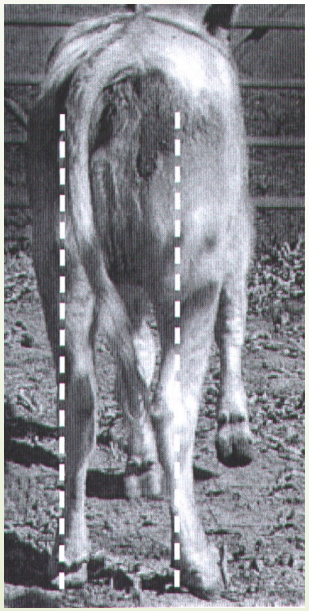


Calf-Kneed – Feet Extended Forward / Knees Pulled Back

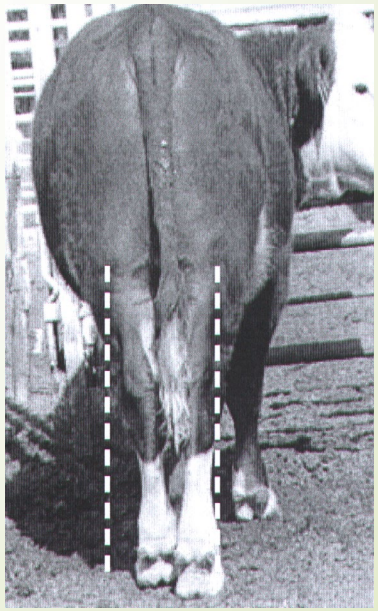


Toed-Out – Front Feet are Rotated to an Outward Position

Cow-Hocked – Hocks are Pulled Inward Causing the Back Feet to Rotate Outward



Narrow Stance in the Rear Legs



Evaluating Volume

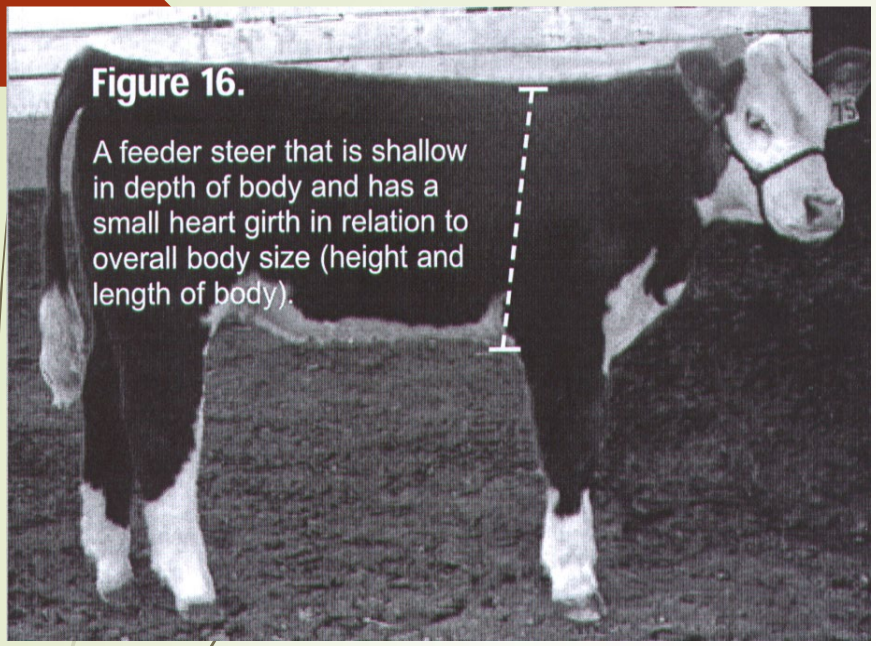


Figure 16.

A feeder steer that is shallow in depth of body and has a small heart girth in relation to overall body size (height and length of body).

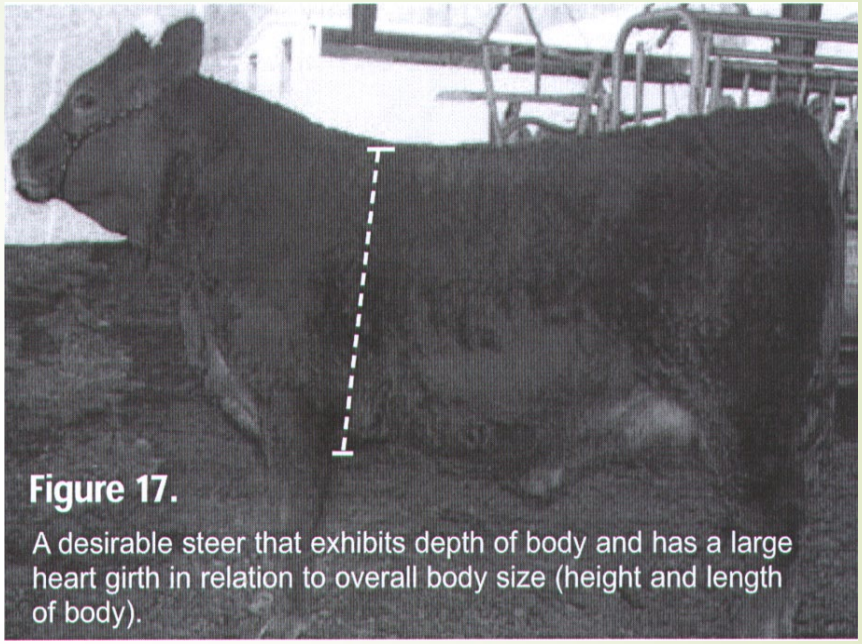
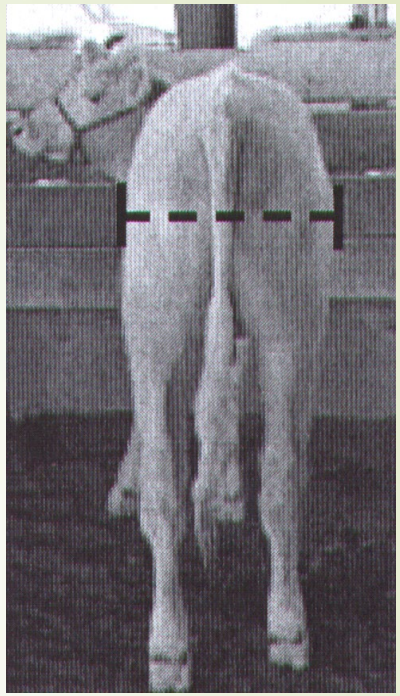


Figure 17.

A desirable steer that exhibits depth of body and has a large heart girth in relation to overall body size (height and length of body).

Evaluating Muscling



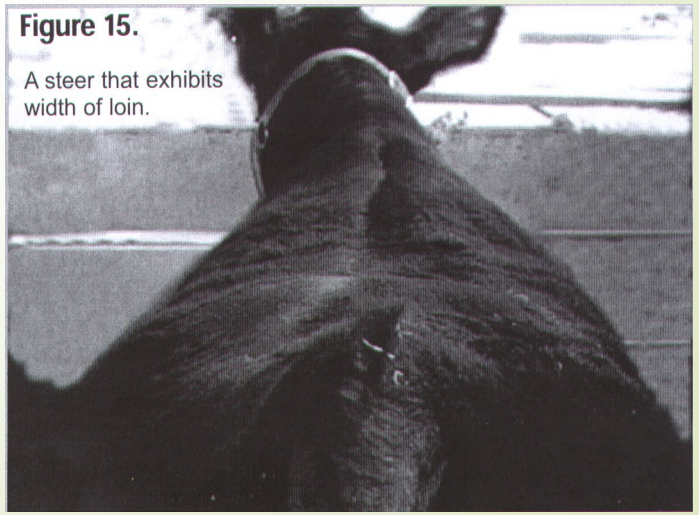


Figure 15.

A steer that exhibits width of loin.

Evaluating Muscling

Evaluating Condition

Body Conditioning Score (BCS) : Scale of 1 – 10

- **1 – Extremely Thin – No Fat Cover**
- **5 or 6 – Optimal Fat Cover**
- **10 – Obese**

Anatomical Points to Evaluate Condition:

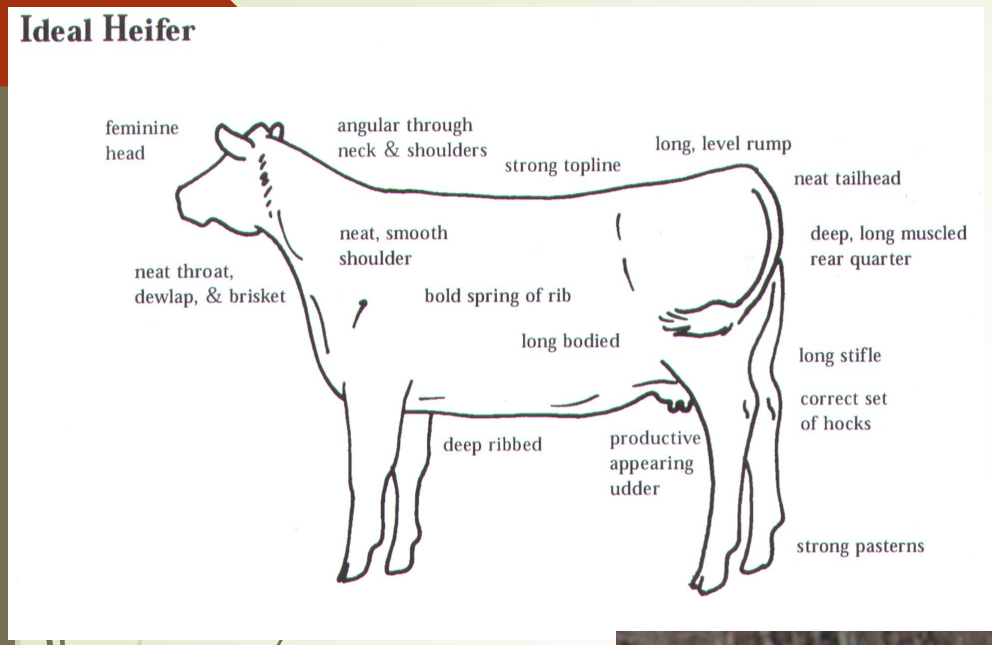
- **Brisket , Ribs, Down the Top, Pones, Cod/Udder**

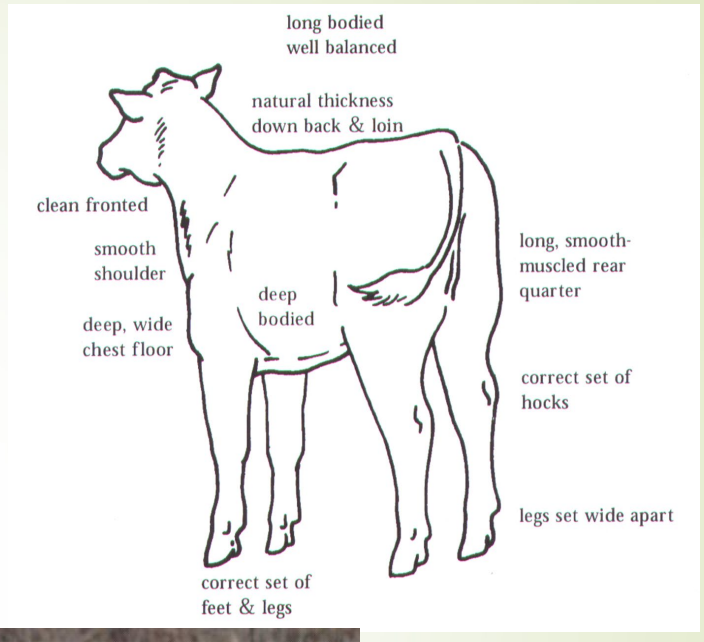
Cattle Fatten: Top to Bottom – Front to Back

Evaluating Condition

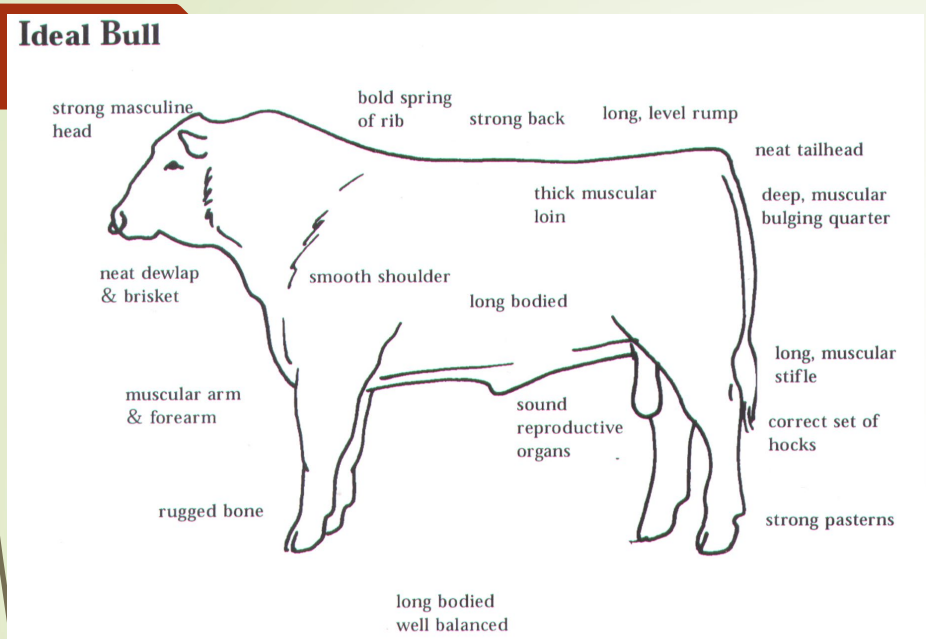
Evaluating Balance

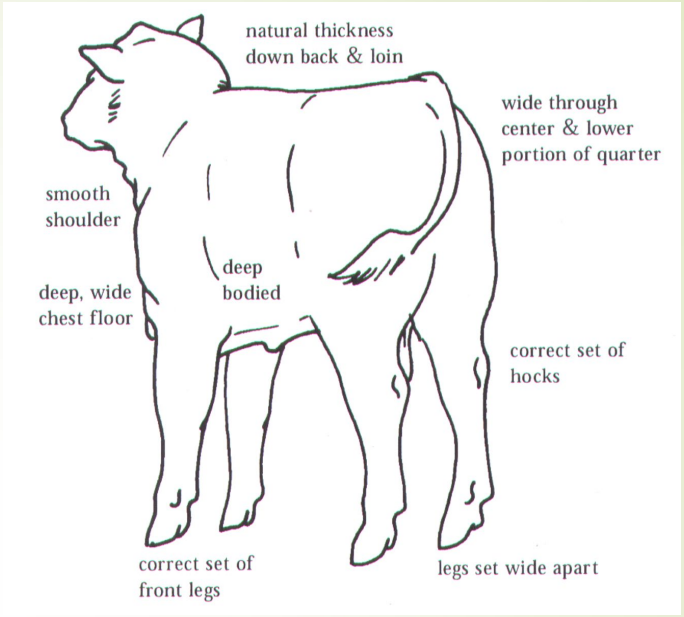
Ideal Heifer





Ideal Bull


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 bodied
deep, wide chest floor
correct set of hocks
correct set of front legs
legs set wide apart

Section 4

Performance Evaluation

EPD's
Expected Progeny Differences

Production EPD's

- CE : Calving Ease (+)
- BW : Birth Weight (-)
- WW : Weaning Weight (+)
- YW : Yearling Weight (+)

Maternal EPD's

- M : Milk (-/+)
- TM : Total Maternal (+)
- GL : Gestation Length (-)
- MW : Mature Weight (-/+)
- MH : Mature Height (-/+)
- Stay: Stayability (+)
- SC : Scrotal Circumference (+)
- DOC : Docility (+)

Carcass EPD's

- CW : Carcass Weight (-/+)
- Marb : Marbling (+)
- RE : Rib-eye Area (+)
- Fat : Fat Depth (-)
- YG : Yield Grade (-)

$ Values

- $EN : Cow Energy Value (+)
- $W : Weaned Calf Value (+)
- $F : Feedlot Value (+)
- $G : Grid Value (+)
- $B : Beef Value (+)
- $BMI : Baldy Maternal Index (+)
- $CEZ : Calving Ease Index (+)
- $BII : Brahman Influence Index (+)
- $CHB : Certified Hereford Beef (+)
- $MTI : Maintstream Terminal Index (+)
- API: All Purpose Index
- TI: Terminal Index

Understanding EPD's

- For Example: If you were evaluating the following bulls for their Yearling Weight EPD
- Yearling Weight EPD for Bull A: +120
- Yearling Weight EPD for Bull B: +80
- Breed Average Yearling Weight EPD: +100

Conclusions you can draw

- Bull A's progeny are predicted to be 40 pounds heavier at Yearling Age than Bull B's Progeny
- Bull A's progeny are predicted to be 20 pounds heavier at yearling age than the average progeny of the breed
- Bull B's progeny are predicted to be 20 pounds lighter at yearling age than the average progeny of the breed

EPD’s - Production

Calving Ease Direct (CE), is expressed as a difference in percentage of unassisted births, with a higher value indicating greater calving ease in first-calf heifers. It predicts the average difference in ease with which an sire's calves will be born when he is bred to first-calf heifers.

- **Birth Weight EPD (BW)**, expressed in pounds, is a predictor of a sire's ability to transmit birth weight to his progeny compared to that of other sires.
- **Weaning Weight EPD (WW)**, expressed in pounds, is a predictor of a sire's ability to transmit weaning growth to his progeny compared to that of other sires.
- **Yearling Weight EPD (YW)**, expressed in pounds, is a predictor of a sire's ability to transmit yearling growth to his progeny compared to that of other sires.
- **Scrotal Circumference EPD (SC)**, expressed in centimeters, is a predictor of the difference in transmitting ability for scrotal size compared to that of other sires.

EPD’s - Maternal

Maternal Milk EPD (Milk), is a predictor of a sire's genetic merit for milk and mothering ability as expressed in his daughters compared to daughters of other sires. In other words, it is that part of a calf's weaning weight attributed to milk and mothering ability.

- **Mature Weight EPD (MW)**, expressed in pounds, is a predictor of the difference in mature weight of daughters of a sire compared to the daughters of other sires.
- **Mature Height EPD (MH)**,expressed in inches, is a predictor of the difference in mature height of a sire's daughters compared to daughters of other sires.
- **Stayability (Stay)**, is an EPD (Expected Progeny Difference) index of the probability of a bull's daughter to enter the breeding herd and remain productive at least until 6 years of age.

EPD's - Carcass

- **Carcass Weight EPD (CW)**, expressed in pounds is a predictor of the differences in hot carcass weight of a sire's progeny compared to progeny of other sires.
- **Marbling EPD (Marb)**, expressed as a fraction of the difference in USDA marbling score of a sire's progeny compared to progeny of other sires.
- **Ribeye Area EPD (RE)**, expressed in square inches, is a predictor of the difference in ribeye area of a sire's progeny compared to progeny of other sires.
- **Fat Thickness EPD (Fat)**, expressed in inches, is a predictor of the differences in external fat thickness at the 12th rib (as measured between the 12th and 13th ribs) of a sire's progeny compared to progeny of other sires.

Angus $ Values (Indexes)

Cow Energy Value ($EN), expressed in dollars savings per cow per year, assesses differences in cow energy requirements as an expected dollar savings difference in daughters of sires. A larger value is more favorable when comparing two animals (more dollars saved on feed energy expenses). Components for computing the cow $EN savings difference include lactation energy requirements and energy costs associated with differences in mature cow size.

- **Weaned Calf Value ($W)**, an index value expressed in dollars per head, is the expected average difference in future progeny performance for preweaning merit. $W includes both revenue and cost adjustments associated with differences in birth weight, weaning direct growth, maternal milk, and mature cow size.

- **Feedlot Value ($F)**, an index value expressed in dollars per head, is the expected average difference in future progeny performance for postweaning merit compared to progeny of other sires.

- **Grid Value ($G)**, an index value expressed in dollars per head, is the expected average difference in future progeny performance for carcass grid merit compared to progeny of other sires.

- **Beef Value ($B)**, an index value expressed in dollars per head, is the expected average difference in future progeny performance for postweaning and carcass value compared to progeny of other sires.

Hereford - $ Values (Indexes)

BMI Index ($BMI) - The Baldy Maternal Index

Is a maternally focused index that has a production system based off of 1000 Hereford x Angus females with a progeny harvest endpoint directed towards CHB. This index is more critical of CE than the Brahman Influence Index and also has significant weight on fertility. There is positive weight on WW and a slightly negative weight on YW which promotes early growth and then a slow down on growth to keep mature size manageable. The weight for IMF is greater than the weight for REA. This is true because of the price difference between the choice-select spread and the fact that there is very little incentive to produce cattle better than a yield grade 3. The question comes up concerning the fact that our branded beef program (CHB) has been successful because of the acceptance of Select cattle. In answer to this, we are using a crossbreeding production system that could sell cattle on several grids and that our CHB program is installing a choice product. This index is geared to service any commercial program that runs British cross cows.

Hereford - $ Values (Indexes) Cont'd…

CEZ Index ($CEZ) - The Calving Easy Index

Is a general purpose index that focuses on identifying bulls that can be used on heifers and then ultimately the calves will be marketed through CHB. As you might expect, CE and MCE has significant weight in this index along with fertility. There is very little weight put on growth traits and less emphasis on carcass. Remember, this is a general index that is specifically designed to be used in a heifer program.

- BII Index ($BII) - The Brahman Influence Index

Is a maternally focused index that is based off of a 1000 head cow herd of Brahman x Hereford cross cows. The progeny for this index will be harvested in a commodity based system since CHB does not allow Brahman influenced cattle into the program. This index has less emphasis for CE than any of the other indexes. There is emphasis on both REA and IMF since the cattle will be harvested through a commodity market. The largest emphasis in this index is in fertility which is measured solely by Scrotal Circumference at the present time. Obviously, the target for this index is the producers in the Southern regions of the US where the bulls are typically sold to commercial cattlemen that have Brahman Influenced cow herds.

Hereford - $ Values (Indexes)

CHB Index ($CHB) – Certified Hereford Beef

The CHB Index is a terminal sire index that is built on a production system where Hereford bulls sire calves for the CHB market. There is some pressure put on CE and then positive weight on both WW and YW. Remember that all offspring in this index are harvested, so we want them to be born alive and then grow fast at all stages of life. Of course, we have a much heavier weight value on fat in this index, as we want the cattle to stay lean. There is also a significant weight on both REA and IMF with more emphasis again on IMF. This index would be used by producers who have a target of producing bulls for a terminal breeding program. This index could be used heavily in the Midwest where bulls are used in rotational breeding programs to produce cattle in a retained ownership program or simply sold to backgrounders. This is the only index that has no emphasis on fertility. Remember that nothing is retained in the herd.

Limousin Index

- Mainstream Terminal Index- This is the expected average profit per carcass of progeny of Limousin bulls mated to British-cross cows, with all calves placed in the feedlot and sold on a mainstream grid. It is a terminal sire index, including growth and carcass information only, since all calves are marketed and no females remain in the herd.

Simmental Indexes

- All-Purpose Index (API): Evaluates sires for use on the entire cow herd (bred to both Angus first-calf heifers and mature cows) with the portion of their daughters required to maintain herd size retained and the remaining heifers and steers put on feed and sold grade and yield.
- Terminal Index (TI): Evaluates sire for use on mature Angus cows with all offspring put on feed and sold grade and yield

Genetic defects of cattle

- Tibial hemimelia (TH)
- Pulmonary Hypoplasia with Anasarca (PHA)
- Arthrogryposis Multiplex (AM)
- Neuropathic Hydrocephalus (NH)