

# EXPLORE



## **Texas 4-H Beef Project** *Exploring Market Show Steers and Breeding Heifers*



[texas4-h.tamu.edu](http://texas4-h.tamu.edu)

The members of Texas A&M AgriLife will provide equal opportunities in programs and activities, education, and employment to all persons regardless of race, color, sex, religion, national origin, age, disability, genetic information, veteran status, sexual orientation or gender identity and will strive to achieve full and equal employment opportunity throughout Texas A&M AgriLife.



# EXPLORE

## TEXAS 4-H BEEF PROJECT



### Description

The Texas 4-H Explore series allows 4-H volunteers, educators, members, and youth who may be interested in learning more about 4-H to try some fun and hands-on learning experiences in a particular project or activity area. Each guide features information about important aspects of the 4-H program, and its goal of teaching young people life skills through hands-on experiences. Additionally, each guide contains at least six learning experiences, which can be used as a project guide, or as activities for six different 4-H meetings.

With a network of more than 6 million youth, 600,000 volunteers, 3,500 professionals, and more than 25 million alumni, 4-H helps shape youth to move our country and the world forward in ways that no other youth organization can.

### Texas 4-H

Texas 4-H is like a club for kids and teens ages 5-18, and it's BIG! It's the largest youth development program in Texas with more than 550,000 youth involved each year. No matter where you live or what you like to do, Texas 4-H has something that lets you be a better you!

You may think 4-H is only for your friends with animals, but it's so much more! You can do activities like shooting sports, food science, healthy living, robotics, fashion, and photography.

Look for 4-H clubs at your school, an after-school program, a community center, or even on a military base or through the reserves for military families.

Texas 4-H is part of the Texas A&M AgriLife Extension Service and the Texas A&M System. Founded in 1908, 4-H is the largest youth development program in Texas, reaching more than 550,000 youth each year.

### The 4-H Motto and Pledge

"To Make the Best Better!"

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.

### Participating in 4-H

4-H is a great program because it provides options for young people to participate. From a 4-H club located in your community, a SPIN club that focuses on one particular project area, or participating in 4-H through your classroom at school, 4-H allows youth to learn in many different environments. If you are interested in joining 4-H, contact your County Extension Office and ask for a list of the 4-H clubs in your area. If you are a school teacher/educator and would like to use 4-H curriculum or these project guides in your classroom, contact your Extension Office as well for assistance.

### Purpose

Texas 4-H is designed to develop the youth of our state into productive adult citizens. The 4-H Program uses a non-formal educational process of engaging youth in a "learning by doing" process. This includes hands-on opportunities, participation in workshops and clinics conducted by volunteer leaders or professionals, as well as competitive experiences which allow 4-H members to demonstrate the knowledge they have gained. Through this entire process, the youth are learning key life skills such as working with others, teamwork, cooperation, and goal setting. Through all experiences, youth get to interact with adult volunteers and county Extension agents.

### What is 4-H?

4-H members across the nation are responding to challenges every day in their communities and their world.

As the youth development program of the Cooperative Extension System of land-grant universities, 4-H is the nation's largest youth development organization, empowering six million young people throughout the United States. Cooperative Extension of 1862 and 1890 land-grant universities provide leadership to engage young people in 4-H in all 3,007 counties of the United States. The impact of the Cooperative Extension partnership is profound, bringing together National Institute of Food and Agriculture of USDA, land grant universities and county government to resource learning opportunities for youth.

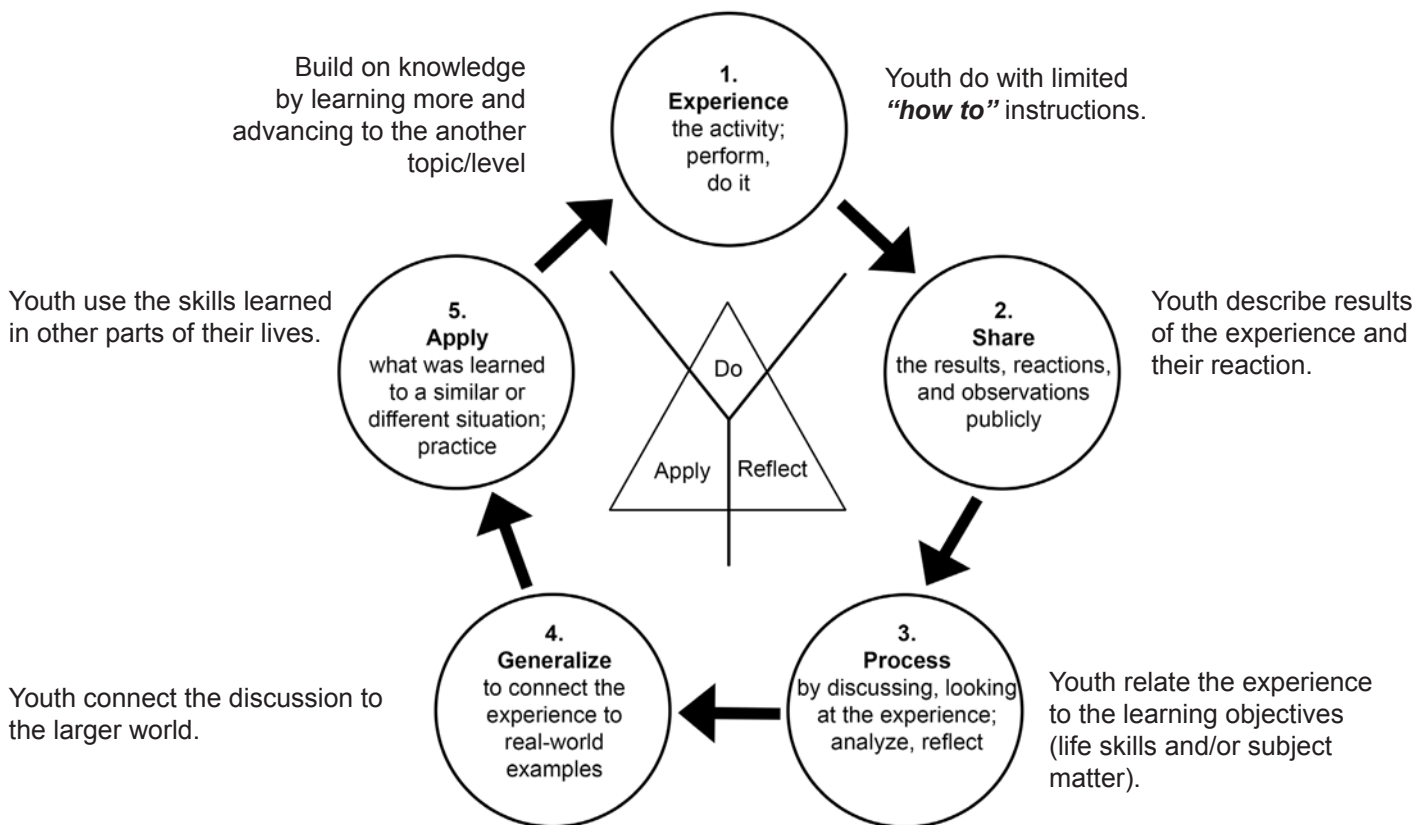
Through America's 110 land-grant universities and its Cooperative Extension System, 4-H reaches every corner of our nation—from urban neighborhoods to suburban schoolyards to rural farming communities.



## 4-H “Learning by Doing” Learning Approach

The Do, Reflect, Apply learning approach allows youth to experience the learning process with minimal guidance from adults. This allows for discovery by youth that may not take place with exact instructions.

### EXPLORE THE CONTENT Introduction of the topic, overview and exploration of content, and review of objectives







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**EXPLORE**  
  
**Beef Project**



# Animal Selection



## TIME:

15 minutes

## MATERIALS NEEDED:

Activity 1 - During Animal Selection:

- Guidance from a County Extension Agent, an Agricultural Science Teacher, rancher, breeder, 4-H leader or experienced livestock ambassador is recommended during the selection process.

Activity 2 - For Explore Activity:

- PowerPoint presentation with pictures of different steers or heifers with desirable trait differences or onsite livestock for viewing
- Poker Chips (number depends on the size of contest)
- Two Buckets
- Microphone and Sound System (Depending on Audience Size)
- Rope or Chalk to Create Barriers for Contestants (if using livestock)

## OBJECTIVES:

The 4-H member will:

- Learn the selection criteria of a market steer and breeding heifer.
- Learn about the various breeds of cattle.
- Learn when and where to select a market steer or breeding heifer.
- Be able to select a market steer or breeding heifer for livestock shows.

## EXPLORE THE CONTENT:

Why is animal selection important?

Selecting a market steer or breeding heifer for a livestock show is a critical beginning step in exhibiting beef cattle. You want to be able to distinguish between an animal with desirable traits and one that is not in line with livestock show standards. Several factors such as age, weight, frame size, and breed type play a role in selecting a market steer or breeding heifer.

### Age

- **Steers:** Steer calves intended for major livestock shows are born in August, September or October, purchased when they are 4 to 5 months old, and are typically market ready by 16 to 20 months of age. It is recommended to begin looking for calves in March and have the selection process completed by June. All market steers have to be state validated if they will be exhibited at major livestock shows in Texas. Steer validation occurs in June.
- **Heifers:** Heifer calves intended for major livestock shows can be born throughout the year because they are shown in age divided classes. More information about the age divisions can be found in the respective livestock show premium list. All breeding heifers have to be state validated if they will be exhibited at major livestock shows in Texas. Heifer validation occurs twice: once in June for fall shows (State Fair) and once in October for those shows occurring in Spring. For more information on heifer validation, visit [www.texasyouthlivestock.com](http://www.texasyouthlivestock.com).

### Weight

Steer and heifer calves are weaned from their mothers and begin eating feed when they weigh approximately 400 to 600 pounds. Calves typically remain on feed for 270 days and gain approximately 2 to 3 pounds per day. This yields a weight gain of 550 to 800 pounds, which puts calves at a market weight between 950 to 1,400 pounds. A range of possibilities exist for weight gain, as some cattle will gain faster than others. Because shows have different minimum and maximum weight requirements, it is important to check the specific show's rules and guidelines prior to exhibiting.

### Breed

There are several breeds of cattle to consider when selecting a market steer or breeding heifer. Always check the respective livestock show premium list for classification rules and divisions. Steer classification is usually conducted one of two ways. At





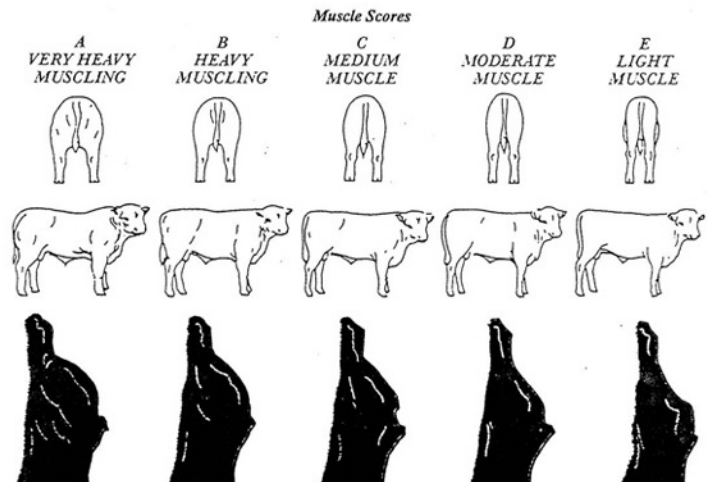
smaller shows, there are generally three divisions for breed types: British, Continental/Exotic and American breeds. At most major shows, these divisions are further divided into the most common breeds represented in the table below.

| BREED    | HEIFER DIVISIONS   | STEER DIVISIONS  | CHARACTERISTICS  |
|----------|--|--|--|
| British  | Angus, Red Angus, Hereford, Polled Hereford and Shorthorn  | Angus, Red Angus, Hereford, Polled Hereford and Shorthorn  | Easy to handle, recommended for younger exhibitors, easily fattened or finished.           |
| Exotic   | Charolais, Chianina, Limousin, Maine Anjou, Simmental, and Other Registered Breeds (ORB)   | Charolais, Chianina, Limousin, Maine Anjou, Simmental and All Other Breeds (AOB)   | Larger, fast growing, more muscular, less fat, recommended for older, stronger exhibitors. |
| American | Brahman, Brangus, Santa Gertrudis, Simbrah, and American Registered Breeds (ARB) such as Beefmaster or any other breeding with Brahman influence | Brahman, Brangus, Santa Gertrudis, Simbrah, and American Breed Crosses (ABC) such as Beefmaster or any other breeding with Brahman influence | Perform more efficiently in hot, humid climates.   |

**Criteria:** No matter which breed you choose to show, there are several factors to keep in mind when you're evaluating young livestock. The key selection criteria are based on the physical appearance of the animal, which is genetically based and cannot be altered by feeding the animal anything specific. Structure, muscle and balance are the three areas that are very important to consider when selecting your project.

The first area you should evaluate is structure. If a young calf has poor structure, it will be difficult for the animal to function as a 1,300-pound market-ready steer. Listed below are several structural areas to evaluate and what to look for within each area. If these components are combined correctly, the animal should be able to move freely and stand square and straight on his/her feet and legs.

- Feet: Calves' feet should be pointed straight ahead. Avoid animals that toe in or toe out.
- Legs: Calves' should stand square and straight on their feet and legs. Look for the animal to cover its tracks – the back feet should plant in the tracks where the front feet take off.
- Hocks: A hock is the joint in the back leg between the quarter and hoof. Evaluate the hock for proper flexibility, often referred to as proper set to the hock. Avoid animals that have too much flex (sickle-hocked) or have limited flex (post-legged). If the legs are pointing forward, the hocks should be also. Avoid animals that are bowlegged or cow-hocked.
- Pasterns: Pasterns are the joints that connect the fetlock to the top of the hoof. Ideally, the pasterns make a 45-degree angle with the ground. Avoid weak pasterns like the ones shown in the diagram, as well as pasterns that seem to pop when the animal walks. This indicates that the animal's structure may worsen with time.
- Shoulders: The animal's shoulder should tie in smoothly with its neck and make a 45-degree with the body.



The next area you should evaluate is muscle. Muscle and structure go hand-in-hand. You should evaluate the animal's muscle from behind (hip view), from the side, and looking down their top. It is important for steer calves



to have adequate muscle from the beginning so they have a solid foundation of muscle that they can continue to develop as they grow. It is extremely important for a market steer to have enough expressive muscle because they are evaluated on ability to produce a carcass that results in the maximum amount of lean red meat with a minimum amount of excess fat. Market steers should have a thick, level muscular top, and a long, level, wide hip. The quarter should be long and deep creating an expressive look in the animal's hindquarter. Expressive muscle refers to muscle that you see and feel on a live animal. The muscle score diagram shows a comparison of expressive muscle on a live animal to its respective carcass. Breeding heifers should also have adequate muscle, however not nearly as much as a steer. Females with excessive amounts of muscle become coarse in their appearance and are not considered feminine enough for the show ring. Generally, coarse made females do not milk as well and may not have the longevity of cows that are more feminine with less muscle.

Finally, balance ties it all together. If you are looking at a market steer, you want an animal that is level down their top, square out of their hip, clean through their front end with a neck that attractively ties into their top. If you are looking at a breeding heifer, you want her to have ideal female characteristics. Ideally, heifers have a long, thin neck with a feminine head. They should have a great deal of body capacity with well-sprung ribs. These characteristics contribute to a female's maternal traits, which is extremely important in the show ring and in the pasture. Balance refers to the symmetry of the animal, meaning they should be proportional front to rear and top to bottom.

\*Diagrams of structure for untrained eye from South Dakota State

**When and Where:** There are several places to look for a market steer or breeding heifer project. Many breeders will advertise in the various livestock show magazines about private treaty sales. Private treaty sales allow buyers to see the livestock, talk to the breeder, and get an overview of the facilities and different aspects of the operation. Instead of private treaty sales, some breeders have live auctions for market steers or breeding heifers. In addition, there are also online sales on websites like Breeders World. You can spend as much time traveling to ranches to look at cattle and talking to breeders as you please. Steers should be evaluated and purchased in February, March and April for spring major livestock shows. Heifers can be purchased at any time. A great technique in selecting cattle is to evaluate many animals to train your eye to recognize quality.

## DO:

Activity: Speed Judging

Preparation: If you don't have onsite livestock to evaluate, use the Speed Livestock Judging activity for an exercise in comparing steers to each other or heifers to each other with desirable or undesirable trait differences. Additional classes can be created in a Power Point format to expand 4-H members knowledge in livestock judging.

This activity can be found in Power Point format at: <http://texasyouthlivestock.com/beef-cattle/>

## REFLECT:

- Although these selection points are important, different people have different opinions when it comes to evaluating livestock animals. Keep this in mind on show day when the judge makes his selections.
- How important is starting out with an animal that has good structure?
- Who is available to offer guidance during the selection process?

## APPLY:

- Research the Livestock Show(s) you plan on attending to find out who will be judging. Research the judge's preferences on what traits he or she usually select for.
- Talk to a County Extension Agent or Agricultural Science Teacher about who is available as a Livestock Mentor related to the beef show cattle industry.



**REFERENCES:**

- [http://www.thejudgingconnection.com/pdfs/Managing\\_Beef\\_for\\_Show.pdf](http://www.thejudgingconnection.com/pdfs/Managing_Beef_for_Show.pdf)
- <http://www.cattlenetwork.com/cattle-news/Prepping-for-private-treaty-205281371.html>
- [http://www.extension.colostate.edu/SEA/4-H/Livestock/Steer\\_Selection.pdf](http://www.extension.colostate.edu/SEA/4-H/Livestock/Steer_Selection.pdf)

**ADDITIONAL RESOURCES:**

Body Diagrams: [http://pubstorage.sdstate.edu/AgBio\\_Publications/articles/YD4H402.pdf](http://pubstorage.sdstate.edu/AgBio_Publications/articles/YD4H402.pdf)  
Muscle Diagrams: [http://herefords.co.nz/newsletter\\_april2012.php](http://herefords.co.nz/newsletter_april2012.php)



## **ACTIVITY: SPEED JUDGING**

Speed judging is a fun and interactive spin on livestock judging. The contest provides embedded education and immediate results.

### **Objectives**

- Teach Livestock Evaluation
- Promote Quick Decision Making
- Increase Livestock Production Knowledge
- Create a Fun and Competitive Environment
- Competition with Instant Results

### **Rules:**

- Two livestock animals (or pictures of two livestock animals) are presented to be evaluated at a time
- Moderator asks question related to two animals
- Animal #1 is positioned to contestants left and animal #2 on the right respectively
- Participants have two numbered or colored chips (blue representing #1; red representing #2)
- Participants have 20 seconds to answer after the question is presented
- Moderator describes to audience how the question relates to livestock production
- Encourage parents/adults and eliminated contestants to watch other contestants from the stands
- Participants place the chip or number that corresponds to the wrong answer in the bucket and hang on to the chip they believe answers the question correctly
- Moderator will report the correct answer. Participants holding the correct chip are still in the game. Participants holding the wrong chip are eliminated from the game.

### **Equipment Required:**

- Poker Chips
- Two Buckets
- Microphone and Sound System (Depending on Audience Size)
- Rope or Chalk to Create Barriers for Contestants
- Keeps contests from getting too close to livestock
- Livestock

**Between 1 and 2, which steer is more muscular from behind?**



**#1**



**#2**



**ANSWER: Between 1 and 2, which steer is more muscular from behind?**



#1



#2



**Between 1 and 2, which steer is more level in his topline?**



**#1**



**#2**



**ANSWER: Between 1 and 2, which steer is more level in his topline?**



#1



#2



**Between 1 and 2, which steer has more muscle behind his shoulder?**



**#1**



**#2**



**ANSWER: Between 1 and 2, which steer has more muscle behind his shoulder?**



#1



#2

**Between 1 and 2, which heifer is the heaviest boned?**



**#1**



**#2**



**ANSWER: Between 1 and 2, which heifer is the heaviest boned?**



**#1**



**#2**

**Between 1 and 2, which heifer is more level in her topline?**



**#1**



**#2**



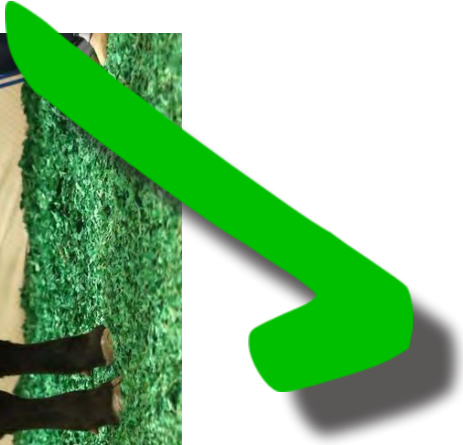
**Between 1 and 2, which heifer is more level in her topline?**



**#1**



**#2**





# Nutrition and Feeding



## TIME:

30-45 minutes

## MATERIALS NEEDED:

- Feed tag handout

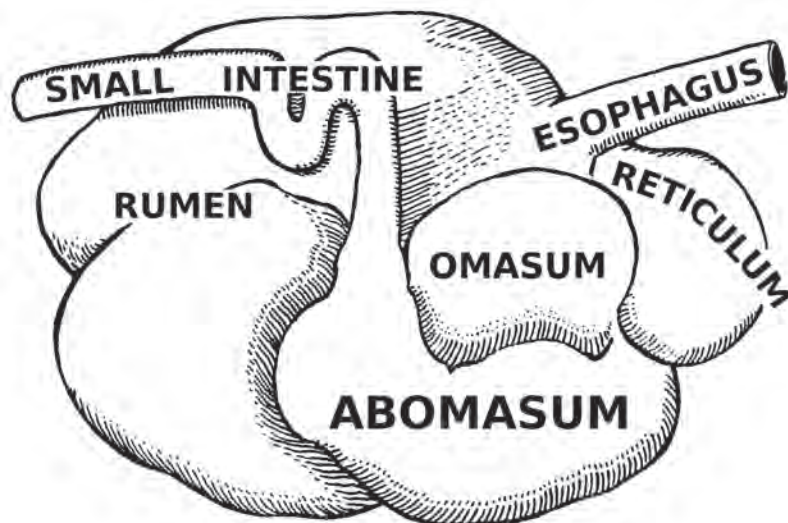
## OBJECTIVES:

The 4-H member will be able to:

- Explain the digestive tract of ruminants
- Describe feed components of common diets for cattle
- Learn about special nutritional requirements for cattle

## EXPLORE THE CONTENT:

Cattle are ruminant animals, meaning they have a four-compartment stomach. The initial compartment of the stomach is the reticulum, which is the organ that catches and traps foreign objects cattle eat, preventing damage to the rest of the digestive tract. In addition, the reticulum plays a vital role in the rumination process, where feed is regurgitated (returned to the mouth), re-chewed, and re-swallowed. Digesta moves freely between the reticulum and the rumen (the next compartment). In the rumen, the largest compartment, ingested feed is fermented by ruminal microbes (i.e., bacteria, protozoa, and fungi). Fermentation results in the production of volatile fatty acids (the primary energy source for ruminants) and microbial protein (the primary protein source). Ruminal microbes enable animals, like cattle, sheep and goats to survive on diets containing large amounts of fiber, like grass. The omasum is the third compartment, and its main function is to filter and absorb nutrients leaving the rumen. Next is the abomasum, also known as the true stomach, which acts much like a human stomach. Enzymatic digestion begins in the abomasum and continues in the small intestines. Three segments make up the small intestine: the duodenum, jejunum, and the ileum. Lastly, the large intestine, like the rumen, is a site of fermentation. Products that are still intact after passing through the large intestine will be excreted in the feces.



Water is the most essential nutrient in all livestock diets. Without water, the body cannot maintain itself. If an animal loses more than 20% of its body water, there could be fatal consequences. Cattle need between 6-12% of their body weight in water per day, depending on a number of factors: diet, temperature, climate, age, level of production, breed, etc.







| Stock Type         | Consumption Per head per day (L) |
|--------------------|----------------------------------|
| Cattle:            |                                  |
| Lactating cows     |                                  |
| -grassland         | 40-100                           |
| -saltbush          | 70-140                           |
| Young stock        | 25-50                            |
| Dry stock (400 kg) | 35-80                            |

<http://www.livestock-emergency.net/userfiles/file/water-supply/Marwick-2007.pdf>

Understanding types of digestive systems is especially important when it comes to feeding livestock. Ruminants have an advantage because they are able to ferment forages at the beginning of the tract, but this can cause problems if they are overfed diets that are high in starch (e.g., corn or other grains). Cattle rely heavily on forages, like hay, to get essential nutrients and to ensure a healthy rumen environment. Forages keep the pH of the rumen at a normal level around 6.5. If fed too much grain with not enough forage, cattle will get acidotic and can bloat, potentially leading to death.

### Common Feeds for Show Cattle

| NAME             | PERCENTAGE in FEED |     |             |          |
|------------------|--------------------|-----|-------------|----------|
|                  | CRUDE PROTEIN      | TDN | CRUDE FIBER | ROUGHAGE |
| Oats             | 12                 | 68  | 12          | 30       |
| Corn             | 9                  | 80  | 2           | 0        |
| Milo             | 9                  | 75  | 3           | 0        |
| Barley           | 11                 | 75  | 6           | 15       |
| Cottonseed meal  | 41                 | 70  | 12          | 0        |
| Soybean meal     | 44                 | 75  | 6           | 0        |
| Cottonseed hulls | 4                  | 41  | 43          | 100      |
| Grass hays       | 9*                 | 50  | 28          | 100      |
| Dehy. Alfalfa    | 17                 | 56  | 25          | 20       |
| Molasses         | 3                  | 57  | 0           | 0        |

\* May range from less than 5% to more than 15%

<http://animalscience.tamu.edu/wp-content/uploads/sites/14/2012/04/beef-feeds-and-feeding.pdf>

Grain-concentrated diets are also important for cattle, especially in a finishing setting. If you want cattle to gain weight quickly, then a grain-based diet is essential. Average daily gain (ADG) is a term used to monitor the rate at which an animal is gaining per day. For example, if a calf weighs 600 lbs., and 60 days later weighs 750 lbs., the ADG is 2.5 pounds per day. Depending on the quality of forage and/or the ingredients of a grain ration, an animal will gain at varying rates. Adding supplemental grain to diets can be necessary for animals that are producing at an increased rate. Lactating cows



or growing calves will have increased requirements; this could also constitute an increase in energy or amino acids in the diet. Cattle on low-quality pasture require supplementation to meet their nutrient requirements.

### Example of expected growth from start to finish for a beginning 600 -pound steer, with a 45.2- inch hip measurement, fed for about 300 days.

|              | MAR  | APRIL | MAY  | JUNE | JUL  | AUG  | SEPT  | OCT   | NOV   | DEC   | JAN   | GOAL  |
|--------------|------|-------|------|------|------|------|-------|-------|-------|-------|-------|-------|
| WT in pounds | 600  | 670   | 740  | 810  | 880  | 950  | 1,020 | 1,090 | 1,160 | 1,230 | 1,300 | 1,300 |
| HT in Inches | 45.2 | 46.3  | 47.3 | 48.2 | 49.0 | 49.8 | 50.4  | 51.1  | 51.6  | 52.0  | 52.4  | 52.4  |

[http://www.thejudgingconnection.com/pdfs/Managing\\_Beef\\_for\\_Show.pdf](http://www.thejudgingconnection.com/pdfs/Managing_Beef_for_Show.pdf)

### Nutrient requirements for growing and finishing cattle (nutrient concentration in diet dry matter, avoirdupois system).

| Weight (lb) | Daily Gain (lb) | Dry Matter Intake (lb) | Protein Intake (lb) | Protein (%) | TDN (%) | CA (%) | P (%) |
|-------------|-----------------|------------------------|---------------------|-------------|---------|--------|-------|
| 500         | 0.5             | 12.0                   | 1.0                 | 8.5         | 52.5    | 0.24   | 0.17  |
|             | 1.0             | 12.8                   | 1.21                | 9.5         | 56.0    | 0.33   | 0.19  |
|             | 1.5             | 13.4                   | 1.40                | 10.4        | 59.5    | 0.39   | 0.21  |
|             | 2.0             | 13.8                   | 1.57                | 11.4        | 63.5    | 0.46   | 0.24  |
|             | 2.5             | 14.0                   | 1.73                | 12.4        | 67.5    | 0.55   | 0.25  |
|             | 3.0             | 14.0                   | 1.88                | 13.4        | 72.0    | 0.63   | 0.28  |
|             | 3.5             | 13.6                   | 2.00                | 14.7        | 78.5    | 0.73   | 0.32  |
| 600         | 0.5             | 13.8                   | 1.11                | 8.2         | 52.5    | 0.22   | 0.18  |
|             | 1.0             | 14.6                   | 1.31                | 9.0         | 56.0    | 0.29   | 0.18  |
|             | 1.5             | 15.3                   | 1.50                | 9.7         | 59.5    | 0.35   | 0.20  |
|             | 2.0             | 15.8                   | 1.66                | 10.5        | 63.5    | 0.40   | 0.22  |
|             | 2.5             | 16.1                   | 1.81                | 11.3        | 67.5    | 0.47   | 0.23  |
|             | 3.0             | 16.1                   | 1.95                | 12.1        | 72.0    | 0.52   | 0.26  |
|             | 3.5             | 15.6                   | 2.05                | 13.2        | 78.5    | 0.61   | 0.28  |
| 700         | 0.5             | 15.4                   | 1.21                | 7.9         | 52.5    | 0.21   | 0.17  |
|             | 1.0             | 16.4                   | 1.41                | 8.6         | 56.0    | 0.27   | 0.19  |
|             | 1.5             | 17.2                   | 1.59                | 9.2         | 59.5    | 0.31   | 0.19  |
|             | 2.0             | 17.8                   | 1.74                | 9.8         | 63.5    | 0.36   | 0.21  |
|             | 2.5             | 18.0                   | 1.88                | 10.5        | 67.5    | 0.40   | 0.22  |
|             | 3.0             | 18.0                   | 2.01                | 11.1        | 72.0    | 0.45   | 0.23  |
|             | 3.5             | 17.5                   | 2.10                | 12.0        | 78.5    | 0.52   | 0.26  |

<http://extension.arizona.edu/sites/extension.arizona.edu/files/pubs/az1054.pdf>

Although most feeds contain the vitamins and minerals required by cattle, they may need some added



nutrients during times of growth or lactation. Because cattle are ruminant animals, the fermentation processes in the rumen produces all the essential B vitamins, as well as vitamin K. Minerals are split into two classes, macro minerals: calcium, magnesium, phosphorus, potassium, sodium, chlorine and sulfur. And, micro minerals: iron, manganese, copper, zinc, selenium, cobalt and iodine. If not fed at the proper amounts, some minerals can cause deficiency problems, while others can be toxic if over-fed.

### Macro mineral requirements and maximum tolerable levels for beef cattle.

| Mineral       | Lactating Cows | Dry Cows | Growing Calves | Maximum Tolerable Level |
|---------------|----------------|----------|----------------|-------------------------|
| Calcium, %    | 0.31           | 0.18     | 0.58           | —                       |
| Magnesium, %  | 0.10           | 0.12     | 0.20           | 0.40                    |
| Phosphorus, % | 0.21           | 0.16     | 0.26           | —                       |
| Potassium, %  | 0.60           | 0.60     | 0.70           | 3.0                     |
| Sodium, %     | 0.07           | 0.07     | 0.10           | —                       |
| Sulfur, %     | 0.15           | 0.15     | 0.15           | 0.40                    |

NRC, 1996. Adapted from NRC. Nutrient Requirements of Beef Cattle, Sixth Edition.

<http://extension.uga.edu/publications/detail.cfm?number=B895>

### Micromineral Requirements and Maximum Tolerable Levels for Beef Cattle.

| Mineral         | Lactating Cows | Dry Cows | Growing Calves | Maximum Tolerable Level |
|-----------------|----------------|----------|----------------|-------------------------|
| Chromium        | —              | —        | —              | 50.0                    |
| Cobalt, ppm     | 0.1            | 0.1      | 0.1            | 10.0                    |
| Copper, ppm     | 10.0           | 10.0     | 10.0           | 100.0                   |
| Iodine, ppm     | 0.50           | 0.50     | 0.50           | 50.0                    |
| Iron, ppm       | 50.0           | 50.0     | 50.0           | 1000.0                  |
| Manganese, ppm  | 20.0           | 40.0     | 40.0           | 1000.0                  |
| Molybdenum, ppm | —              | —        | —              | 5.0                     |
| Nickel          | —              | —        | —              | 50.0                    |
| Selenium, ppm   | 0.10           | 0.10     | 0.10           | 2.0                     |
| Zinc, ppm       | 30.0           | 30.0     | 30.0           | 500.0                   |

NRC, 1996. Adapted from NRC. Nutrient Requirements of Beef Cattle, Sixth Edition.

<http://extension.uga.edu/publications/detail.cfm?number=B895>


**Mineral content of commonly used forages and concentrate feeds.**

| Feedstuff            | Calcium % | Phosphorus % | Potassium % | Sulfur % | Copper, ppm | Zinc, ppm |
|----------------------|-----------|--------------|-------------|----------|-------------|-----------|
| Bahiagrass Pasture   | 0.46      | 0.22         | 1.45        | 0.21     | 8.0         | 20.0      |
| Bermudagrass Pasture | 0.39      | 0.26         | 1.3         | 0.28     | 9.0         | 20.0      |
| Bermudagrass Hay     | 0.43      | 0.20         | 1.61        | 0.21     | 9.0         | 20.0      |
| Fescue Pasture       | 0.51      | 0.27         | 2.3         | 0.19     | 5.8         | 18.7      |
| Fescue Hay           | 0.51      | 0.37         | 2.3         | 0.18     | 6.0         | 22.0      |
| Corn                 | 0.03      | 0.31         | 0.33        | 0.14     | 4.8         | 16.0      |
| Corn Silage          | 0.25      | 0.22         | 1.14        | 0.12     | 4.2         | 17.7      |
| Corn Gluten Feed     | 0.07      | 0.95         | 1.40        | 0.47     | 7.0         | 73.3      |
| Cottonseed Meal, 41% | 0.20      | 1.16         | 1.65        | 0.42     | 16.5        | 74.0      |
| Whole Cottonseed     | 0.16      | 0.62         | 1.22        | 0.26     | 7.9         | 37.7      |
| Soyhulls             | 0.53      | 0.18         | 1.29        | 0.11     | 17.8        | 48.0      |
| Soybean Meal, 44%    | 0.40      | 0.71         | 2.22        | 0.46     | 22.4        | 57.0      |
| Molasses             | 1.00      | 0.10         | 4.01        | 0.47     | 65.7        | 21.0      |
| Citrus Pulp          | 1.88      | 0.13         | 0.77        | 0.08     | 6.2         | 15.0      |

NRC, 1996. Adapted from NRC. Nutrient Requirements of Beef Cattle, Sixth Edition.

<http://extension.uga.edu/publications/detail.cfm?number=B895>

**DO:**
**Activity: Reading a Feed Tag**

Preparation: The purpose of this activity is to teach students how to read a feed tag. Using the feed bag tag example found in this lesson, print each young person a copy and have them complete the questions on the bottom of the page

Rules:

- Ask participants to answer the questions you prepared for the feed tag.
- Discuss the importance of each question and explain the correct answers.

**REFLECT:**

- Where is a feed tag located on a bag of feed?
- Why is it important to read feed tags?
- What do feed tags tell you?

**APPLY:**

- Consider the animals you are feeding and what they require for optimal health and growth. After consideration, analyze what their feed is currently providing. Some feed questions to think about include:
  - Is the diet meeting the animal's requirements?
  - Does this feed suit the animal's stage of life?
  - Is the feed palatable?
  - Can the diet be easily digested?
- Why is proper feeding and nutrition important?
- Will your cattle need additional supplements not included in the feed?





## ACTIVITY: Reading a Feed Bag Label

Net Weight 50 lbs. (22.68 Kg)

# 16% Hi Energy Beef Preconditioner

## PURPOSE

Feed to newly-weaned and preconditioning cattle

### \* GUARANTEED ANALYSIS \*

|  |             |
|--|-------------|
| Crude Protein, not less than . . . . . | 16.00%      |
| Crude Fat, not less than . . . . .     | 3.20%       |
| Crude Fiber, not more than . . . . .   | 10.00%      |
| Calcium, not less than . . . . .       | .75%        |
| Calcium, not more than . . . . .       | 1.00%       |
| Phosphorus, not less than . . . . .    | .50%        |
| Salt, not less than . . . . .          | .50%        |
| Salt, not more than . . . . .          | 1.00%       |
| Potassium, not less than . . . . .     | .85%        |
| Vitamin A, min. per lb . . . . .       | 10,000 I.U. |

### \* INGREDIENTS \*

Grain Products, Processed Grain By-Products, Plant Protein Products, Roughage Products, Molasses Products, Calcium Carbonate, Salt, Monocalcium Phosphate, Fat Products (Feed Grade), Ferrous Sulfate, Manganous Oxide, Zinc Sulfate, Ethoxyquin (a preservative), BHA, Vitamin E Supplement, Vitamin A Supplement, D-Activated Animal Sterol (Source of Vitamin D-3), Copper Sulfate, Sodium Selenite, Calcium Iodate, Ethylenediamine Dihydriodide and Cobalt Carbonate.

### \* FEEDING DIRECTIONS \*

Feed 16% Hi Energy Beef Preconditioner to newly weaned or newly received cattle at a rate of 1 to 2% of body weight along with good quality free-choice hay.

Provide ample bunk or feeder space and plenty of clean, fresh water at all times.

### \* CAUTION \*

Follow feeding directions at all times. This product contains added selenium. Intake of supplemental selenium should not exceed 0.3 parts per million on a complete diet basis or a total of 3 milligrams per head per day.

Store in dry area.

DO NOT use any product that has become old, moldy or insect contaminated.

**Manufactured by  
Custom Feed Company  
P.O. Box 1234  
Anytown, TX 00000**

### Complete the following questions for the feed bag label.

1. What is the main feed ingredient in this feed?
2. What is the crude protein level?
3. What is the minimum crude fat level of this diet?
4. Is Copper Sulfate included in the ingredients of this diet?
5. How much ration should be fed to a 1,000 lb. steer/heifer?
6. When should this feed be fed to steers/heifers?
7. What are the minimum and maximum Calcium levels of this diet?

**ACTIVITY: Reading a Feed Bag Label - ANSWER KEY**

Net Weight 50 lbs. (22.68 Kg)

# 16% Hi Energy Beef Preconditioner

## PURPOSE

Feed to newly-weaned and preconditioning cattle

### \* GUARANTEED ANALYSIS \*

|  |             |
|--|-------------|
| Crude Protein, not less than . . . . . | 16.00%      |
| Crude Fat, not less than . . . . .     | 3.20%       |
| Crude Fiber, not more than . . . . .   | 10.00%      |
| Calcium, not less than . . . . .       | .75%        |
| Calcium, not more than . . . . .       | 1.00%       |
| Phosphorus, not less than . . . . .    | .50%        |
| Salt, not less than . . . . .          | .50%        |
| Salt, not more than . . . . .          | 1.00%       |
| Potassium, not less than . . . . .     | .85%        |
| Vitamin A, min. per lb . . . . .       | 10,000 I.U. |

### \* INGREDIENTS \*

Grain Products, Processed Grain By-Products, Plant Protein Products, Roughage Products, Molasses Products, Calcium Carbonate, Salt, Monocalcium Phosphate, Fat Products (Feed Grade), Ferrous Sulfate, Manganous Oxide, Zinc Sulfate, Ethoxyquin (a preservative), BHA, Vitamin E Supplement, Vitamin A Supplement, D-Activated Animal Sterol (Source of Vitamin D-3), Copper Sulfate, Sodium Selenite, Calcium Iodate, Ethylenediamine Dihydriodide and Cobalt Carbonate.

### \* FEEDING DIRECTIONS \*

Feed 16% Hi Energy Beef Preconditioner to newly weaned or newly received cattle at a rate of 1 to 2% of body weight along with good quality free-choice hay.

Provide ample bunk or feeder space and plenty of clean, fresh water at all times.

### \* CAUTION \*

Follow feeding directions at all times. This product contains added selenium. Intake of supplemental selenium should not exceed 0.3 parts per million on a complete diet basis or a total of 3 milligrams per head per day.

Store in dry area.

DO NOT use any product that has become old, moldy or insect contaminated.

**Manufactured by  
Custom Feed Company  
P.O. Box 1234  
Anytown, TX 00000**

**Complete the following questions for the feed bag label.**

1. What is the main feed ingredient in this feed? **GRAIN PRODUCTS**
2. What is the crude protein level? **16%**
3. What is the minimum crude fat level of this diet? **3.20%**
4. Is Copper Sulfate included in the ingredients of this diet? **YES**
5. How much ration should be fed to a 1,000 lb. steer/heifer? **10 TO 20 POUNDS**
6. When should this feed be fed to steers/heifers? **NEWLY WEANED OR NEWLY RECEIVED**
7. What are the minimum and maximum Calcium levels of this diet? **MIN-.75% MAX-1%**



# Health and Disease Management



## TIME:

30 minutes

## MATERIALS NEEDED:

- 2 bananas for each participant
- Food coloring
- Jar of water
- Needles and syringes or plastic pipettes
- A bottle of medicine or a medicine label

## OBJECTIVES:

The 4-H member will:

- Learn the importance of livestock health and well-being.
- Learn the importance of proper management for livestock to sustain growth and production.
- Recognize and be able to treat infections and diseases.
- Learn preventative measures to take regarding hoof care and external parasites.

## EXPLORE THE CONTENT:

Health and disease management for livestock projects should begin when they are born, whether by the breeder or by the exhibitor raising the livestock project. Proper health care and management are crucial to the prevention, control, and treatment of diseases and metabolic disorders, which are commonly associated with nutrition deficiencies. With proper preventive measures in place, special attention should be paid to your animal's normal everyday behavior; any shift in this behavior could be an early indication of a problem. Consider having scheduled administration of vaccines, lice pour-on treatments, deworming and hoof trimmings. Perceived small concerns such as warts, ringworms and hoof rot can quickly turn into issues that are detrimental to the animal's health if they are not treated promptly. When dealing with any medicine or medically treated feeds, always follow labeled withdrawal times. Do not administer any medications before consulting with your veterinarian, and make certain that both you and the veterinarian are aware of show rules. Consider the amount of time prior to arrival at the show, and assume that the elimination period is longer than the labeled withdrawal period.

## Vaccines

Implementing a vaccination program will better protect livestock animals from diseases caused by infectious viruses and bacteria. When a vaccine is used correctly, it will increase an animal's resistance to disease. Always read the vaccine label thoroughly for proper administration time(s) regarding cattle age, injection site, route of administration, proper storage temperature, withdrawal period, etc. The only place a vaccine injection should be given is in the neck, either intramuscular (IM; in the muscle) or subcutaneous (SQ; under the skin). It is never acceptable to give injections in the animal's hip.

There are three major types of vaccines:

1. Modified live vaccines (MLVs) are vaccines that contain a small amount of an altered virus or bacteria so that it does not cause clinical disease when used according to the label directions. MLVs are commonly used for diseases caused by viruses, such as infectious bovine rhinotracheitis (IBR), bovine respiratory syncytial virus (BRSV), and parainfluenza-3 virus (PI3).
2. Killed vaccines (KVs) and toxoids are vaccines that contain organisms or subunits of organisms that do not replicate in the animal following administration. Killed vaccines contain substances that further stimulate the immune system to







respond to the vaccine challenge.

3. Chemically altered vaccines (CAVs) are vaccines that contain live organisms that are chemically altered to be temperature sensitive so they are unable to replicate at the animal's body temperature, but able to replicate at a temperature associated with eyes or nasal mucosa. There is no systematic replication with CAVs in the animal.

In addition to the primary injection of any of the vaccines mentioned, often times a second, or booster vaccine, is required for young animals being vaccinated for the first time. A booster vaccine is required for killed vaccines to provide optimal protection. Again, consult the vaccine label for directions indicating that a booster is required. In addition, contact a local veterinarian with any questions or concerns.

The following vaccines are recommended for market steers and breeding heifers:

1. 7-way clostridial vaccination: protects against blackleg, malignant edema, black disease, and three types of enterotoxemia all caused by a Clostridium bacterium. This vaccine should be administered before weaning is completed.
2. IBR/BVD/PI3/BRSV vaccinations: protect against various respiratory diseases, reproductive failure, and abortions.
3. 5-way Leptospirosis: protects against kidney disease, bloody urine, abortion in pregnant females, and sickness in calves. Leptospirosis vaccine is often combined with a vibriosis vaccine, which protects against a bacterial disease caused by Campylobacter fetus, resulting in failure of early pregnancy in females.
4. Calfhood vaccination: protects against Brucella abortus for heifers between 4 and 10 months of age, resulting in abortion. This vaccine is mandatory by the Texas Animal Health Commission for heifers and must be administered by a veterinarian.
5. Tetanus vaccination: protects against Clostridium tetani surviving in an open wound. If allowed to thrive, C. tetani will cause stiffness and reluctance to move, muscle tremors, and at worst, death.

### **Warts**

Warts are caused by the contagious bovine papillomavirus. There is a preventive vaccine for warts, but it has to be administered before the animal has a wart. To treat cattle with warts, there are two options. First, cut the wart(s) off with scissors or side cutter pliers. Second, spray the spot where the wart was with a wound spray. Optionally, to create a self immunity to the virus, place the wart(s) in a bolus and feed it back to the animal.

### **Ringworm**

Ringworm is a fungal infection on the skin. It is spread from animal to animal by direct contact, or from brushes, combs, and other contaminated surfaces. Ringworm is a zoonotic fungus, meaning it can be transmitted to humans from the animals. There are topical fungicide treatment sprays available at feed stores to apply directly to the ringworm to get rid of them.

### **Hoof Rot**

Hoof rot is an infection caused by bacteria in the ground that enters the hoof through puncture wounds or continuous exposure to wet conditions. A steer or heifer with hoof rot will show initial signs such as lameness, swelling of the foot, and separation of the skin in-between the hooves. Treatment should begin with cleaning, followed by a topical treatment such as labeled for cattle hoof rot or an iodine spray if it is caught in an early stage. Consult with a veterinarian for recommendations on an antimicrobial therapy treatment program for cases of hoof rot that need special attention when an animal has become severely lame.

### **Metabolic Disorders**

1. Acidosis: Acidosis is a metabolic disorder that occurs when the rumen pH falls below its normal range of 6.5-7.0 to less than 5.5 (a pH below 5 is considered acidic). Rumen pH will significantly decrease if cattle suddenly consume a high level of grain. A high level of grain consumption may create too much acid production in the rumen and cause a change in the microbial population within the rumen. As acid-producing bacteria take over, the result is acidosis. Clinical symptoms of acidosis include reduced feed intake, elevated heart rate, diarrhea,





lethargy, and can ultimately lead to death if not treated properly. To treat acidosis, orally administer an antacid or buffering compounds to counter the acid effects and prevent further dehydration. Luckily, acidosis is avoidable with proper prevention measures in place. Preventive measures include good diet formulation (proper grain:forage ratio), feeding cattle individually, adequate long-fiber particles in diet, and supplementing the diet with microbials that enhance the rumen bacteria population.

2. Bloat: Bloat is a metabolic disorder that occurs when gas accumulates in the rumen and the animal cannot expel the gas. The most common type of bloat is referred to as frothy bloat and is caused by a thick layer of foam developing on top of the rumen liquid blocking the release of gas. The most visible clinical symptom of bloat is the left side of the abdomen extends noticeably further from the animal's side than normal. To treat bloat, keep cattle on their feet and walking with their head up. If cattle are showing more serious signs of bloat such as frothing at the mouth, gasping for air or convulsing, a veterinarian should be contacted as soon as possible.
3. Bloody Scours: If a market steer or breeding heifer is observed having bloody scours, it could be caused from a severe case of internal parasites, bacterial infections or coccidiosis. Dewormers can control internal parasites if they are used as a preventive tool. Dewormers should not be used as treatment for cattle already affected by internal parasites. Calves should be treated with dewormer starting at three months of age and again at weaning. Consider treating calves every three to four months until they become yearlings with pouron dewormer products to optimize internal and external parasite control. Another preventive method to control parasites, coccidia and prevent infection is to keep pens, feeders, and water troughs clean.

## DO:

Activity: Banana Injection

Preparation: Mix the food coloring into the water. Give each participant two bananas, a syringe and a needle or a plastic pipette. Discuss the proper way to draw medication into the syringe. Demonstrate for the participants, using the colored water.

Rules:

- Participants draw colored water into their syringe or plastic pipette.
- Instruct the participants to give a subcutaneous injection into one banana, then give an intramuscular injection into the other banana.
- Cut open each banana and observe how the colored water, a substitute for medicine in this exercise, was dispersed.

## REFLECT:

- Determine whether or not the injection was given correctly by examining the banana.
- Analyze a medicine bottle label and indicate where it talks about injection type.
- Discuss the importance of reading medicine labels to determine the proper injection type.
- Discuss the importance of withdrawal times of medications.

## APPLY:

- Explain the purpose of vaccinations your market steer or breeding heifer project has already received and identify what vaccinations you will need administer.
- Discuss why you should always consult with your veterinarian with regard to treatment of livestock projects.
- Share why and how would you maintain records on health, treatments and vaccinations.

## REFERENCES:

- <http://www.aces.edu/pubs/docs/A/ANR-0968/ANR-0968.pdf>
- [http://www.thejudgingconnection.com/pdfs/Managing\\_Beef\\_for\\_Show.pdf](http://www.thejudgingconnection.com/pdfs/Managing_Beef_for_Show.pdf)
- <http://www.thecattlesite.com/diseaseinfo/239/tetanus-in-cattle/>
- <http://articles.extension.org/pages/11022/internal-parasites-in-beef-and-dairy-cattle>
- <http://agrilife.org/qualitycounts/>





# Facilities and Equipment



## TIME:

30 minutes

## MATERIALS NEEDED:

- Brushes, combs, scrubbers, show halters, neck ropes, show sheen, shampoo, a water hose, etc. (Items you would typically find in a show box)
- A drench gun, syringes, oil, adhesive, paint, etc. (Items you might find in a show box that could be prohibited at certain shows)
- Livestock show rules to compare. Note: Fort Worth Stock Show and Rodeo allows different products than San Antonio Stock Show & Rodeo, Houston Livestock Show and Rodeo or Rodeo Austin. Remember to check show rules and guidelines prior to arriving.

## OBJECTIVES:

The 4-H member will:

- Learn the basic necessities to adequately care for beef cattle.
- Learn supplies that are permitted and prohibited at individual shows.

**Note: Fort Worth Stock Show and Rodeo allows different products than San Antonio Stock Show & Rodeo, Houston Livestock Show and Rodeo or Rodeo Austin. Remember to check show rules and guidelines prior to arriving.**

## EXPLORE THE CONTENT:

Before you purchase a market steer or breeding heifer, it is important to think about where you will keep your beef cattle project. These are large animals that require sufficient space for growth and development. If you have a local school barn facility, look into the space provided for beef cattle there. If that is not an option, consider preparing a facility at your home. Ideally, beef cattle need a covered area with fans for air circulation during the day (especially in the warm summer and fall months) and an outside run to be fed and watered overnight. Keep in mind that the extravagancy of your facility is left up to personal preference, exhibitor experience, and your family budget. Several factors such as: electricity, ceiling height and ventilation, flooring and shaving type, tie/wash/dry area, storage, drainage, convenience and accessibility, and finally waste disposal areas should be given consideration when selecting a facility for your beef cattle project.

### Electricity

Electricity is important to have for lighting, fans, and blow dryer connections. Make sure the outlets are in a safe location – out of cattle's reach to eliminate the potential hazard of extension cords running across the ground.

### Ceiling Height and Ventilation

Ceilings in an open-air barn should ideally be at least ten feet tall. The lower the ceiling height the warmer the temperature inside the barn due to radiating heat from the ceiling. An open-air barn should be positioned so that prevailing winds can blow in and aid in ventilation. To further ventilate and cool open-air facilities, fans can be added, positioned so that they're blowing across the circulating air from prevailing winds to force hot air out. Additionally, but certainly optional, an evaporative cooling system (such as a port-a-cool fan) placed so that it can blow with the prevailing winds will help cool the outside air temperature circulating through the barn. Ideally, it should be 90° or less throughout the barn with constant airflow for cattle to be comfortable and have fresh air. If you're dealing with an insulated barn, ceilings should not be lower than 8 feet tall.

### Flooring and Shaving Type

Avoid slick surfaces in the walkways or aisles of your barn. If the barn floor surface is slick concrete, consider putting rubber mats down to provide a surface with more traction for livestock to walk on. Covered pens should be filled with sand or cedar shavings. This helps create a comfortable area for livestock that is also easier to keep clean.







### **Tying/Washing/Drying Area**

It is helpful to have a concrete area with mats on it to tie cattle up while washing and drying. This prevents the ground from getting muddy and having the cattle tied in the mud after they have been cleaned.

### **Storage**

Consider having adequate dry storage space to put feed, equipment and supplies. Keeping feed and hay in a separate secure area closed off from the rest of the barn is helpful for many reasons, such as keeping rodents away from the feed and hay, preventing mold growth, and maintaining equipment quality. Once a feedbag is opened, roll the top of the bag down to close it and protect it from moisture in the air.

### **Drainage**

It is recommended to position your barn on a slope to aid in proper drainage. Proper drainage is important so that water (whether it be from washing the cattle, cleaning the floors or mats, wetting down shavings, filling water troughs, or from rain) does not build up in and around the barn. Standing water in and around the barn provides a favorable environment for flies, mosquitoes and bacteria growth, all of which can be harmful to you and the livestock.

### **Convenience and Accessibility**

From a convenience and accessibility standpoint, think about backing a trailer up to the barn for loading and unloading. Also, consider making an all-weather road to your barn to prevent trucks and trailers from getting stuck if significant weather arises around a time when the animals need to be transported.

### **Waste Disposal**

Pens should be cleaned at least twice daily to decrease the amount of flies, disease and odor; which, in turn, optimizes cattle performance. Have a place to make a compost pile away from the livestock, but also keep neighbors in mind. Manure is also a fly attractant, which is why it is important to have the waste disposal far enough away from the barn. Flytraps are commonly used around the waste disposal area to help decrease fly numbers.

### **Fencing (Runs)**

Consider including some outside uncovered pens, commonly referred to as runs, for cattle to stay in overnight where their feed and water troughs are located. Electric fence is a great option for these runs to prevent cattle from rubbing their hair off on the fence. Beware of trees in the runs; cattle can also rub their hair off on the tree trunks resulting in bald spots.

### **DO:**

Activity Preparation:

Gather 2 sets various supplies for each team that might be found in a show box and place them all out on a table or the ground for participants to see. Print off different sets of livestock show rules regarding what type of grooming supplies are allowed or prohibited.

Rules:

- Divide the participants into two groups.
- Give each group the same set of livestock show rules.
- Allow the team 3 minutes to review and understand the rules of the show.
- At the end of the 3 minutes, have the teams line up on the opposite end of the room from the supplies laid out.
- Set a timer for 5 to 15 minutes depending on team size and how many supplies are available.
- Teams will race 1 participant at a time down to the supplies on the table and select one item that belongs in the show box. Run back to their team and the next team member will go.
- At the end of the allotted time, the team with the most amount of correct items in their show box wins.
- Repeat the activity with rules from a livestock show that are different from the first set of rules used. This will allow participants to recognize that different shows have difference expectations.

**REFLECT:**

- Are there any supplies in either show box that do not belong according to the livestock show rules?
- Is there potential for exhibitors to be disqualified from a show for using a product at one show versus using it at another show?
- How important is it to read the livestock show rules before you pack to go for the show?
- If the show box is packed from the previous show and items are present that are not allowed at the next show, is it risky to take them along anyway?

**APPLY:**

- How will you use this information in preparing for a livestock show in the future?
- If there are any supplies or grooming products that you are unsure about, who can you ask to find out if you need to leave the supplies out?

**REFERENCES:**

- <http://agrifecdn.tamu.edu/victoria4h/files/2010/07/4-H-Show-Cattle-Facilities.ppt>



# Grooming and Handling Techniques



## TIME:

30 Minutes

## MATERIALS NEEDED:

- Pencils
- Paper
- Chalk or Markers
- Blackboard or Dry Erase Board

## OBJECTIVES:

The 4-H member will:

- Learn proper handling of beef cattle
- Learn the basic techniques of grooming show cattle
- Learn why exercise is important for cattle

## EXPLORE THE CONTENT:

It is important for beef cattle projects to be handled and groomed on a daily basis. The earlier handling begins for the animal, the more likely it is that the steer or heifer will have a manageable temperament. Handling begins initially by halter breaking a beef cattle project. Once the animal is halter broke, you can establish a daily grooming routine, practice setting them up, and walk them for exercise. It is important for the animal and exhibitor to interact every day. This allows the steer or heifer to create a trusting relationship with the exhibitor as well as improve the animal's appearance, temperament, and cooperation.

### Halter breaking

Halter breaking cattle is a process that will vary from calf to calf, as some are naturally more gentle than others. Have an area prepared with a sturdy fence to tie cattle and two t-posts driven in the ground covered with PVC pipe for the animal to stand between. This ensures that the steer or heifer can not move all the way over to the fence and put the exhibitor in an unsafe position in-between the fence and the animal. Invest in a poly rope halter to use throughout the show season. Start with the animal in a small pen and put the halter on the animal. Remember to move slowly and be gentle. If a squeeze chute is available and the animal is not allowing you to halter it in the pen, gently guide the calf through the chute and slowly put the halter on. If a chute is not available, spend time being near the animal in the pen. After a few days, the animal should allow you to halter it. Be sure the halter is behind both ears and positioned on the bridge of the nose. Next, tie the haltered animal to the fence in between the PVC poles. Always tie the rope with a slip knot so that, if necessary, it can be quickly and easily untied. Expect the calf to show some resistance to the halter at the beginning of the halter breaking process. Keep the steer or heifer tied up for a couple hours each day and start gently brushing their hair or scratching their underline with a show stick. This will begin building trust between the exhibitor and the calf, and the animal will become compliant to the halter.

### Washing

Washing is an important daily routine for a show steer or heifer. Make an effort to rinse five to six times and use soap two to three times each week. First, rinse the animal with water. Start at the tail head and move down the animal's top toward the head, down the body and then along the underline to clean off mud, manure, and dirt. After rinsing, apply a gentle soap such as a shampoo or non-concentrated dish soap. Use the same pattern to apply the soap by dispensing it into the water coming out of the hose and







onto the animal. Apply soap two or three times per week, depending on how dirty the animal is. Using soap everyday will dry the steer or heifer's skin and make their hair brittle. Use a plastic scrubber to rub in the soap and ensure a thorough cleaning. Make sure to keep the animal's hair going forward during scrubbing. Finally, thoroughly rinse all of the soap out of the animal's hair coat. Washing is beneficial because it keeps cattle clean, cool and stimulates hair growth. Additionally, washing cattle builds a relationship between the animal and exhibitor, and prepares the animal for show season.

### **Brushing & Combing**

Brushing and combing should be done following each wash. Some people prefer to apply a coat of show sheen to the animal's hair and then brush and comb it into the hair and skin. Begin by first brushing the animal and then comb the animal's body. Start at the back of the animal and pull the hair forward toward the head. Brush the animal's top, body, legs, and underline. Next, comb the animal's body and underline hair forward, comb the leg hair up at a 45-degree angle, and part the hair on the animal's top (do not part the tail head).

### **Drying**

There are several ways to dry a market steer or breeding heifer after they have been washed, brushed and combed. Some people prefer to leave them standing in front of fans until they are dry so the cattle stay cooler longer during the summer months. Other people prefer to use a blow dryer and work from the front of the animal to the back. Keep the nozzle at 45-degree angle with the animal and dry the entire hair coat completely. Be consistent with the blower so the animal's hair coat appears uniform. It is important to dry the animal completely during winter so they are not at greater risk of getting sick.

### **Walking**

Walking on the halter should be a routine part a steer or heifer's day. Regular walking serves as exercise for cattle and will benefit the animal's structure, as well as aid in muscle development. Practice walking with the animal's head up in a full clockwise circle as this is what will be expected in the show ring.

### **Setting Up**

Leading up to show day, it is important to practice setting up steers and heifers with a show stick and show halter. A show halter is a two-piece leather halter with a chain that goes under the animal's chin. The chain allows the exhibitor to apply or release pressure easier than a rope halter. It feels a little different to the animal, so it is important to let the animal get acclimated to a show halter before the day of the show. There are two stances that are considered acceptable to use in presenting a show steer or heifer. When cattle are first brought into the show ring, all of the exhibitors will walk in and line up side by side along the fence. At this view, cattle's feet should be set square so that the back feet are in line with each other and about a foot apart. Cattle's front feet should be set square underneath their shoulders. The judge will come down the line of exhibitors and judge the cattle from the front and the rear. Next, exhibitors will turn the cattle and walk clockwise around the ring and stop, lined up on the profile, head to tail. Cattle's front feet should be set square and their back feet should be staggered so that the foot on the exhibitor's side is slightly in front of the foot on the judge's side. From this angle, the exhibitor allows the judge to get a perception of depth and thickness of the animal. The more an exhibitor practices setting up his or her market steer or breeding heifer, the better. As time practicing increases, the more natural showing becomes.

### **DO:**

Activity: What Motivates Exhibitors to Have Livestock Projects?

Preparation: The purpose of this activity is to help exhibitors think about the reasons they chose to become involved in 4-H or FFA as a livestock exhibitor. Give each participant a sheet of paper and a pencil.

Rules:

- Ask participants to think about their motivation for having a livestock project and write down their thoughts on paper.
- Explain that there are usually two main reasons people do things as extracurricular activities:





- to have fun
- to feel a sense of success and accomplishment
- Write these two categories on the board and ask the participants to share the motivations they have written down. On the board, write each comment under one of the categories.

**REFLECT:**

- Why is caring for and exhibiting livestock about more than winning and losing?
- How will exhibitors grow personally throughout the year with their beef cattle project? How does being responsible for an animal help youth exhibitors mature, develop a work ethic and increase their knowledge of cattle?

**APPLY:**

- How will you use the character traits developed through being a livestock exhibitor in college, in the work place, and in other activities?

**REFERENCES:**

- Grooming & Handling Techniques: [http://www.thejudgingconnection.com/pdfs/Beef\\_Grooming\\_Fitting\\_and\\_Showmanship.pdf](http://www.thejudgingconnection.com/pdfs/Beef_Grooming_Fitting_and_Showmanship.pdf)





# Showmanship and Fitting



## TIME:

60 minutes

## MATERIALS NEEDED:

- 2 pairs of jeans with holes
- 2 pair of jeans acceptable to show in
- 2 t-shirts
- 2 button down shirts
- 2 pair of old tennis shoes
- 2 pair of boots
- 2 baseball caps
- Stopwatch

## OBJECTIVES:

- The 4-H member will:
- Learn showmanship etiquette
- Learn how to dress properly for show day
- Learn the basics of fitting a show steer or breeding heifer

## EXPLORE THE CONTENT:

Showmanship: Beef cattle showmanship is based on a trifecta of how well an exhibitor presents his/her market steer or breeding heifer, exhibitor etiquette and ring presence. Begin preparing for showmanship as soon as possible. The best showmen practice with their animals and plan every step that needs to be taken to succeed. For additional practice outside of the home, look into a local county showmanship clinic.

### Animal Presentation

A good showman will effectively present their animal to the judge in a way that maximizes good characteristics and minimizes weaknesses. When leading cattle in the ring, the exhibitor should be on the left side of the animal with the halter in their right hand. The animal's head should be held above its topline. The halter length should be long enough for the exhibitor to control the animal, but not long enough to touch the ground. The show stick should be in the exhibitor's left hand with the pointed end closest to the ground.

### Exhibitor Etiquette

Show ring etiquette is about being courteous to other exhibitors, ring stewards and the judge.

Leave adequate space in between each animal for the judge to walk and view animals.

- When the judge asks a question, answer with confidence and respect. The judge might ask for the animal's weight, birth date, how it was bred, etc. Be prepared for these questions before entering the ring so the judge gets an honest answer.
- Always walk in a clockwise circle.
- Keep animals in a straight line. If an exhibitor needs to reposition its animal, they should slowly walk the animal out of line and make a clockwise circle back around to their original spot.
- Do not block the view of another animal from the judge.
- Shake the judge's hand at the end of the class regardless of placing.

### Ring Presence

In the show ring, exhibitors need to dress neatly and professionally. No caps, hats, t-shirts, shorts or ripped jeans are recommended. Appropriate attire for showmen include: button-down collared shirts, nice jeans, a belt and boots. Exhibitors should show their animal with confidence, be alert and know where the judge is at all times.







## **Fitting**

Fitting a market steer or breeding heifer for a livestock show is one of the most difficult aspects of exhibiting these projects. Regardless if fitting is permitted at a livestock show, it is important to put effort into the animal's appearance. Do not expect to put in minimal effort to grooming and fitting and get the best results. Other exhibitors may spend hours grooming and fitting their animal before the show and it usually benefits their placing outcome. Grooming simply entails washing, drying and brushing the animal's hair. Fitting involves clipping the animal's hair a few days prior to the show and then gluing and clipping their hair again. Most livestock shows in Texas have guidelines regarding the fitting of steers and heifers for show. It is important to read each livestock show's rules and regulations before fitting an animal. The only major livestock shows in Texas that allow over a quarter inch of hair on market steers are the State Fair of Texas (prospect show), Heart of Texas (prospect show) and Fort Worth Stock Show and Rodeo. San Antonio Stock Show & Rodeo, Houston Livestock Show and Rodeo and Rodeo Austin require that all the hair on a market steer be clipped to a quarter of an inch or less, with an exception of the tail switch. Heifer shows do not have a maximum hair length requirement, but some of the shows prohibit glue and oil in the heifer's hair.

## **DO:**

Activity: What Not to Wear

Preparation:

Place articles of clothing out on a table with the nice clothes scattered alongside the casual clothes. Divide participants into two teams.

Rules:

- Have each team designate a person to be the model for an appropriate show day outfit. Each model will stand up on either side of the table with the clothes.
- Each team should have their backs to the table with the clothes.
- One team member at a time will run to the table and pick out an appropriate piece of clothing for the model to put on over his clothes.
- The team that dresses their model in the most appropriate clothing in the shortest amount of time wins.

## **REFLECT:**

- Is it appropriate to wear a t-shirt, baseball cap and tennis shoes in the show ring?
- Why is dressing professional an important part of showmanship?

## **APPLY:**

- What will you wear to show your animal?
- How might what you have learned about showmanship be applicable in other settings?

## **REFERENCES:**

- Showmanship & Fitting: [http://www.thejudgingconnection.com/pdfs/Beef\\_Showmanship\\_Guide.pdf](http://www.thejudgingconnection.com/pdfs/Beef_Showmanship_Guide.pdf)





MARKING INSTRUCTIONS

CORRECT: ● INCORRECT: ✗ ⊗ ⊖ ⊕

4-H Explore  
Project Book Evaluation - Beef Cattle

1. Please read the statement in the left column of the table below. Bubble in the circles that describe your level of understanding **BEFORE** attending this program. In the section on the far right, bubble in the circles that describe your level of understanding **AFTER** attending this program. You will have two bubbles per row.

| LEVEL OF UNDERSTANDING: 1 = Poor, 2 = Average, 3 = Good, 4 = Excellent                                  | BEFORE                |                       |                       |                       | AFTER                 |                       |                       |                       |
|---|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
|   | 1                     | 2                     | 3                     | 4                     | 1                     | 2                     | 3                     | 4                     |
| As a result of participating in the Beef Cattle project lessons and activities...                       |                       |                       |                       |                       |                       |                       |                       |                       |
| I understand the different breed divisions for both steer and heifer livestock projects in Texas        | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| I understand the meaning of "ruminant" animal, and how this effects my nutritional plan for my project. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| I understand the basic supplies and equipment necessary to adequately care for beef cattle.             | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| I understand the importance of exercise for my beef cattle project.                                     | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| I understand the importance of professionalism in the show ring.  | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| I understand how to better recognize and prevent illness in steers and heifers.                         | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

2. For each statement below, fill in the bubble that best describes you.

| INTENTIONS TO ADOPT:<br>As a result of participating in the Beef Cattle Project lessons and activities... | Yes                   | No                    | Unsure                |
|---|-----------------------|-----------------------|-----------------------|
| I can assist with the selection of my beef cattle project.  | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| I will adopt a routine to practice and improve my showmanship techniques.                                 | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| I plan to purchase the appropriate supplies for my project before the purchase of my animal.              | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| I will consult a veterinarian before administering any medications to my beef cattle project.             | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| I will add forage to my steer or heifer project's diet.   | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

3. For each statement below, fill in the bubble that best describes your level of agreement with the following statements.

| BEHAVIOR CHANGES:<br>As a result of participating in the Beef Cattle Project lessons and activities... | Strongly Disagree     | Disagree              | Agree                 | Strongly Agree        |
|--|-----------------------|-----------------------|-----------------------|-----------------------|
| I am more comfortable working in a team.   | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| I am more willing to listen to others.   | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| I am more comfortable speaking with others.  | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| I am more confident in my abilities as a leader.   | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |



**MARKING INSTRUCTIONS**

CORRECT: ● INCORRECT: ✗ ⊗ ☐ ⊙

3. What is the most significant thing you learned in the Beef Cattle project?

Please tell us about yourself.

**Gender:**       Female     Male

**I consider myself to be:**     African American                       White  
    Asian American                               Other  
    Native American

**I consider myself to be:**     Hispanic     Non-Hispanic

**Grade:**     3rd     5th     7th     9th     11th  
                  4th     6th     8th     10th     12th

**Most of the time, you live . . .**

|  |   |
|--|---|
| <input type="radio"/> Farm or ranch                | <input type="radio"/> Suburb of city between 50,000                   |
| <input type="radio"/> Town less than 10,000        | <input type="radio"/> Central city/urban center with more than 50,000 |
| <input type="radio"/> City between 10,000 - 50,000 |   |

Please provide any additional comments below.