2010-11

CITRUS COUNTY FAIR
STEER
SKILL-A-THON
STUDY GUIDE
Citrus County Steer Skill-A-Thon

A “Skill-A-Thon” is an excellent method of involving FFA and 4-H members in challenging, learn-by-doing activities. This program of helping youth develop both their life skills and steer project skills is designed as a series of mini-learning stations with an adult facilitator at each one. The participants rotate from station to station, attempting to perform specific tasks.

OBJECTIVES:
1. To provide a learning laboratory which will enhance knowledge of the beef cattle industry.
2. To help youth feel more comfortable communicating with an adult.
3. To gain self-confidence and skills in one-on-one communication.
4. To develop responsibility for completing a project.
5. To develop critical thinking and problem-solving skills.
6. To provide additional opportunities to recognize youth for their accomplishments.
To have FUN!

TOPICS:
The number and difficulty of topics will increase for each of the Fair’s age groups for skill-a-thons. Age as of September 1st, 2010:
- **J**: Junior (8-10 yrs)
- **I**: Intermediate (11-13 yrs)
- **S**: Senior (14 yrs and up)

1. Beef breeds and characteristics (**J, I, S**)
2. Beef body parts (**J, I, S**)
   a. Digestive tract (**I, S**)
   b. Reproductive Systems (**S**)
3. Cuts of meat
   a. Wholesale cuts (**J, I, S**)
   b. Retail cuts of beef (**I, S**)
4. Feet and Leg Structures (**J, I, S**)
5. Nutrition (**J, I, S**)
6. Record book (**J, I, S**)
7. Fitting and showing (**J, I, S**)
8. Feed labels (**I, S**)
9. Cattle Grading (**S**)

This Study Guide was produced by:
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Revised 9/2010
Beef Breeds (J, I, S)

A) Maine-Anjou
B) Piedmontese
C) Brahmman
D) Shorthorn
E) Texas Longhorn
F) Hereford
G) Polled Hereford
H) Limousin
I) Simmental
J) Gelbvieh
K) Charolais
L) Angus

This image shows various beef breeds, each with distinct characteristics and typical coat colors.
A) The Maine-Anjou originated in the Anjou region in West France. It is primarily raised for beef production. Their coloring is dark red and white, with the head always predominantly red and the eyes always surrounded by red coloring. They have medium-sized horns which curve forward like those of Shorthorns. The breed is noted for its rapid growth and weight gain, is late maturing.

B) Piedmontese are born 'fawn' or tan and change to the grey-white color, with black skin pigmentation. The Piedmontese carry genetic traits absolutely unique to them. In 1886, the appearance of double-muscling (DM) in Piedmontese cattle attracted the attention of breeders, who had the foresight to recognize the enormous potential of this development.

C) Brahman cattle were developed in the southwestern United State by crossing Zube cattle from India with British Breeds. They have a distinct large hump over the top of the shoulder and neck, and a loose flap of skin (dewlap) hanging from the neck. Their ears are larger than Bos taurus breeds. The color of these animals varies from light gray or red to almost black. They are primarily a horned breed of cattle however there are some bloodlines of Brahman that are naturally polled (without horns). It is known for its ability to withstand heat and insects.

D) Shorthorn cattle were brought to the United States from England in 1783. The Shorthorn possesses a moderate frame with a rectangular low set body. These animals can be red, white, or roan in color. They are noted for their good disposition and mothering and milking abilities.

E) Texas Longhorn cattle originated from Spanish Andalusian cattle. These animals have long horns and several different color patterns. They are known for their longevity, hardiness, strong survival instincts and resistance to disease and parasites. However, they continue to represent the romance of the Old West and are often retained for their beauty and intelligence.

F) Hereford cattle were developed in England and brought to the United States in 1817. These animals have red bodies with white faces. They are known for efficiency on the range and in the feedlot, easy going disposition, and high-quality end product.

G) Polled Hereford were developed in the United States from the Hereford breed. Except for the polled trait, these animals exhibit the same characteristics as the Hereford breed.

H) Limousin cattle originated in the west-central part of France. They are solid red to golden-red in color with lighter circles around the eyes and muzzle. When slaughtered at an early age, these animals yield a high percentage of lean meat with a minimum amount of fat. Limousins are known for their muscular build, feed efficiency, ease of management and comparable calving ease to other breeds.

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

J) Gelbvieh originated in Germany. They are solid cream to solid red in color. Like most European breeds the Gelbvieh was originally selected for meat, milk and work. While originally a horned and light brown, a totally pigmented animal is now the norm through selective upgrading programs in addition to having polled as well as black genetics being introduced.

K) Charolais were developed in France and imported into the United States from Mexico in 1936. These animals are white or creamy white in color. Charolais is a naturally horned beef animal. But through the breeding-up program, where naturally polled breeds were sometimes used as foundation animals, polled Charolais have emerged as an important part of the breed. They are noted for their fast growth and lean meat.

L) Angus cattle originated in Scotland. These animals are naturally polled with a black, smooth coat. They are known for their carcass quality, milking, mothering, and reproductive abilities. Angus cattle are widely used in crossbreeding to reduce the likelihood of dystocia (difficult calving). They are also used as a genetic dehorner as the polled gene is passed on as a dominant trait.
Beef Body Parts

(J, I, S)
Cattle have a unique digestive system. First they swallow their food without chewing it. It then travels from the mouth, through the esophagus to the rumen (first stomach) and reticulum (second stomach). The rumen functions as a storage area for food. Also, it aids in the breakdown of coarse particles through bacterial action. The reticulum has honeycomb like walls that retain foreign materials that could injure the digestive system. After food has traveled through the first two stomachs, cattle will burp up a small amount of food (cud) to chew again. After chewing the cud, it will swallow again and the cud goes into the omasum, or third stomach. Here liquid is removed from the feed by muscle contractions. And the feed’s particles are broken down into even smaller parts. From there it moves into the fourth stomach, the abomasum, or true stomach. Here, digestive juices are secreted that break down the food. The next stop is the small intestine, a 130 foot long, two inch wide tube. In the small intestine food is broken down and the nutrients are absorbed by the body. The cecum, large intestine and anus make up the remainder of the digestive tract. The cecum provides some microbial fermentation that helps digest any remaining nutrients missed by earlier digestion. This accounts for less than 15% of digestion. The rest of the large intestine removes some water and serves as waste storage, before it is eliminated out of the anus.
The testicle is located outside the body cavity in the scrotum, and has two vital functions: producing the spermatozoa and the male hormone, testosterone. Location of the testicles outside the body cavity is essential for normal sperm formation, which occurs 4 to 5 degrees below body temperature. The epididymis serves as an outlet for all of the sperm produced in the testicle and any blockage will result in sterility. The vas deferens emerges from the tail of the epididymis as a straight tubule into the body cavity. The seminal vesicles, along with other accessory glands add the liquid portion of the semen. The sigmoid flexure is an anatomical structure that provides the means by which the penis is held inside the body in the “S” shaped configuration, except in time of service. The sheath is the flap of skin that protects the opening to the penis from the environment.

The ovary is responsible for two basic functions: production of the egg and production of two reproductive hormones, estrogen and progesterone. The oviduct begins as a funnel-shaped tube that carries the egg into the uterine horn. If the egg was fertilized, it then begins embryological development in the uterus; if not it degenerates and disappears and the next estrus cycle begins. The cervix is in effect the neck of the uterus with thick wall and a small opening. The vagina serves as a receptacle for the male’s penis during service. Urine is discharged from the urinary bladder through the urethra, which opens into the base of the vagina. The external opening of the vagina is called the vulva.
In order for you to obtain a good understanding of the beef carcass, you must know where the primal cuts are located. The location of the cut determines the amount or type of muscle that is present. Knowing this can help you select animals that are successful in the show ring.
Retail Cuts of Beef

Chuck area cuts: This area contains muscles that generally tend to be tough. We recommend slow, moist cooking methods like stewing or braising.

Arm Pot Roast: Pot Roast is a general term for large roasts which may be bone-in or boneless. Roasts from different regions of the carcass may all be called pot roast. In some cases, retailers may not provide detailed descriptions as to which region the roast originated.

Blade Roast: also known as Chuck Roast Blade Cut and Chuck Roast First (1st) Cut

Chuck Mock Tender Steak: Also known as Chuck Eye Steak, Chuck Filet Steak, Chuck Tender Steak

Fore Shank & Brisket: Traditionally used for corned beef, brisket is best prepared with moist heat. Suitable preparation methods include stewing, braising and pot-roasting.

Brisket Flat Cut Boneless

Shank Cross Cut

Rib area cuts: Tender and flavorful ribs can be cooked any number of ways. Most recipes call for ribs to be roasted, sautéed, pan-fried, broiled, or grilled.

Rib Steak: these tender steaks can be purchased bone-in or as boneless rib-eye

Rib Roast: Also known as a standing rib roast (bone left in)
Retail Cuts of Beef

Flank & Short Plate:
The short plate and flank contain meat of medium toughness. The muscle fibers are relatively coarse but contain sufficient intramuscular fat to maintain tenderness. These cuts are often used in Fajitas.

Short Loin:
This area boasts extremely tender cuts and can be prepared without the aid of moist heat or long cooking times. Cuts from the short loin may be sautéed, pan fried, broiled, pan broiled or grilled.

Sirloin:

Round:
**Beef Feet and Leg Structure**

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

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

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

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

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

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

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

**Calf-Kneed** - This is the other extreme, the opposite of buck kneed, where the calf stands “back at the knees” when viewed from the side.
Factors that influence cattle nutrition: Beef cattle nutrition is influenced by a variety of biological (animal) and ecological (environment) factors. What you know about these factors will help you meet your animal’s nutrition needs. The following is a list of factors that influence beef cattle nutrition:

- Digestive system functions
- Animals gender
- Diet: feed & rations
- Animals size
- Environment
- Body condition
- Animal age
- Weight
- Breed type
- Genetics
- Animal’s purpose in the beef supply chain

How cattle use nutrients: Like all animals, cattle require a balance of nutrients to survive. An animal gets nourishment through their diet, which provides - in some form or another- a combination of five ingredients: water, proteins, energy (carbohydrates & fats), vitamins, and minerals. These nutrients are provided through fresh water, grains, and roughages (hay or pasture). He can grow up on roughages alone, but will grow faster and get fatter sooner if you feed him grain. Grain is called “concentrate” because it has more calories per pound than grass or hay.

- Water is the most important nutrient. It is necessary for digestion, carrying food nutrients and waste products, cooling the body and lubricating the joints. This is how much water calves will drink each day at different weights:
  - 500 pound calf = 5 to 12 gallons
  - 750 pound calf = 7 to 18 gallons
  - 1000 pound calf = 10 to 25 gallons
- Protein supplies the materials to make body tissues like muscle, internal organs, bones, blood and skin. Protein can be supplied by high quality hay or pasture grass. Protein supplements include cottonseed meal, soybean meal, and linseed meal.
- Energy from carbohydrates and fats enhance movement and produce heat to keep the body warm. Excess energy feeds are stored as fat in the body. Feeds that contain a lot of carbohydrates and fat are barley, wheat, corn, milo (grain sorghum), oats, and grain by-products such as millrun and molasses.
- Vitamins are required for healthy eyes, nasal passages, lungs, blood and strong bones.
- Minerals help build bones and teeth.

Most vitamins and minerals are found naturally in the roughages and concentrates your calf eats. Salt is very important for your calf, but it is not found naturally in grass or hay. Trace minerals like copper, iron, iodine, cobalt, etc. may also be missing from your feeds. Be careful when adding supplements to your calf’s diet. Some are harmful if overfed.

Feeding a Show Steer: Because you are preparing a calf for a market beef class, the calf will need high-quality feeds to gain market weight in a short period of time. The goal is to properly “finish” steers at 0.35 to 0.45 inch of outside fat on the carcass to reach their optimum yield and quality grades. To accomplish this you will need to know what your expected “finish” weight is for the breed steer you have. Then you will need to balance the type of diet or ration you feed to accomplish this goal. Commercial feed manufacturers classify feed into three classes: starters, growers, and finishers. Starter: A mix low in energy, high in roughage and fiber, and high in protein relative to the energy content. A starter ration would normally be used only for the first 2 to 4 weeks before being switched to a grower ration. Grower: A diet for cattle in a growing stage. It typically consists of 12 percent protein, moderate fiber and moderate energy content. Finisher: Last stage of feeding. It is very high in energy (at least 50% corn).
The record book enables those with steer projects to accurately keep health, expense, inventory, and feed records on their animals. Accuracy is extremely important. Participants should be able to answer questions and work examples in the following areas of the record book for the skill-a-thon contest.

Health Record

Vaccination prior to purchase of animal

Date
Name of Vaccine

After Purchase

<table>
<thead>
<tr>
<th>Date</th>
<th>Symptoms</th>
<th>Estimated Weight</th>
<th>Treatment</th>
<th>Date Withdrawal Complete</th>
<th>If this is an extra label or Rx drug, list the licensed Veterinarian’s name, phone who prescribed or directed the treatment</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
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</tbody>
</table>

Rate of Gain/Feed Conversion

<table>
<thead>
<tr>
<th>Starting Weight</th>
<th>Ending Weight</th>
<th>Total Pounds gained</th>
<th>Total Days on Feed</th>
<th>Rate of Gain</th>
<th>Total lbs. of Feed Fed</th>
<th>Feed Conversion</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>B</td>
<td>(B-A) C</td>
<td>D</td>
<td>(C,D)</td>
<td>E</td>
<td>(E,C)</td>
</tr>
</tbody>
</table>

The starting weight should be recorded from the first weigh-in. Ending weight will be measured when the steer is entered into the Fair in March. Total days on feed should be calculated from the first to the final weigh-in. If you add in feed, purchased and fed, from before the tag-in, your “rate of gain” and “feed conversion” will not be accurate numbers. These are important values to know how efficiently your steer was growing on the feed you fed him.
**Fitting and Showing**

The show ring is filled with the fun and excitement of friendly competition. Showing your steer lets you compare your steer with others’.

It is a pleasure to lead a well-trained and groomed steer into a show ring. Livestock judges like to observe and handle well-mannered cattle. However, it is difficult to judge unruly cattle. Also, it is frustrating and dangerous to show a steer that refuses to do what you want it to do.

**Equipment for training:** you’ll need a nylon rope halter, a brush/comb, and a show stick. The show stick is used for tapping to give him signals, to rub and calm him, and to move his feet.

**Frequent lessons:** Work with your calf every day for 15 minutes. Regular short lessons are more effective training than a few long ones now and then.

**Adjusting the halter:** When putting on the halter, adjust it to fit properly, applying pressure over the nose, not behind the ears. The nose piece should be well up on the nose to prevent slipping.

**Frequent checks:** Check the fit of the halter every time you catch him. He is growing. So, make sure it is not rubbing too deeply into the skin over the nose, or under his jaw. If it starts to make a sore, readjust it, or take it off. Start putting it on daily, rather than letting him wear it all the time.

**How not to train your calf:** Do not tie the calf to a vehicle or tractor to pull him along. The constant pressure on his halter could injure him, break your halter, or cause him to fight and injure people around him. Do not beat him with your stick, or pull with hard jerks. Never wrap the rope around your hands or arms. Being drug only looks fun at the rodeo!

**Practice for the show:** Your calf should learn to stand quietly while other people walk around him, as the judge will do in the show ring. Have strangers sometimes touch your calf over his back and along his ribs to get him used to being handled by someone new.

**Show halter:** Use your show halter a few times at home so the calf gets used to the chain. For proper fit, the nose piece should be about half way between the nose and eyes.

**Washing your calf:** The steer must be clean for the show. Wash him a few times at home, for practice so he’ll be used to it. Washing your calf is fun, but it is not time for games. Don’t put soap directly on the calf. It can irritate the skin. Instead use soapy water from a bucket (like washing a car.) This will prevent him from having dry, dandruffy skin.

**At the Fair:** Keep your calf secure at all times. The halter should be tied to the left side of the stall, and the neck rope to the right side. The neck rope gives added security if your calf happens to rub off his halter.

**Dress to impress:** Dress well to make a positive impression on the judge as well as the spectators. Faded jeans or dirty clothes won’t look good.

**Waiting to go into the ring:** Use time waiting to touch him up with your rag. If you have a chance, watch the class ahead of yours and see where the ring steward is lining everyone up.

**Setting up in the show ring:** Lead holding the line in your right hand. Watch the ring steward for directions on where to line up. Then turn and change the line to your left hand, working the show stick with your right. Face the rear of the steer, keeping one eye on the judge and one on your calf.

**Keep your distance:** Always leave plenty of space between calves. Use patience if your calf is fidgety. Sometimes it’s best just to pull out of line, make a clockwise turn, and start over.

**Be a good sport:** Sincerely congratulate the winner of your class, or if your calf won, thank everyone who congratulates you.
Feed costs are usually the largest expense of raising your steer for show. Additionally, many believe that some feeds produce a better product for the show ring. Participants should be able to carefully analyze a feed tag label(s) and be able to choose an appropriate feed for a specific animal and identify the location of the following information:

- **Brand Name**
- **Product Name**: This is the name of the product.
- **Purpose Statement**: State the specific type of animal for which the feed is designed and any specific conditions that may apply.
- **Drug Purpose Statement**: Medicated feeds are required to include the word “medicated” in addition to the intended purpose(s) of the added drugs. The drug purpose statement may include specific conditions that qualify the drug(s) claims. The label is also required to list the active drug ingredient(s) added and its concentration in the feed.
- **Guaranteed Analysis**: This lists the amounts of nutrients that are guarantees to be present in the feedstuff.
- **Ingredients**: A list of ingredients in the feed is required on the label. They are often listed in order of the amount included, from greatest to least; Some list ingredients in alphabetical order. Also, some feeds list general categories instead of specifics, for example “grain products.” In that case producers can alternate grain types based on cost of production, as long as the Guaranteed Analysis is the same.
- **Feeding Directions**: Feed directions vary from vague statements to very detailed instructions. There are no guidelines on how detailed feeding instructions need to be.
- **Warning or Cautionary Statements**: Any applicable warnings or cautionary statements are either included as part of the feeding directions or listed separately. Withdrawal times are listed here for feeds including medications that cannot be fed prior to harvesting of the animal.

**Name and address of the manufacturer and a quantity statement, which lists the amount of the product per unit.**
Florida is a cow/calf state and a major supplier of feeder calves (between 6 and 12 months of age) sold to be “finished” in feedlots in western states. Grading systems are important because they provide a common language for describing various types of cattle. Transactions can be made without a buyer seeing the cattle.

**Feeder Cattle Grading:** The current USDA feeder cattle grading system is based on frame size, muscle thickness, and thriftiness. The Inferior grade includes feeder cattle which are unthrifty due to mismanagement, disease, parasitism, or lack of feed. An animal grading Inferior could qualify for a muscle thickness and frame size grade at a later date, provided the unthrifty condition was corrected. "Double-muscled" animals are included in the Inferior grade, although such animals have a large amount of muscle. They are graded U.S. Inferior because of their inability to produce carcasses with an acceptable Quality Grade of Choice (see below).

**Frame size** refers to the animals' skeletal size - its height and body length - in relation to its age. It refers to the weight at which an animal will produce a carcass that will grade Choice (see Quality Grade below). Large frame animals require a longer time in the feedlot to reach a given grade and will weigh more than a small-framed animal would weigh at the same carcass grade.

**Frame Size**

![Frame Size](image)

**Thickness** in feeder cattle refers to the development of the muscle system in relation to skeletal size. Thicker muscled animals have a carcass with more lean meat and better Yield Grade.

**Thickness**

![Thickness](image)

**Yield Grade:** Yield Grade is an estimate of percent retail yield of the four primal cuts of beef (chuck, rib, loin, and round) and is also known as cutability. Yield Grade identifies the difference in the yield of lean red meat to waste fat. Yield grades are labeled as USDA 1, 2, 3, 4, 5. Yield grade is based on 1) hot carcass weight, 2) fat thickness at the 12th rib, 3) percent of kidney, heart, pelvic fat, 4) ribeye area. Basically, yield grade is a measure of how much muscle (or the meat we eat) an animal has in relation to how much fat that is trimmed off the outside, and left on the butcher’s floor.

**Quality Grade:** Quality can be identified as those factors that affect the palatability or tastefulness, flavor and juiciness of the meat. Quality grading of beef carcasses is determined by two subjectively scored factors: maturity (age of the calf) and marbling. Marbling is the amount of fat within the muscle and scored Prime, Choice, Select, Standard, and Utility. In the case of quality grading, fat is good when it is located inside the cuts of meat.