Beef Cattle Management

Eastern Navajo Cattle Herd Improvement

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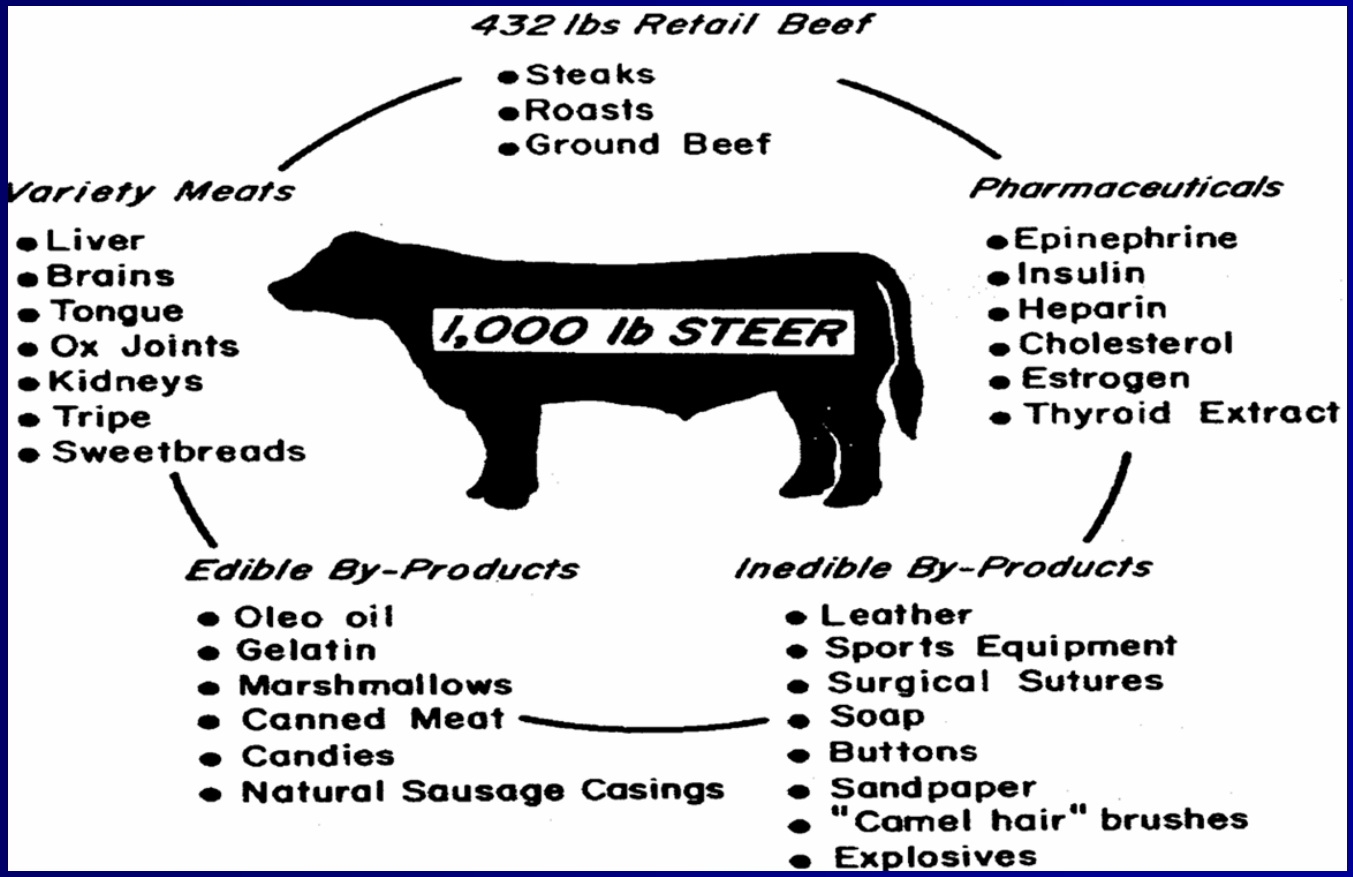
Western Sustainable Agriculture Research & Education Project

Cattle Production:

Establishing a livestock improvement program.

1. Genetics
2. Goals
3. Herd health programs
4. Management

Unit of Beef


432 lbs Retail Beef
Steaks
Roasts
Ground Beef
Variety Meats
Liver
Brains
Tongue
Ox Joints
Kidneys
Tripe
Sweetbreads
1,000 lb STEER
Pharmaceuticals
Epinephrine
Insulin
Heparin
Cholesterol
Estrogen
Thyroid Extract
Edible By-Products
Oleo oil
Gelatin
Marshmallows
Canned Meat
Candies
Natural Sausage Casings
Inedible By-Products
Leather
Sports Equipment
Surgical Sutures
Soap
Buttons
Sandpaper
"Camel hair" brushes
Explosives

Cattle Industry Structure

SEEDSTOCK produce breeding bulls and semen for Artificial Insemination

PRODUCT FLOW **DEMAND**

COW / CALF producers raise calves to weaning

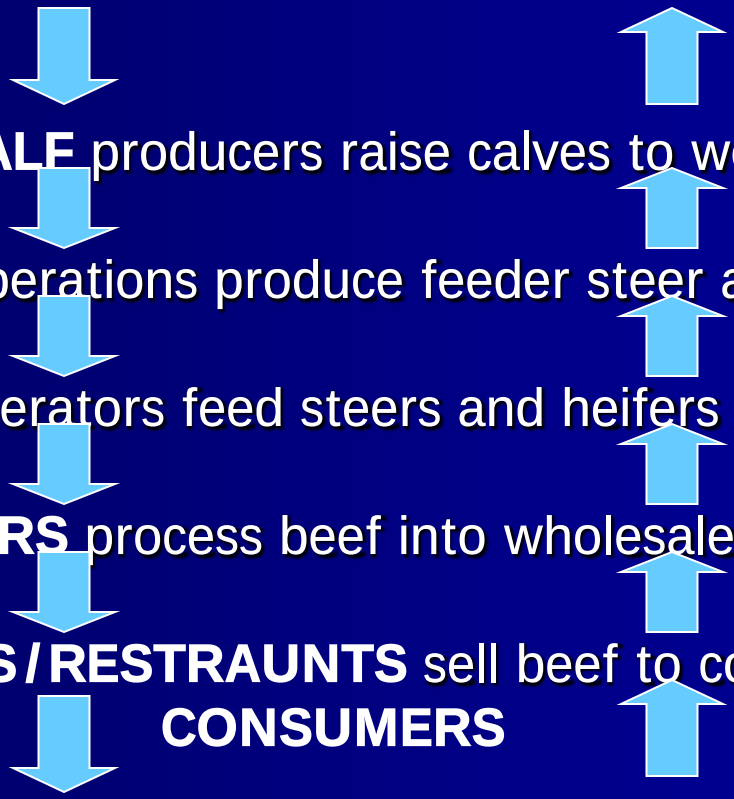
STOCKER operations produce feeder steer and heifers

FEEDLOT operators feed steers and heifers for market

PACKERS process beef into wholesale cuts

RETAILERS / RESTRAUNTS sell beef to consumers

CONSUMERS



Purebred or Seed stock producer (A.I.) Program

- Produces quality purebred stock Bull
- Registered Seed Stock
- Bull Selection Expected progeny Data EPDs
- Traits Selection
- Breed preference
- Breeding programs

Commercial Cow and Calf Operation

- Cattle ranches that product steers or market animals
- 205 adjusted weaning date
- Non- Registered Cattle
- Producers of beef

Cow and Calf Operation

Weaned Commercial Calves

Stocker Operation:

- Purchasing or retain-ownership of weaned calves, then graze them until they are around 800-900-lbs, then market or place them in a feedlot.
- Winter Cattle on crop residue
- Back grounding- Purchase or retain-ownership of weaned calves, then feed them a total mix ration until placed in a feedlot or finish them
- Receiving program
- Growing program

Stocker Operation Producer 200 days or less

Graze wheat pasture

Bunk feeding

The nearest stocker operation are in Texas panhandle


25
160
287
Liberal
283
64
Oklahoma
270
412
385
56
Dalhart
New Mexico
54
Dumas
Texas
60
Borger
87
Pampa
Amarillo
83
40
66
Canyon
Hereford
50 mi


TEXAS
Panhandle
Amarillo
Lubbock
Central Texas
Dallas/Ft. Worth Metro
West Texas
El Paso
Austin
East Texas
South Texas
Click on any region within a state for community listings and other information for that region.

Feeder producer:

- Feedlots- These business typically purchase weaned calves from the cow/calf segment or cattle from the stocker segment and finish them to harvest weights of 900-1400lbs.
- Cattle are on feed for 110-250 days, then market them to packer/processors.

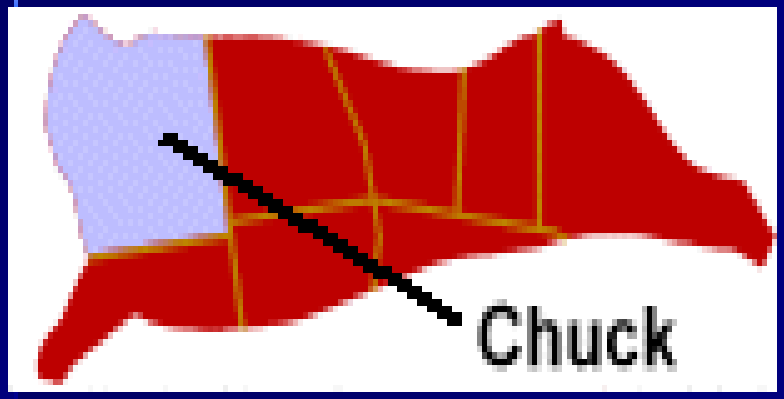
Feedlots

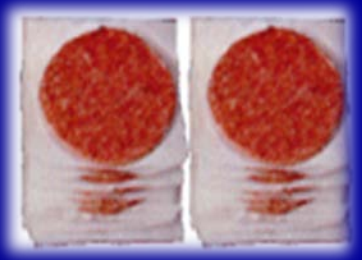
Harvesting Plant

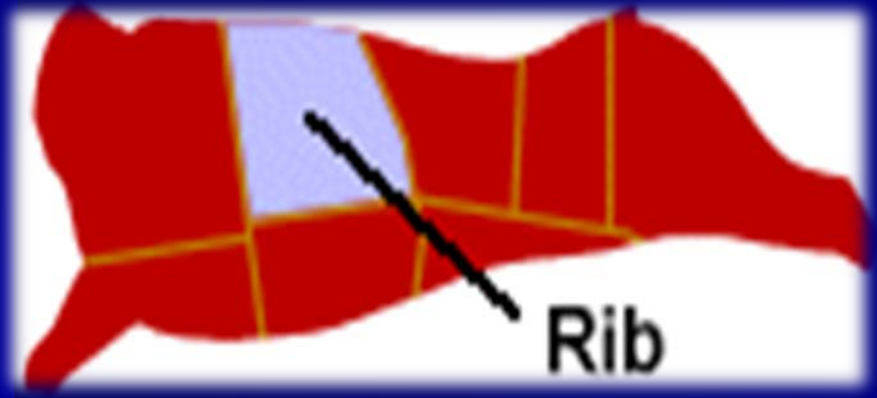
- Quality Grading and Yield Grading USDA

1. Prime
2. Choice
3. Select

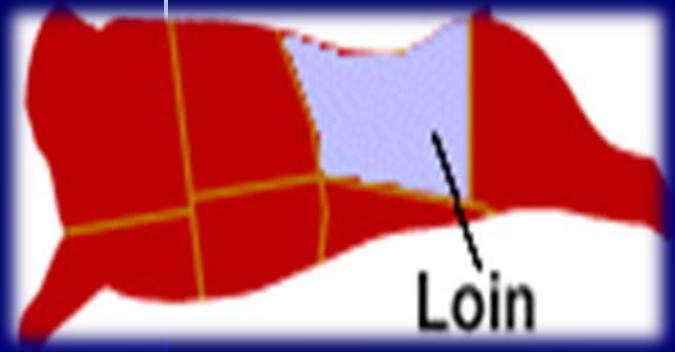
Cut of meat

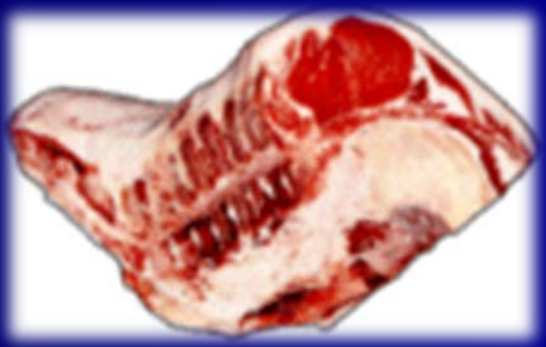


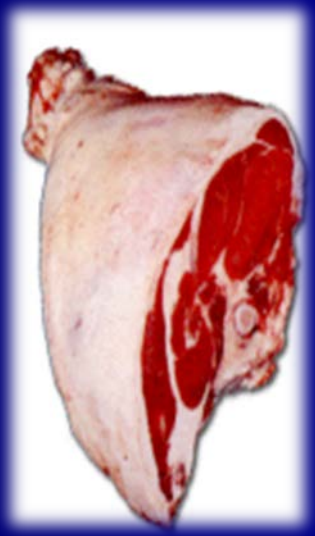




Cuts of meat







USDA Yield Grades:

- USDA Yield Grades identify the “quantity” or “Cut ability” deference among carcasses.
- Numerical representation of the expected percentage of closely trimmed, Boneless, retail, cuts from the round, loin, rib, and chuck.

Consumer

- Grocery store
- Restaurant
- Meat Market
- Steak House

Demand (Consumers)

- Packers/Processor- Beef packers harvest finished cattle purchased from feedlots, fabricating the beef carcass(typical 600-800lbs) into boxes of sub primal cuts-thus the term, boxed beef-then marketing these boxes to the purveyor.
- Purveyor- this is the segment that fabricates boxes of sub primal cuts into the retail cuts then markets them to retail outlets such as grocery stores, restaurants and hotels.

Demand

- Specialty cuts of meat by breeds
- Cost of meat
- Imports and Exports
- Quality of meat Lean, tenderness, juice, and flavor
- Request for a better meat

Demand of breeds

Marbling in Meat

Marbling matters: High-quality choice sirloin (top) and its fat cousin, Wagyu.

Cattle Marketing

- Private treaty
- Consignment sale
- Auction sale
- Retain ownership

- Ranch to Rail
- Beef Quality Assurance
- Natural beef

(18-20 month to get a quality finish)

- Uniform calf crop
- Certified beef program

Market Calves Vaccination Program

(1st shots in May or June at three months old)

Killed Virus and Modified Live Virus

Covexin 8

7-way blackleg including red water, plus tetanus protection for cattle and sheep.

Cattlemaster gold FP 5

IBR (infectious bovine rhinotracheitis)
BRSV (bovine respiratory syncytial virus)
PI3 (parainfluenza 3)
BVD (bovine viral diarrhea)

Not in Cattlemaster gold FP5;

Haemophilus somnus (optional)

Market Calves Vaccination Program

(2nd booster shots at weaning time)
this time use a Modified Live Virus for both

One Shot Ultra 8

Blackleg (8-way) with Pasteurella multocida/Mannheimia haemolytica

Cattlemaster gold FP 5

IBR (infectious bovine rhinotracheitis)
BRSV (bovine respiratory syncytial virus)
PI3 (parainfluenza 3)
BVD (bovine viral diarrhea)

Not in Cattlemaster gold FP5;
Haemophilus somnus (optional)

Cow and Heifer Vaccination Program March to May (Killed Virus)

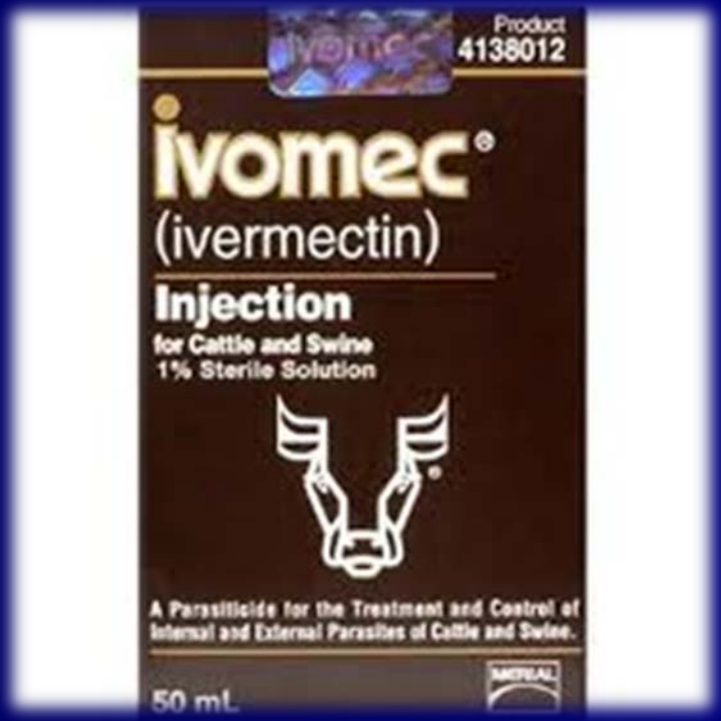
Covexin 8

7-way blackleg including red water, plus tetanus protection for cattle and sheep.

Vira Shield 6 + VL5 HB Somnus

IBR, BVD Types I and II, PI3, BRSV, Vibrio, 5 strains of Lepto, L. hardjo-bovis and Haemophilus somnus. Give 5 ml IM 2-4 weeks prior to breeding. Booster in 4-5 weeks. Annual booster is recommended. Safe for pregnant cows.

Parasite control
Injection or pour-on



Heifer development

- Heifer female bovine less than 3 yrs. old, has not gave birth.
- Mechanisms for replacing females in a herd.

1. Develop heifer from existing herd (control genetic knowing what bull your using)
2. Purchase replacement heifer (EZ to buy, disadvantage don’t know what you buying)
3. Purchase cow/calf pairs (can’t buy very much, dis don’t know the genetic development)

Understanding the heifer

- Growth
- Gain reproductive competence (puberty)
- Gestation
- Lactation
- Postpartum rebreeding, cow finish growing at 5 yrs.

Heifer Management

- Manage heifer separate from brood cows
- Only breed heifers that will calve by two years of age.
- Breed heifer to bulls with calving ease.
- Breed heifer 20-30 days earlier than cows.

Nutrition for pregnancy Trimesters

- First Trimester (July to Sept.) Range grass grazing summer months
- Second Trimester (Oct. to Dec.) Energy feed Hay, Oats, Corn
- Third Trimester (Jan. to March) Unborn calf growth is 75% in the last Trimester
- Feed high protein feed: Protein block,
- Range Cakes, or Crystalyx

Specialize Minerals and Protein supplements to improve; conception rate, ruminant development, weaning weights.

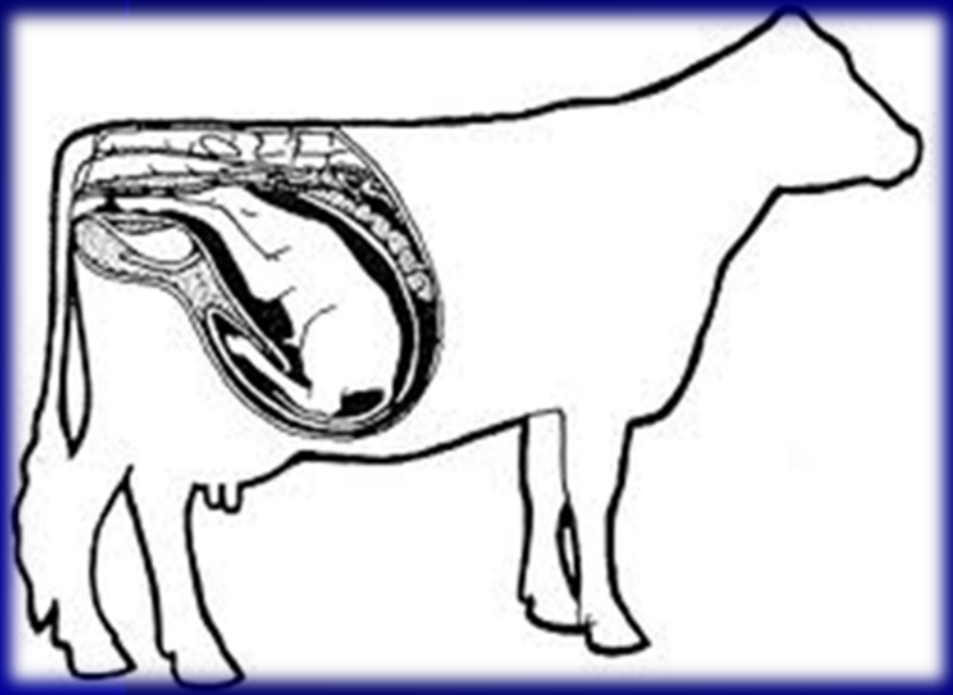
Goals

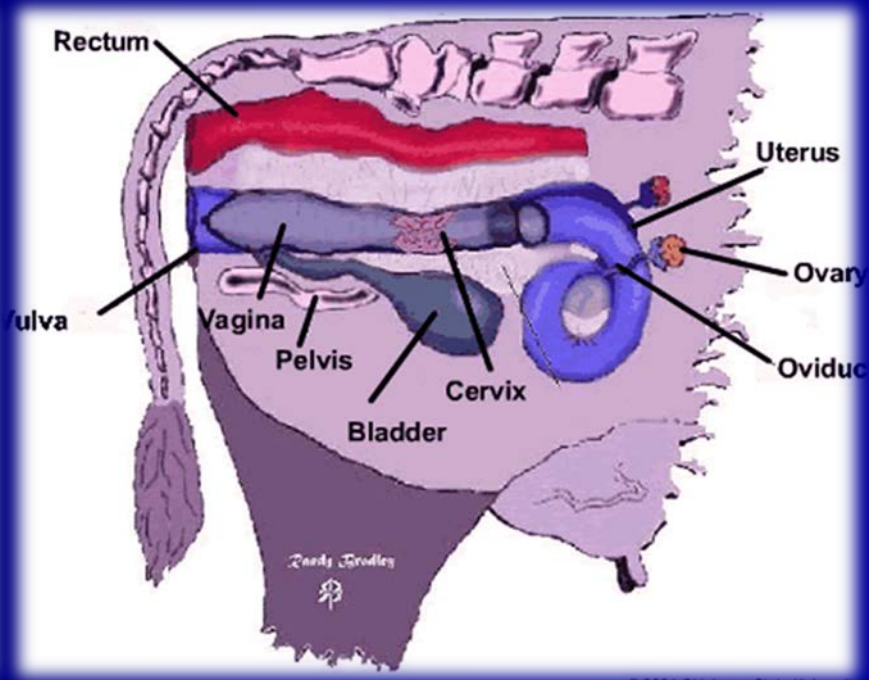
- Improve herd management program
- Increase herd health
- Improve genetics in herd
- Increase fertility in herd
- Uniform calf crop
- Average a 205 day weaning date
- Increase income on marketing

Note:

- Select bull for desired traits: color, polled, birth weights, etc.
- Develop a breeding program
- Develop a replacement heifers program
- Cull cow that don’t conceive by the third heat cycle (21 day for heat to heat)
- Know how to use a crossbreeding system

Uterine involution
65 days





Criteria for selection

- **Base of Genetics**
- **Demand for Product, *What type of calves will your cow produce***
- **Goal to become competitive or remain competitive**

Base of genetics

Phenotypic Traits

- **Color**
- **Polled (no horn)**
- **Horns**
- **Soundness**
- **Hip height & Wide**

Physical traits that can be seen or displayed.

Genotypic Traits

- **Birth Weights**
- **Milk Production**
- **Weaning wt**
- **Yearling wt**
- **Scrotal Cir.**

Genetic traits that can be seen but is measured by a number

Demand for product:

What type of calves will your cows produce

Building a Cattle Herd

Maternal breeds

- **Breeds that have mothering ability traits**
- **Keep replacement heifers**
- **Build a foundation herd**

Paternal breeds

- **Breeds that have carcass traits**
- **Use to develop calf bulls**
- **All offspring are bred for market**
- **Sell all offspring**

Knowledge of Genetic Principles

- **Traits**: any observable or measurable characteristic of an individual
- **Heritability**: proportion of difference (measured) between animals that is transmitted to the offspring
- **Heterosis or Hybrid Vigor**: an increase in performance of crossbreds over that of purebred

Breed Complementarity

- an improvement in the overall performance of crossbred offspring resulting from crossing breeds of different but complementary biological types.
- ***Heterosis or Hybrid Vigor***: an increase in performance of crossbreds over that of purebred

Goals to become competitive or main competitive: *Crossbreeding Systems*

1. **Straight breeding**
2. **Crossbreeding**
3. **Terminal Crossbreeding**

Introducing a breeding program

It take five years to see the results of a breeding program in a herd.

1. **First year;** breed the cows with bull
2. **Second year;** calves are born (replacement heifers).
3. **Third year;** calves heifers are bred as a yearling.
4. **Fourth year;** at two years old, the heifers has to have their first calves.
5. **Fifth year;** as young cows, they have to raise a calf, get rebred, and a another calf as a three years old.

Which would make a impact on herd improvement?

the cow!

That perfect cow that costs you $500

or

the bull!

That perfect bull that costs you $2,000

Straight Breeding

- Using the same breeds to created a full blood offspring.

Example

- breeding Hereford to Hereford
- Angus to Angus

Hereford Straight Breeding System

Angus Straight Breeding System

Crossbreeding

- Breeding two unrelated breeds to allow Hybrid Vigor.

Example

- Cross breeding Hereford bull to Angus cows resulting in a (black boldy) offspring out performing the parents in performance.

Crossbreeding System
Angus X Hereford crossbred

Crossbred Herd

Hereford Cows with Angus cross calves

Terminal Crossbreeding

- Using three unrelated breeds to in a crossbreeding system.

Example

- Cross breeding (F1) black boldys (Angus X Hereford) to a Parental breed like a Charolais bull.
- Developing composite breed like the Beef master, Brangus, and Braham.

Terminal Crossbreeding System

Bull of Breed A (100%)

Cow of Breed B (100%)

Bull of Breed C
(Terminal Sire)

F1 AB Female progeny (50%-50%)

Three Breed Crossbred Progeny
(25%A, 25%B, 50% C)

Market all Animals

Terminal Crossbred Herd

Ideal Breeding Season

- **Heifers 700 lbs. April 15 to Aug. 15**
- **Cows May 15 to August 15**
- **48 hour calf: hormone secretion takes effect in cow**
- **Selection yearling bull with 35 cm scrotal circumference *(for every cm is an average of 4 days of puberty in female offspring)***
- **Vaccinate 30 to 60 days before breeding season**
- **205 days adjusted weaning weight**

Heat to heat cycle

- 21 days estrous cycle
- Every 21 days a cows comes into heat
- 120 days 5 heat cycle
- 90 days 4 heat cycles
- 60 days 3 heat cycles

Breeding Protocols:
Increase calf crop % and uniformity

Breeding selection pressure on brood cows

- **120 day breeding season: cull open cows after June**
- **90 day breeding season: cull open cows after May**
- **60 day breeding season: cull open cows after April**

Uniform Calf Crop

- Almost the same age
- One color
- Same size
- Average weaning date 205 days old

Uniform calves vs. Not uniform

Uniform Herd of Hereford

Measurement of herd productivity

- **Weaning Weight: The weight of a calf at weaning.**
- **205 day adjusted weaning weight= (actual weight-birth weight / age in days between 160 and 250) x 205 + birth weight+ adjustment factor.**

How to used a bull EPD’S

Pedigree

- Pedigree: record of animal's ancestry.
- Registration papers.
- Purebred Cattle.

E.P.D.’s (Expected Progeny Difference)

1. E.P.D.’s are breed specific
2. E.P.D.’s are expressed in the units of the trait listed
3. E.P.D.’s have Accuracy

E.P.D.’s (Expected Progeny Difference)

- A tool used to compare genetic potential in cattle
- **Expected Progeny Difference**: Numerical value that predicts the expected difference between the average performance of an individual’s offspring and the average performance of all progeny within a breed

Bull Management

- Remove bulls after a 120 with cows
- May to August
- Winter bull on pasture or high fiber diet 75% fiber and 25% Protein.
- Semen test bull in January to allow retesting within 90 days.

Libido: Sexual Desire

- Serving Capacity: Measurement of the willingness of bull to mount
- Control bull: separate bulls during non-breeding season
- Condition bulls: feedlot bulls have higher spermatozoa percentage
- Increase conception rate percentage in cow within herd by the first two heat cycle

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Rule of Thumb for bull selection:

- Birth Weight 75 pounds
- Milk Production selection closest to zero or not more the +10 on EPDs
- Select Weaning Weights 500 pounds +
- Select Yearling Weights 1000 pounds +
- Scrotal Circumference 35 cm
- Select for Polled (no horns)