2025-2026
Citrus County Fair
Beef
Skill-a-thon Study Guide

Citrus County Fair Association
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Citrus County Beef 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. Use this guide to prepare for the skill-a-thon at the county fair.

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 topics are specific for each of the Fair's age groups for skill-a-thons.
Age as of September 1st, 2025.

J: Junior (8-10 yrs.)
I: Intermediate (11-13 yrs.)
S: Senior (14-18 yrs.)

1. Beef Breeds and Characteristics **(J, I, S)**
2. Beef Body Parts **(J, I, S)**
3. Cuts of meat
    a. Primal or Wholesale cuts **(J, I, S)**
    b. Retail cuts of beef **(I, S)**
4. Beef Cattle Nutrition (**I, S)**
5. Preventative Healthcare **(J, I, S)**
6. Fitting and Showing (**I, S)**
7. Cattle Grading (**S)**
8. Record Book (**S)**

This Study Guide was updated 12/2021

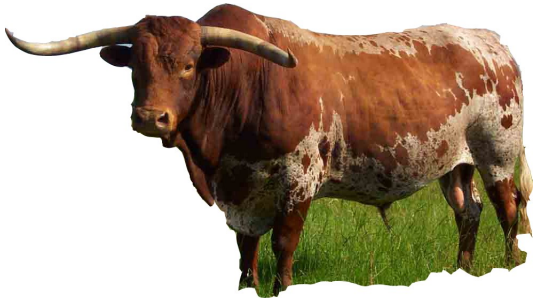
Beef Breeds

(J, I, S)

A) Maine-Anjou

B) Brahman

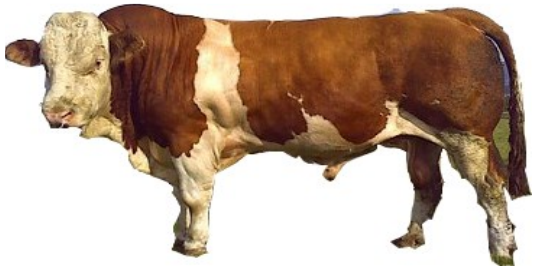
C) Shorthorn



D) Texas Longhorn

E) Hereford

F) Limousin



G) Simmental

H) Charolais

I) Angus

Beef Breed Characteristics (J, I, S)

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) **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.

C) **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.

D) **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.

E) **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.. A polled variety was developed in the United States.

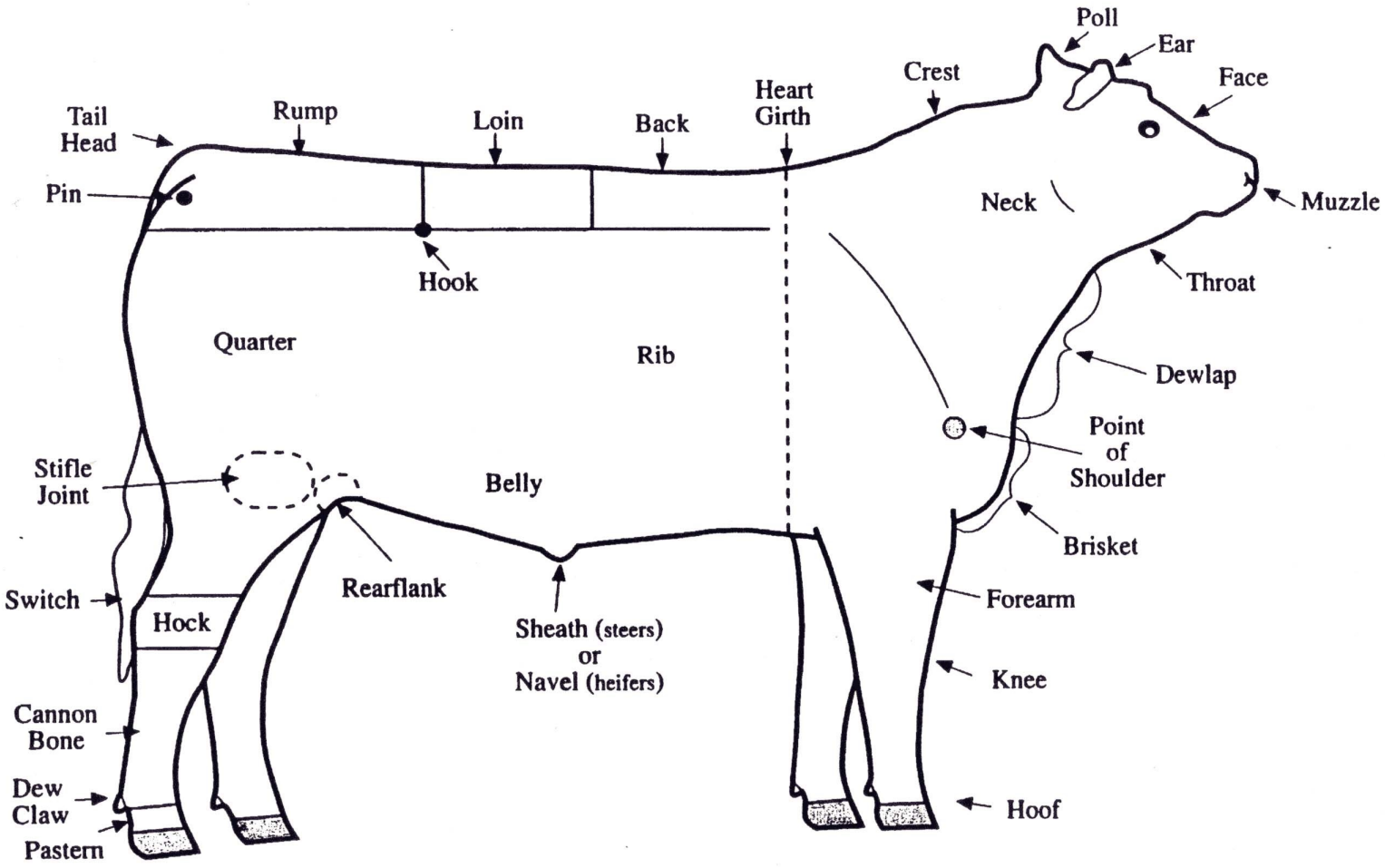
F) **Limousin** cattle originated in the west-central part of France. They are solid red to golden-red in color with lighter circles around the eyes and muzzle. When slaughtered at an early age, these animals yield a high percentage of lean meat with a minimum amount of fat. Limousins are known for their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

G) **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.

H) **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.

I) **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)



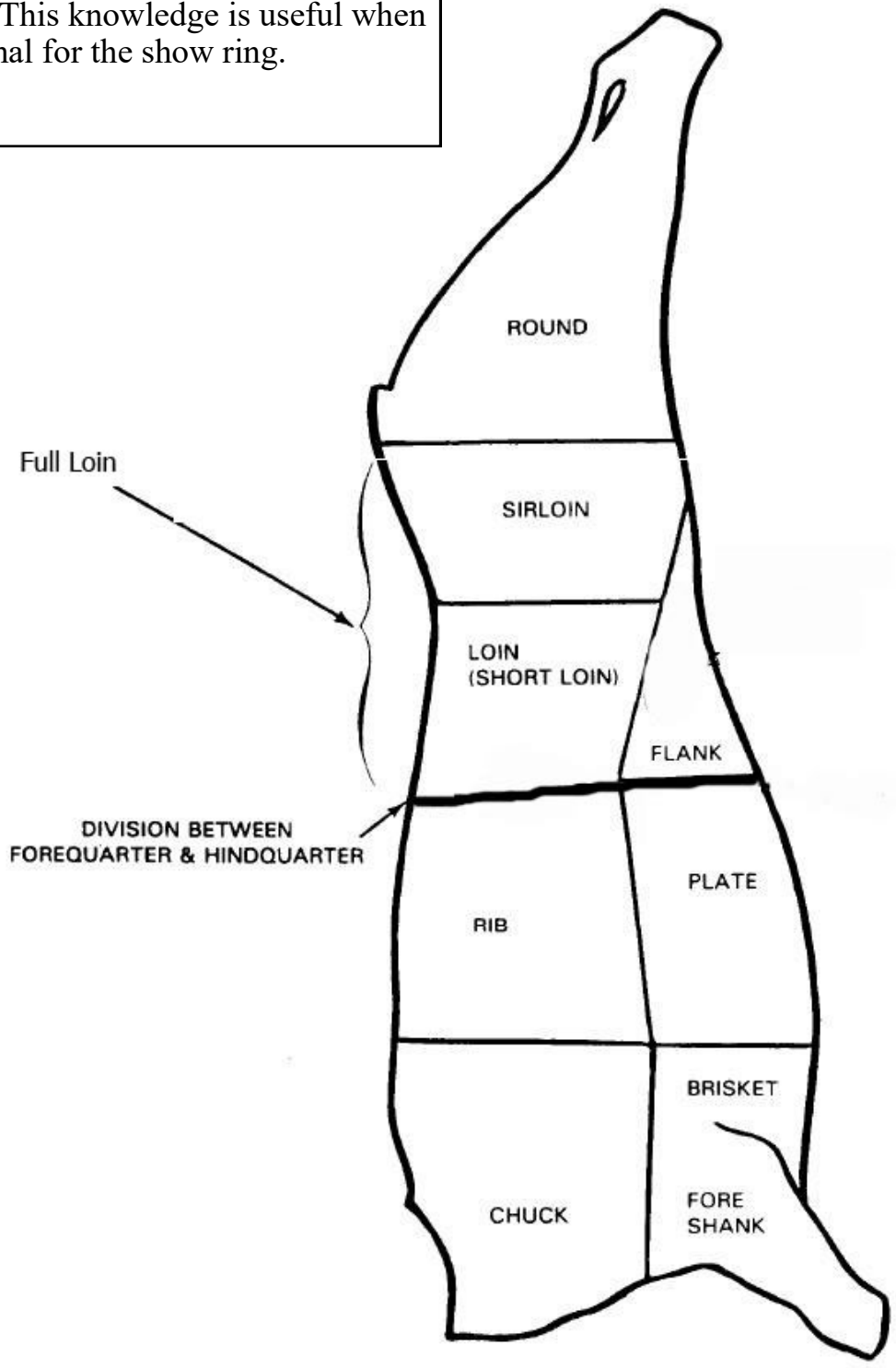
To practice your knowledge of beef body parts, visit:

http://www.geauga4h.org/beef/beef_body_test.htm

This is a useful website !!

Primal or Wholesale Cuts (J, I, S)

Understanding the beef carcass begins with knowing the location of the primal cuts. The location determines the amount and type of muscle present. This knowledge is useful when selecting an animal for the show ring.



Retail Cuts of Beef (I, S)

Chuck area cuts:

Cuts of meat from this muscular area tend to be tough. Recommended cooking methods include; slow, moist cooking 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

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 (I, S)

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.

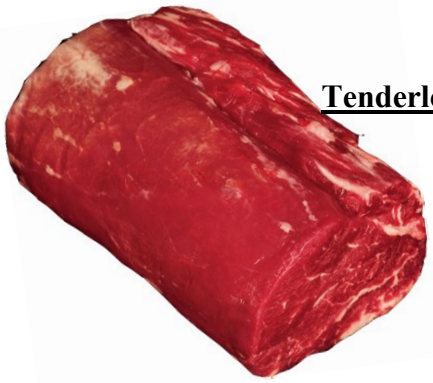
Skirt Steak

Flank Steak

Short Loin:

This area boasts extremely tender cuts and cuts from the short loin may be sautéed, pan fried, broiled, pan broiled or grilled.

Tenderloin Roast

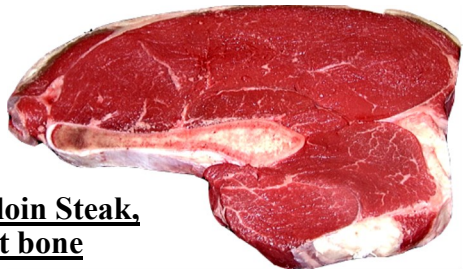


T-Bone Steak

Top Loin Steak

This might just be the most famous steak, if it weren't called by so many different names, more commonly called a New York Strip Steak.

Sirloin:



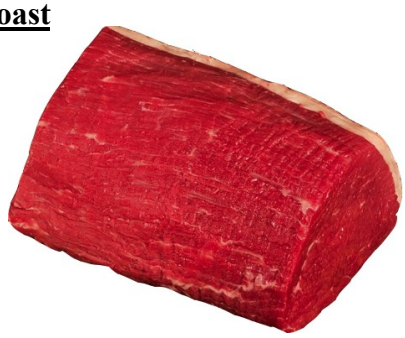
Sirloin Steak, Flat bone

Sirloin Steak, Round bone

Round:

Round Steak (bone in)

Eye Round Roast



Eye Round Steak

Beef Cattle Nutrition (I, S)

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. Water needs vary with weight, temperature and other factors, but generally:
  - 500 pound calf drinks 5 to 12 gallons
  - 750 pound calf drinks 7 to 18 gallons
  - 1000 pound calf drinks 10 to 25 gallons
- **Protein** supplies materials for body tissues like muscle, internal organs, bones, blood and skin. Protein can be supplied by high quality hay/pasture grass or supplements including cottonseed, soybean, or linseed meal.

Energy from carbohydrates and fats enhance movement and produce heat to keep the body warm. Excess energy is stored as fat in the body. Feeds that contain a lot of carbohydrates and fat are barley, wheat, corn, milo (grain sorgum), 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 manufactures 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).

PREVENTATIVE HEALTHCARE
HEALTHY ENVIRONMENTS

Animal caretakers are responsible for providing safe, secure, and healthy environments. This section will focus on providing healthy environments. In Florida, hot temperatures are commonplace. So, maintaining a healthy environment requires a knowledge of heat and heat management. If not managed, too much heat results in heat stress. This can lead to reduced feed intake and weight loss, poor breeding efficiency, changes in behavior, and in extreme cases death can occur.

HEAT AND HEAT STRESS

High temperatures are uncomfortable and can be stressful for livestock. Heat stress increases when combined with humidity, wind speed, and solar radiation (sunlight).

HEAT INDEX

To predict the likelihood of heat stress, ranchers, livestock producers and exhibitors can use a heat index. A Heat Index combines temperature, humidity, wind speed, and solar radiation to determine the stress on an animal for the specific environmental. The National Weather Service (NWS) maintains the Heat Index used by weather stations across the nation to forecast heat conditions (Table 1).

Table 1. The Heat Index is a measure of temperature and relative humidity. This table can be accessed on-line at https://www.weather.gov/safety/heat-index

NWS Heat Index

Temperature (°F)

Relative Humidity (%)	80	82	84	86	88	90	92	94	96	98	100	102	104	106	108	110
40	80	81	83	85	88	91	94	97	101	105	109	114	119	124	130	136
45	80	82	84	87	89	93	96	100	104	109	114	119	124	130	137	
50	81	83	85	88	91	95	99	103	108	113	118	124	131	137		
55	81	84	86	89	93	97	101	106	112	117	124	130	137			
60	82	84	88	91	95	100	105	110	116	123	129	137				
65	82	85	89	93	98	103	108	114	121	128	136					
70	83	86	90	95	100	105	112	119	126	134						
75	84	88	92	97	103	109	116	124	132							
80	84	89	94	100	106	113	121	129								
85	85	90	96	102	110	117	126	135								
90	86	91	98	105	113	122	131									
95	86	93	100	108	117	127										
100	87	95	103	112	121	132										

Likelihood of Heat Disorders with Prolonged Exposure or Strenuous Activity

Caution | Extreme Caution | Danger | Extreme Danger

The Occupational Safety and Health Administration (OSHA) and National Institute for Occupational Safety and Health (NIOSH) have created a heat tool (OSHA-NIOSH Heat Safety Tool) available on the App Store or Google Play. It can be used to monitor local heat conditions and predict the likelihood of heat disorders.

Download on the App Store | GET IT ON Google play

SIGNS OF HEAT STRESS IN LIVESTOCK

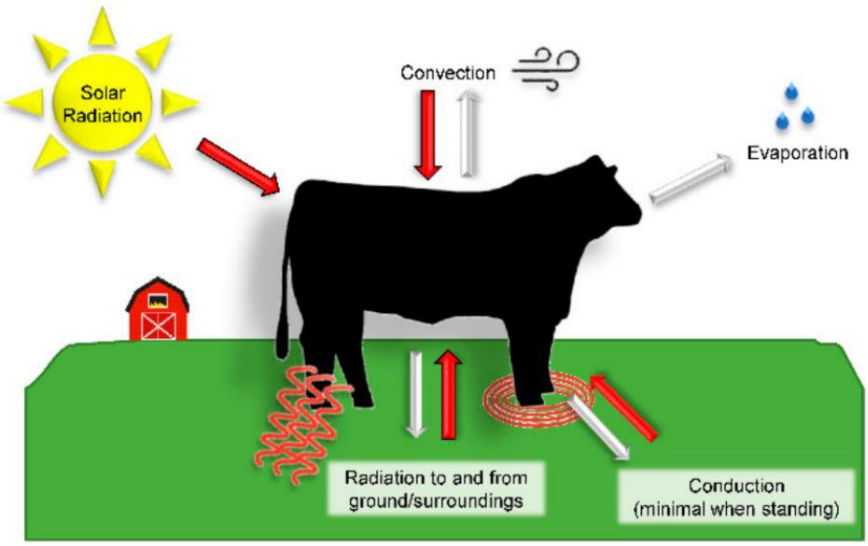
Livestock exhibitors know that it is in their best interest to keep livestock and poultry healthy and in good condition. Preventative healthcare seeks to identify potential issues before they become problems. Here are some of the symptoms indicating heat stress in livestock and poultry:

- Bunching in the shade
- Slobbering or excessive salvation
- Foam around the mouth
- Panting or open mouth breathing
- Lack of coordination
- Trembling

Temperature Range	
	°F
Poultry	105.0 - 107.0
Rabbit	101.0-103.0
Beef	100.5 - 103.0
Swine	101.5-102.5
Goat	101.5 -103.5
Sheep	101.5 -103.5

Cattle, along with humans, swine, poultry, rabbits, sheep, and goats, are HOMEOTHERMS meaning they can control body temperature within a range of temperatures. Livestock are exposed to many sources of heat. To maintain their body temperature cattle store excess heat throughout the day and then release that heat at night when air temperatures decrease. During hot summer months, this day-night heat transfer may be disrupted. It is important to have a plan in place for keeping cattle cool.

Figure 1. Cattle heat transfer occurs by 3 primary modes. Conduction – transfer of heat to the ground, Convection – heat dissipation with air movement, Evaporation – loss of moisture from respiratory tract.



Based on the photo above and what you learned about heat transfer in cattle, answer the following.

Assume it is mid-August, the air temperature is 95°F, there is no wind, humidity is 95%:

1. Should you be making plans to reduce heat stress?
2. If so, what can you do to reduce heat stress?

Fitting and Showing

(I, S)

The show ring is filled with the fun and excitement of friendly competition. It is a pleasure to lead a well-trained and groomed animal 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 animal that is inadequately trained.

Equipment for training: a nylon rope halter, a brush/comb, and a show stick. The show stick is used for tapping to signal, rubbing to calm, and pressure to align feet of the animal.

Frequent lessons: a calf should be worked with regularly. Short and frequent 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 the animal. It is growing, so make sure it is not rubbing into the skin over the nose, or under the jaw. If it starts to make a sore, readjust, or take it off. Start putting it on daily, rather than leaving on all the time.

How <u>not</u> to train your calf: Do not tie the animal to a vehicle or tractor to pull him along. 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.

Practice for the show: Cattle 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/heifer over their back and along ribs so they become comfortable with others.

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

Washing your calf: Cattle must be clean for the show. Wash a few times at home, for practice so the animal is comfortable. 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 soap build-up or dry, flakey 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.

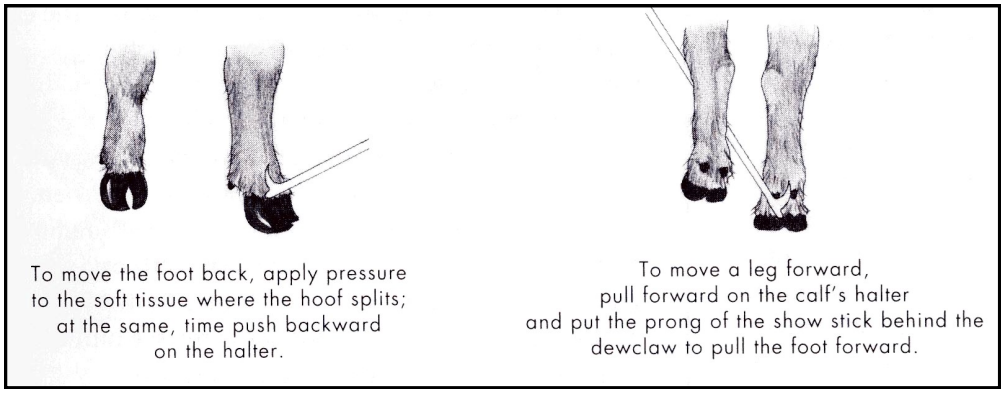
Dress to impress: Dress well to make a positive impression on the judge as well as the spectators.

Waiting to go into the ring: If you have a chance, watch the classes ahead 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.



To move the foot back, apply pressure to the soft tissue where the hoof splits; at the same, time push backward on the halter.

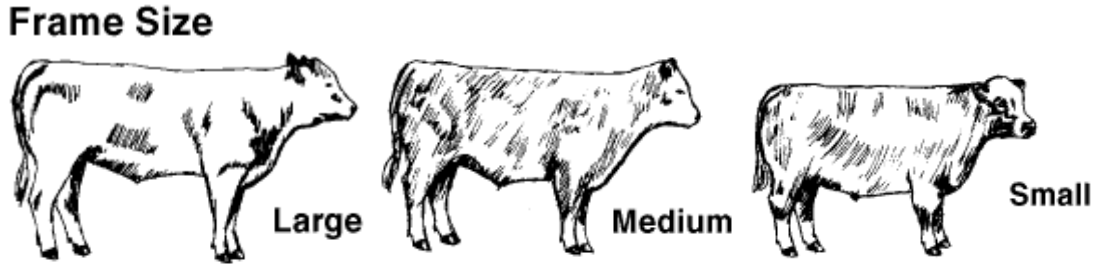
To move a leg forward, pull forward on the calf's halter and put the prong of the show stick behind the dewclaw to pull the foot forward.

Cattle Grading (S)

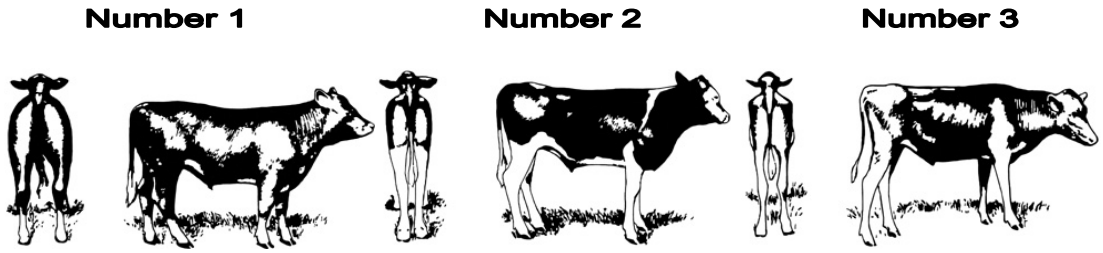
Florida is a cow/calf state and a major supplier of feeder calves (between 6 and 12 months of age) sold to be "finished" in feedlots in western states. Grading systems are important because they provide a common language for describing various types of cattle. Transactions can be made without a buyer seeing the cattle.

Feeder Cattle Grading: The current USDA feeder cattle grading system is based on frame size, muscle thickness, and thriftiness.

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.

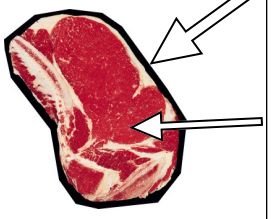


Thickness in feeder cattle refers to the development of the muscle system in relation to skeletal size. Thicker muscled animals have a carcass with more lean meat and better Yield Grade.



Yield Grade/Cutability: An estimate of percent retail yield of the four primal cuts of beef (chuck, rib, loin, and round). Identifies the difference in the yield of lean red meat to waste fat. 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.

Quality Grade: Quality can be identified as those factors that affect the tastefulness, flavor and juiciness of the meat. Quality grading of beef carcasses is determined by two factors: maturity 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.



Yield Grade in part measures fat that will have to be cut off by the butcher and wasted.

Quality Grade, measures fat inside the steak, that makes it taste juicy and good!

Record Book

(S)

The record book enables those with beef projects to accurately keep health, expense, inventory, and feed records on their cattle. 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.

Rate of Gain/Feed Conversion

The starting weight is recorded at "Weigh-in" and the ending weight will be measured when the steer is entered into the Fair in March. Total days on feed should be calculated from the "weigh-in" to the final weight. These are important values to know to determine the rate of gain for your steer and the feed conversion rate. Both of these measures are calculated based on the pounds of food fed to your steer.

Rate of Gain = Total Weight Gained (lbs.)/Days Fed

Feed Conversion = Total Feed Fed (lbs.)/Rate of Gain of Steer (lbs.)

Practice calculating Feed Conversion:

You purchased a 600 pound steer and fed him 1200 pounds of feed. He gained 600 pounds.

For this steer, what was the rate of feed conversion?

Determine the Rate of Gain _____

Determine the Feed Conversion _____