

Your 4-H Market Beef Project

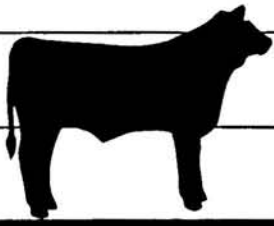
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Credits

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Feed Nutrients

To properly feed your project calf, you need to know what the various feed nutrients are and how they contribute to the growth and health of your calf.

Water

Water is the most important part of a calf's diet. Strictly speaking, water is not a nutrient. However, without it many of your calf's important body functions can't happen. The calf's body is more than two-thirds water. Your calf should be supplied with as much fresh water as it will drink.

The calf needs water to properly digest its feed and carry nutrients to body cells. Water also carries away waste products, lubricates joints and is a built-in cooling system. A calf can live longer without feed than without water.

Proteins

The protein a calf eats as part of its feed is called dietary protein. It is broken down by the calf's body into amino acids. These amino acids are then used by the calf to build body proteins, which make up muscles, internal organs, bones and blood. Body proteins are also part of hair, hooves, skin and many other body parts.

There are two kinds of amino acids: those the calf's body can manufacture and those the calf's body can't make on its own. The second group of amino acids is

called essential amino acids, and they must be included in the calf's diet. If you feed more dietary protein to your calf than it needs, the extra protein is used for energy. Grains, such as corn, supply part of the calf's protein (amino acid) needs. A commercial protein supplement of soybean, cotton or linseed meal is used to balance the protein (amino acid) content of the diet.

Carbohydrates

Carbohydrates are to a calf what gasoline is to an automobile. They supply the energy or fuel the calf needs to walk, breathe, stand and grow. Carbohydrates also produce heat to keep the body warm. Energy nutrients, not used right away, are stored as fat until the body needs them.

Sugars and starches are carbohydrates. Grains such as corn and wheat contain a lot of sugar and starch. Cellulose is one of the more complex carbohydrates. Grasses and hays are high in cellulose.

Fats

Fats provide energy for movement and heat. They produce about 2.25 times as much energy as carbohydrates. Fats also are needed to help digest certain vitamins. Fats digest easily in the calf's body but at a slower rate than carbohydrates. Most calf diets contain enough fat, so it doesn't need to be added.

Minerals

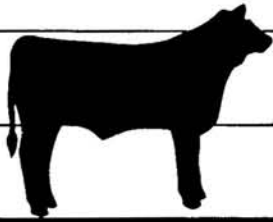
Minerals build bones and teeth and support other life processes in calves. Calcium and phosphorus are called macrominerals because they make up the largest percentage of minerals in a calf's body.

Minerals that are needed in very small amounts are called trace minerals. Some trace minerals are copper, iron, zinc and iodine.

Minerals can be added separately to diets or can be supplied in a commercial protein supplement.

Vitamins

Vitamins are just as important as other feed nutrients, but they are needed in smaller amounts. Vitamin A is needed for healthy eyes, nasal passages and lungs. Vitamin D is necessary for strong bones and healthy blood. Calves need other vitamins to aid additional body functions. The calf's body produces some vitamins such as vitamin D, which is manufactured by a calf that is exposed to sunlight. Other vitamins may be added to the diet.



Feeds for Calves

Feed will represent from 70 to 75 percent of your market beef project costs. This, along with the need of growing calves for certain essential nutrients, makes it very important for you to understand a few basic rules for selecting the proper feeds in the right proportions for your calf.

It's a good idea to learn and use proper terminology when referring to cattle feeding programs. Your 4-H market beef project is a good place to begin. Often, the terms diet and ration are used to refer to the same thing, but there is a difference between the two. A beef **diet** is a nutritionally-balanced mixture of feed ingredients. A **ration** is the amount of feed a calf is allowed to eat in a 24-hour period.

Beef calves are ruminant animals. This means they have a specialized digestive system that manufacturers most of the necessary feed nutrients from hays and grains. Calves' stomachs are divided into four compartments.

In general, feed is used in the following ways:

- **Growth**—an increase in the size of muscles, bones and other body parts. Increasing the size of the calf by adding fat is not growth.
- **Maintenance**—maintaining body functions such as digestion, breathing and heartbeat, and repairing worn out body tissue.
- **Fattening**—the build-up of fat between skin and muscles and

inside the body. Feed given a calf over and above what it needs for growth and maintenance is stored as fat.

When you feed your calf, make sure you give it enough feed for rapid growth and proper maintenance, with just enough extra to provide a small covering of outside body fat and internal fat.

Energy Feeds or Concentrates

Farm grains are the most common and the best source of energy feeds for calves. The following tells how farm grains can be used and how they compare as feeds for calves.

Corn is an excellent energy feed for calves. It's an ideal finishing feed because it's high in digestible carbohydrates, low in fiber, tastes good and is a safe feed. Since it's low in protein, it's necessary to feed a high-protein supplement along with it. It can be rolled, cracked (preferred) or fed whole, but it shouldn't be finely ground.

Finely ground grain isn't desirable for several reasons. The calf may eat less or the feed may ball up in the animal's mouth. When finely ground grain is used, a calf is more likely to go off feed and there is a greater chance of bloat or digestive upset.

Barley is a good finishing feed. It has about 90 to 95 percent the finishing value of corn. It should be coarsely ground or rolled and fed

with other grains. Cattle fed only barley have a tendency to bloat, especially if they are fed legume hay.

Wheat gives good results in finishing cattle, but should not make up more than 50 percent of the ration. Feeding only wheat can cause a calf to bloat or go off feed. Wheat is similar in feed value to corn and should be fed coarsely ground. When ground too fine, it has a tendency to form a pasty mass in the calf's mouth and become less palatable (tasty).

Grain sorghums (milo) have many of the same virtues and deficiencies as corn. The kernel is hard and small and should be ground before mixing with other ingredients. The feeding value of grain sorghums is about 95 percent that of corn.

Oats are an excellent feed for growing calves and the feed value is about 75 to 85 percent that of corn. Oats are bulky (high in fiber) and cattle like it. Since oats produce more growth than finish in calves, other finishing feeds must be added to the ration to produce the desired finish at marketing time. Cattle prefer rolled oats, but can be fed whole oats. Never feed cattle finely ground oats.

Wheat bran (the outside of the wheat kernel) adds bulk to the diet and also acts as a mild laxative. It's high in protein and phosphorus, and calves like it.

Dried beet pulp is a by-product of the manufacture of sugar from beets. It can be used as a source of energy as long as it doesn't make up more than 40 percent of the ration. At this level, dried beet pulp has about the same feed value as corn or barely, adds bulk and variety, and helps to keep an otherwise heavy grain ration from causing digestive disorders.

Beet molasses can be added to the ration as an appetizer since cattle like it. It has about 70 to 95 percent of the feed value of corn but is low in protein. It may act as a laxative if fed in large amounts, especially while cattle become accustomed to eating it.

Protein Supplements

After reading the previous section, you should recognize that all feeds are deficient in both the quantity and quality of the protein they provide. Therefore, it's necessary to supplement the grains used in cattle diets with protein-rich feeds. Usually, 4-H members find it more convenient and cheaper to buy a commercial protein/vitamin/mineral supplement prepared especially for cattle. The commercial supplement should contain all the required minerals and vitamins along with the protein (amino acids) missing in the grain ingredients. If you supplement the calf's diet yourself, the following is a list of protein concentrates you can use.

Cottonseed meal is made after the oil has been extracted and contains 41 to 44 percent crude protein. It's high in phosphorus.

Soybean meal has less fiber than cottonseed meal and is slightly higher in crude protein (45 percent). This is the most popular

protein additive source for feeding beef cattle.

Linseed meal contains about 38 percent crude protein. Some people like to feed it to their cattle because it acts as a slight laxative and adds gloss to the hair coat. However, it may cost more than cottonseed or soybean meal.

Alfalfa hay is excellent roughage for cattle. It contains large amounts of protein, carotene (vitamin A) and calcium. However, leafy, high-quality, alfalfa hay fed alone acts as a laxative and can cause bloat.

Mixed hay (alfalfa and grass) doesn't contain as much protein as alfalfa hay but is very satisfactory roughage for feeding calves.

Grass hay is lower in protein than either alfalfa or mixed hays, and the ration would probably require some protein supplement. Grass hays are sometimes easier to feed to beef calves on a heavy grain diet because there is less chance of digestive upsets.

Silage can be used in a limited amount. About 3 pounds of good silage is equal to 1 pound of hay. Some silage in a ration may prevent bloat, but too much can cause a heavy middle or belly and lack of proper finish.

Pasture should be used in a limited way. Calves on a good pasture will grow but not finish properly. They will also lose their appetite for grain. Lots with a small amount of pasture can be used for exercise at night.

Feed Additives

Growth promoting implants stimulate growth on a high-energy diet. Gain can be increased 10 to 15 percent with 10 percent less feed per pound of gain. These are administered by placing the implant

just under the hide or the back side of the ear. The required withdrawal time should be rigidly followed. Withdrawal time is the time before slaughter that the calf can't receive hormones.

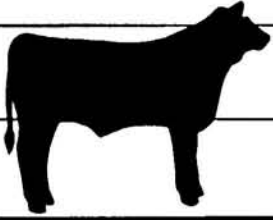
Antibiotics help to keep calves healthy but don't take the place of good management and regular feeding. Some people believe long-term antibiotic feeding is a potential threat to human health. They point out that continuous feeding of antibiotics may result in bacteria that become resistant to antibiotics. If people are infected with antibiotic-resistant bacteria, antibiotics wouldn't be effective in curing the disease.

Because of the potential threat to human health, the safety of feeding antibiotics to livestock has been questioned. The effect of future regulations concerning the use of antibiotics and hormones in feeds is uncertain at this writing.

If you decide to use antibiotics in your calf diet, be sure to read and follow all label directions. Following the recommended withdrawal time is especially important. Contact your county MSU Extension office for the latest regulations and recommendations concerning antibiotics in cattle diets.

Vitamin supplements should not be needed in the normal, well-balanced ration. Supplements may be added to the feed or given by injection in some cases.

Mineral supplements are generally provided free-choice for calves on feed. These might be a commercial mineral supplement or a home-mixed supplement such as dicalcium phosphate and salt or steamed bone meal and salt. Trace mineralized salt in place of plain salt ensures an adequate supply of trace minerals in the ration.



Feeding Your Calf

Nutrient Requirements

The nutrient requirements (on a dry matter basis) of a calf during the feeding period are presented in table 3.

Feeding your 4-H calf is exciting. A scoop of grain and a flake of hay "bursts" into energy as your calf romps in the feedlot. What was once a calf becomes a grown animal, and you become an animal nutritionist.

A calf first needs the inherited ability to grow rapidly. The success of your project depends on the calf's growing ability and the ration you feed it. A ration must contain the nutrients a calf needs and may contain only a few feeds or many feeds. Nutrients can be supplied by different feeds. These should be easy to get in your area (home grown or locally grown feeds when available), low-cost and high in quality. They should taste good so the calf will eat them.

Set Your Goals

Before you decide on a ration, ask the following questions:

- Am I planning to show the calf, or is my project a commercial beef project?
- When will I show or sell the calf?
- For what weight and market grade am I feeding?
- What is the weight and feeder grade of my calf at the beginning of the project?

Starting Your Calf

If your calf was fed grain before you bought it, find out what its diet was. Try to duplicate the diet to some degree for the first few days. During the next two weeks, gradually replace it with your own grain diet.

If your calf has never been fed grain, start it on hay free-choice plus one pound of grain per 100 pounds of body weight daily, or on corn silage free-choice plus one pound of protein supplement daily. After the calf is eating 11 to 15

pounds of hay plus grain, or 30 to 40 pounds of corn silage daily, increase the grain by a half pound and decrease the hay by half a pound or the corn silage by 1.5 pounds daily until the desired level of roughage is reached. A calf should receive a daily minimum of a half pound of hay or 1.5 pounds of silage for each 100 pounds of body weight.

There is less danger of the calf going off feed if the grain, supplement and silage are completely mixed. Hay is usually fed in a separate feeder, but it can also be chopped and mixed with the grain. If haylage is used instead of hay, mix it with the grain. Your calf should eat every day at least 2.5 percent of its body weight in the form of ration dry matter.

For example, start a 500-pound calf on a hay-grain diet which consists of 5 pounds of grain plus a full feed of hay (about 7.5 pounds). Gradually increase the grain and decrease the hay until the calf is eating about 10 pounds

Table 3. Nutrient Requirements for Cattle

Nutrient as percentage of diet	WEIGHT OF CATTLE		
	600 to 800 lbs.	800 to 1000 lbs.	1000 lbs. and heavier
Crude Protein	13.0	12.0	11.0
Calcium	0.4	0.3	0.3
Phosphorus	0.3	0.2	0.2

Vitamin A: 1000 International Units (IU) per pound of dry matter.

Salt and trace minerals: normally supplied at adequate levels in trace mineral salt.

Table 4. Dry Matter Composition of Common Feeds

Feed	Expressed as Percent of Dry Matter				Vitamin A IU/lb.	Normal Dry Matter, Percent
	TDN% ¹	CP% ²	Ca% ³	P% ⁴		
Corn	91	10.0	0.03	0.40	800	85
Barley	83	13.0	0.09	0.47	—	89
Ground ear corn	82	8.9	0.05	0.33	600	86
Oats	75	13.0	0.10	0.43	—	89
Milo	80	11.0	0.04	0.37	—	88
Wheat	88	12.3	0.10	0.33	—	89
Molasses, cane	72	4.3	1.20	0.11	—	76
Beet pulp	70	9.0	0.60	0.08	—	91
Soybean meal (44%)	81	48.8	0.36	0.75	—	90
Corn silage	70	8.0	0.28	.21	2000	35
Wheat bran	67	18.0	0.11	1.35	—	89
34% commercial supplement	65	37.7	2.25	1.10	33,000	90
Alfalfa hay or haylage	55	14.0	1.00	0.23	8000	35-90
Grass hay or haylage	50	9.0	0.40	0.30	4000	30-90
Dicalcium phosphate	—	—	21.50	18.50	—	100
Limestone	—	—	38.00	—	—	100

¹TDN = Total Digestible Nutrients.

²CP = Crude Protein.

³Ca = Calcium

⁴P = Phosphorus.

of grain and 2.5 pounds of hay. If the calf will eat more than this, gradually increase the level of feed until the calf reaches a maximum (about 3 percent of its body weight). Be careful of going beyond the calf's normal limit and throwing it off feed.

Normally, a calf will eat about three-quarters of its grain in the first 30 minutes and nearly all of it in about 60 minutes. If grain is still left in the bunk at the next feeding, remove it and put in fresh feed. Never let old feed accumulate in the bunk because the calf may go off feed. For the best results, feed your calf twice a day and try to schedule the feedings for the same time each day. An irregular feeding schedule is another reason a calf may go off feed.

The calf should always have access to clean, fresh water. During the winter, it's important to keep the water from freezing so that the calf can drink at any time. If this isn't possible, break the surface ice frequently so the calf doesn't go thirsty for an extended period. A calf drinks less water when the temperature is near the freezing point. It will drink more if the water is in a heated cup or tank. Daily water consumption will average about 8 percent of body weight during cold weather and up to 19 percent of body weight during hot weather. Stated in volume, the range from cold weather to hot weather is about 5 to 20 gallons of water per calf each day.

Manure, bedding or other debris should always be removed from

the water. Don't force your calf to drink dirty water. If salt and minerals aren't mixed in the grain ration, provide them free-choice in a place where they will stay dry.

Selecting a Ration

Table 4 lists commonly fed feedstuffs and their composition on a dry matter basis.

As you can see from the table, no single feed can meet all your calf's nutritional requirements. Therefore, it's necessary to feed a combination of ingredients.

Basic Grain Rations

Following is a list of some basic grain rations that use common feedstuffs.

High Energy Rations (more than 83% TDN)

Ration No. 1

(86.7% TDN, 13.1% CP)

- 80% corn
- 10% oats
- 10% supplement (34% CP)

Ration No. 2

(85% TDN, 13.4% CP)

- 70% corn
- 20% oats
- 10% supplement (34% CP)

Ration No. 3

(83.3% TDN, 13.7% CP)

- 60% corn
- 30% oats
- 10% supplement (34% CP)

Medium Energy Rations (80-83% TDN)

Ration No. 1

(81.9% TDN, 13.1% CP)

- 47% corn
- 47% oats
- 6% supplement (34% CP)

Ration No. 2

(80.0% TDN, 13.2% CP)

- 85% ground ear corn
- 15% supplement (34% CP)

Ration No. 3

(82.6% TDN, 13.0% CP)

- 40% corn
- 30% oats
- 25% barley
- 5% supplement (34% CP)

Ration No. 4

(82.9% TDN, 13.7% CP)

- 65% corn (dry matter basis)
- 20% corn silage (dry matter basis)
- 15% supplement (34% CP)

Ration No. 5

(81.2% TDN, 13.6% CP)

- 70% corn
- 20% coarsely chopped or ground alfalfa hay
- 10% supplement (34% CP)

Low Energy Rations (75-79% TDN)

Ration No. 1

(75% TDN, 13% CP)

- 60% corn silage (dry matter basis)
- 25% corn (dry matter basis)
- 15% supplement (34% CP)

Ration No. 2

(78.6% TDN, 13.3% CP)

- 65% oats
- 30% corn
- 5% supplement (34% CP)

Ration No. 3

(78.2% TDN, 13.6% CP)

- 60% oats
- 20% corn
- 15% barley
- 5% supplement (34% CP)

Ration No. 4

(77.3% TDN, 13.3% CP)

- 60% corn
- 33% coarsely chopped or ground alfalfa hay
- 7% supplement (34% CP)

Two-Phase Feeding Systems

You may want to consider a two-phase feeding system. It involves feeding a low- or medium-energy ration during the first half of the feeding period, then switching to a high-energy ration when the calf reaches about half of the expected gain for its frame size.

For example, assume you're starting a 500-pound calf of the large-framed exotic type on a low to medium diet. You plan to show it September 1 when it should weigh about 1200 pounds. When the calf weighs between 800 and 850 pounds, gradually switch it to a high-energy diet for the rest of the feeding period. The switch

should take place during a one- to two-week period.

The advantages of such a system follow.

- Most two-phase systems tend to be slightly more efficient in the use of total ration energy. The cost of gain in the first half of the feeding period is less expensive with little or no reduction in performance during the entire feeding period.

- Feeding a low- or medium-energy diet early in the feeding period permits maximum muscular and skeletal growth and minimizes the risk of the calf becoming too fat too soon.

If the calf is an extremely large-framed type, it probably should not be put on a two-phase system. Instead, you should feed it a high-energy diet from start to finish.

What Energy Level to Feed

Deciding whether to feed your calf a low-, medium- or high-energy grain ration depends on several factors, including the type or size of the calf's frame, the starting weight of the calf, the condition of the calf, when you bought the calf and when you're going to show it.

Table 1 (see page 4) gives the expected gain, feed composition, final weight and carcass cutout of various types of calves fed to be ready for an August 1, September 1 or December 1 show. The assumed starting date is November 20. In this example, the ration was assumed to be a medium- to high-energy ration.

Most of the time you'll want to feed a medium- or high-energy ration. Most large-framed calves should receive a high-energy

ration. If you're aiming for an early county fair, you also need to feed a high-energy ration. If you're feeding small-framed steers and aiming for later shows, a medium-energy ration may be more appropriate, or you might start on a medium-energy ration and switch to a high-energy ration.

It's generally not a good idea to feed a low-energy diet entirely because the calf may not grow adequately to meet weight requirements. The exception is if you're feeding smaller-framed cattle with the intention of showing them at a later show.

Grain Preparation

Coarsely cracking corn and lightly crimping oats and barley are probably the ideal methods of processing grain. However, many local elevators aren't equipped to do this; they usually make the grain too fine and dusty.

Feeding whole corn, oats and barley is not as desirable as crimping, but is preferable to fine grinding. When fed whole, the kernels can be seen plainly in the manure. This is no cause for alarm, because ground grain also passes through but isn't as visible.

Normal Feed Consumption

To get maximum performance from your calf, feed it to the limit of its appetite. Table 5 lists the expected daily dry matter intake for cattle of different weights.

Most dry grains and hays average about 88 percent dry matter. Therefore, "as-fed" daily feed consumption will average about 12 percent higher than the levels listed in Table 5.

Table 5. Normal Daily Dry Matter Intake of Growing-Finishing Cattle

Body Weight in Pounds	Dry Matter Intake in Pounds	Intake as Percentage of Body Weight
300	9.0	3.00
400	10.9	2.73
500	12.9	2.58
600	14.8	2.46
700	16.6	2.37
800	18.3	2.29
900	20.0	2.22
1000	21.4	2.14
1100	22.3	2.03
1200	22.9	1.91
1300	23.1	1.85
1400	23.1	1.65

Cattle fed corn-silage diets will consume slightly less dry matter daily than previously mentioned (about 0.1 to 0.2 percent of body weight lower daily intake).

Mineral Mixes

If minerals aren't included in the supplement, they should be offered free-choice in a covered box. Following are acceptable mixtures:

Mixture 1

- 1 part trace mineral salt
- 2 parts bonemeal or dicalcium phosphate

Mixture 2

- 2 parts trace mineral salt
- 1 part limestone

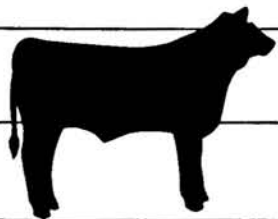
If Your Calf Goes Off Feed

Keeping your calf on full feed will take skill. Watch your calf for signs of going off feed (refusing to eat all of the feed). Try to prevent this situation, but if it does happen, take the following steps:

- Cut the concentrate feed in half. Continue feeding this amount until the calf readily eats it.

- When the calf eats its feed readily, increase the amount slowly until the calf is receiving nearly as much as it did when it went off feed. Watch the calf closely as you make further increases.

- Slightly increase the amount of hay you feed.



Exhibiting Your Calf

You and the other members of your club may want to exhibit your market calves at your county or area fair or show. This is often a requirement if you are to sell your calf there. Exhibiting your calf should be a pleasant experience for you; however, it is only one part of your project.

It is perfectly normal for you to want to win and to feel badly if you don't. The important thing to remember is not to let the results of the show spoil what would have otherwise been an enjoyable experience in your 4-H project.

To exhibit your calf properly and to enjoy your experience in the show ring, you must begin preparing for the show when you start your project. Your calf must be healthy and free from internal and external parasites. It must be fed at the proper rate so it will show the proper weight for its age.

The showperson, as well as his or her calf, is evaluated in a fitting and showmanship contest. Judges look for signs of care, attention, training and preparation given the calf as well as the appearance of the exhibitor.

Halter Breaking and Training

Assuming that your calf is eating properly and is healthy, the first step in preparing it for a show is halter breaking. It's important that you do this as early as possible. It is much easier for the calf and the

people involved to halter break a 500-pound, 7-month-old calf than it is to halter break a 1000-pound, 12-month-old steer or heifer.

After the calf has adjusted to its new environment (approximately 7 to 10 days), begin halter breaking it. A sturdy rope halter is essential. Confine the calf in a small pen (about 12 feet by 12 feet). Squeeze the calf between two gates or put the calf in a chute to halter it the first few times. Take care not to get the calf over-excited. Some people prefer to let the calf simply drag a rope for a few days before tying it to a sturdy fence or rail. This is a good way for the calf gradually to become accustomed to the halter and the pressure it can apply. Other people prefer to tie the calf immediately. In either case, it is important to remain calm and patient when working with your calf.

When tying the calf, secure it to a sturdy fence and don't allow the rope to slide back and forth along the fence or rail. During the first week, it helps to tie the calf daily for short periods. Be sure the halter isn't cutting into the hide over the bridge of the nose or under the jaw. If this happens, simply adjust the halter to a different area on the calf's nose. Only allow the calf 1½ to 2 feet of rope when tying it.

After the calf becomes used to being tied up, try to scratch the calf's shoulder or top line with your hand or a scotch comb or

curry comb. Once the calf realizes you aren't going to hurt it and that the scratching, rubbing or combing feels good, this motion will help calm and relax it. In the early halter breaking stages, never leave the calf unattended to ensure its safety.

Training to Lead

Once the calf is halter broke and is comfortable with your presence when you brush and comb it, the next step is breaking the calf to lead. Begin by trying to lead the calf in the small pen for a few minutes before removing the halter and turning the calf loose for the day. Another method would be to halter and tie the calf after it finishes the morning feed. After the calf has been tied for a few hours, place a bucket of water or small flake of hay in the opposite corner of the pen and try to lead the calf to that area. After a few tries, the calf will begin to associate your leading it with a drink of water or a small treat. Once you gain the calf's trust, the entire process becomes easier.

Next, teach your calf to stop with its head up and to respond to the use of a show stick. The show stick is used to position the calf's legs so it stands squarely on all four legs. At first the calf may shy from the show stick. Begin by scratching its belly with the show stick. Eventually, the calf will come to enjoy this. Next, use the point or the hook of the show stick to

properly position the calf's legs and "set it up," as it is called.

Continue to lead and set up the calf frequently for several days or even weeks. With practice and time, the calf will begin to set up on its own when you stop. There is no short-cut to accomplish this, but with much practice, it will occur.

Hoof Trimming and Foot Care

Care of the feet also comes under the category of fitting and is very important. Proper hoof trimming can change the position and set of the legs, thus changing the entire balance and lines of an animal. Trim the hooves 4 to 6 weeks before the show. Place the calf in stocks or on a mechanical table to do this. When possible, consult an experienced hoof trimmer. Hoof trimming is an art few people thoroughly master. Many, but not all, cattle require routine or corrective foot trimming.

A few points on general hoof trimming:

1. Trim the inside toe and heel before the outside, because the inside toe generally grows faster

and longer than the outside toe. This is probably the most frequent reason for trimming. Trim the toe before the heel to ensure the animal will walk up on its toes.

2. Remove the outgrowth or rim of the sole around the edge of the toes (see figure 9) and along the side of the foot with a pair of nippers (see figure 10). Be careful to keep the foot level while trimming.

3. Many times you can't trim the toe as closely as you would like. When the bottom of the foot is springy to the touch, the next cut will probably draw blood and you have trimmed too far.

4. Shape the foot and all rough edges with a rasp. **Electric sanders may be used (see figure 11), but do so with caution!** An electric sander often generates too much heat and may seal the pores in the foot, inhibiting its proper growth.

5. The bottom of the calf's foot, between the toes, should be hollowed out slightly to allow mud and other materials to ooze up through the toes. This works as a self-cleaning mechanism.

6. Make the side of the toes relatively straight on the inside by rasping between them.

7. Apply a disinfectant to the hoof when you're done trimming to heal any cracks or cuts in the foot, especially between toes and along the hoofhead.

Hair Care

A good hair coat that has shine and luster indicates that a calf is healthy and has had proper care. In addition, a good hair coat helps to cover or mask some conformation or structural faults of the steer or heifer.

All cattle will have longer, more dense hair coats in the fall and winter months. As spring comes with warmer temperatures and longer days, the winter hair coat will begin to shed out. The quicker the winter hair sheds, the quicker the new hair coat will begin to grow out. You can hasten this process by frequent brushing and combing. Another method involves clipping or shearing the calf's entire body. In most cases, it's best to clip downward (in the direction of hair growth) to re-

Figure 9. Hoof trimming.

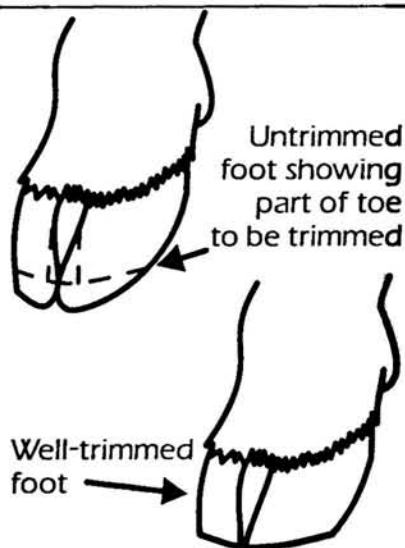


Figure 10. Use of nippers.

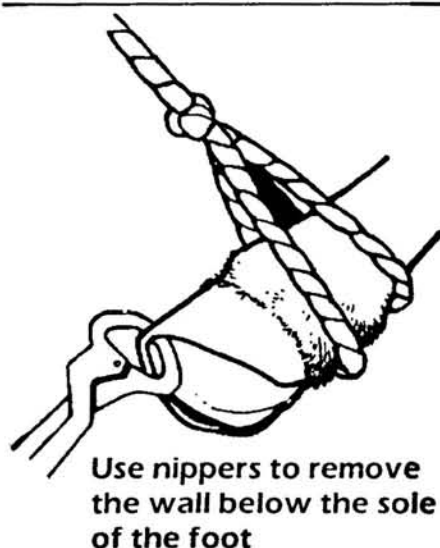


Figure 11. Safe use of electric sander.



move old, dead hair. The new hair that grows in will have a higher luster and shine. If you plan to shear the calf do it in late March or April.

As temperatures start to warm up in the spring, you can begin rinsing your calf with plain water. This will keep the hair coat clean and stimulate hair growth. Rinse your calf daily, or even more often if possible. This will also help to tame the calf as it will learn to enjoy the routine, particularly in hot weather. Periodically, the calf can be washed with a mild livestock soap or dish soap. Laundry detergents are too harsh on the hair and hide. It isn't necessary to use soap each day. Be sure to thoroughly rinse all soap residue out of the animal.

When washing or rinsing the calf, tie it to a secure post and fence.

Avoid getting water in the ear canals because this will cause the calf's ears to hang down in an unnatural fashion. If your calf has excessive dandruff or scales, mix one pint of white vinegar with three gallons of water and apply this to the calf's body. This will help ease the dandruff problem.

After washing or rinsing, brush and comb your calf's hair forward (from rear to front) and slightly upward (see figure 12). This brushing and combing will stimulate hair growth, and with the longer hair coat, will give the calf a smoother appearance. Be sure to comb all of the hair, including the inside and outside of the legs. It is most helpful to continue brushing until the calf is nearly dry.

In warm weather, try to keep the calf cool to preserve the hair. To

do this you may need to rinse the calf more frequently, provide shade and perhaps use a fan to provide a cool, brisk breeze.

Clipping and Blocking the Hair

A professional job of clipping and blocking requires a great deal of time and patience. Clipping will not change the actual size or conformation of an animal, but it will greatly enhance its appearance. Use great care in this phase of the fitting routine.

To clip and block the hair coat, most people place the calf in a simple metal pipe chute with a headgate. It holds the animal still and reduces grooming time.

It is important that the animal be very clean before clipping and that the hair is properly combed and brushed. This will reduce the amount of time you need to do a complete and uniform job of clipping. It is a good idea to wash the calf the day before you plan to clip it. Also, never try to clip a wet animal because wet hair is difficult to clip evenly and it's hard on the clipper blades.

There are four areas that will, in most cases, be clipped short. These include the brisket and dewlap, head, belly and tail. There is some variation among breeds as to how much a breeding animal's head should be clipped or shaved. Check with the specific breed association on recommendations.

With most breeds of cattle and market steers, the head is shaved in front of a line that starts directly behind the ear. Clip forward to the nose and clip the entire forehead. Some hair may be left on the poll to give it more prominence. Some people prefer to leave the hair on

Figure 12. Brushing the hair coat.



the side of the face or cheek to give the animal a longer bodied appearance when viewed from the side. In either case, the hair should be blended carefully from the area where the hair is short to the area where the hair is left longer. Clip the long hair around the ears and shape uniformly.

Clip the brisket and dewlap area and, once again, blend in accordingly. When clipping the belly, start from the elbow and, following the natural contour of the belly, clip to the rear flank. Clip all of the hair below that line. If the calf appears to be shallow bodied, you may want to merely block or clip the longer hair on the belly. This will give the calf a deeper bodied appearance.

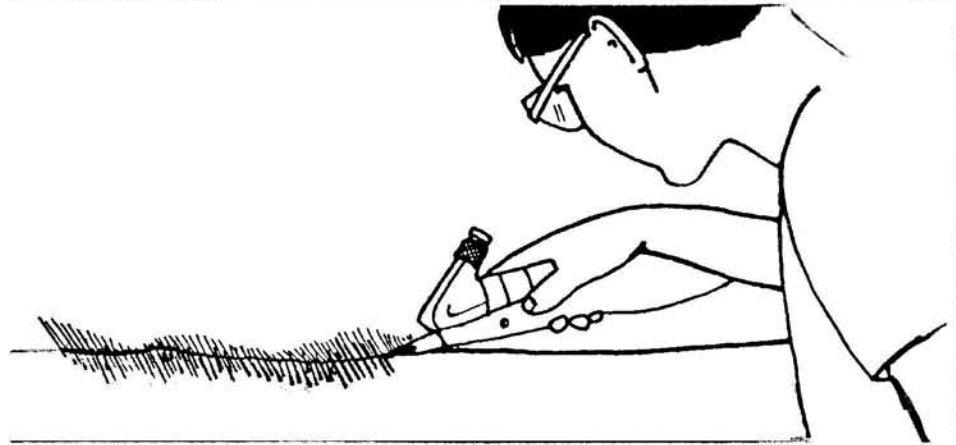
When clipping the tail, view the calf from the rear. Clip the tail starting at the midpoint and go upward. As you clip upward, your goal is to try to make the calf's rump, when viewed from the side, appear square (straight up the rump and straight across the top).

After clipping these areas, clip and block any long hair on the top line (see figure 13) and on the sides. Blend in hair carefully. Your goal is to make the calf smooth, muscular, well-balanced and structurally correct. Even the most competent show people may spend several hours on an animal. Remember to be patient, and that with practice comes a superbly prepared animal.

Preparing to Leave for the Show

Starting two to four weeks before the show, accustom the calf to various things that will occur at the show or fair. Make certain the calf is used to eating from feed pans and drinking from a water

Figure 13. Clipping and blocking top hair line.



bucket. It is helpful to play a radio in the barn so that the calf gets used to unfamiliar sounds.

It's important that the calf is accustomed to a leather show halter with a chain that goes under the jaw. To work the stiffness out of a new leather halter, apply hair oil or saddle soap to make it softer and more supple. When using a show halter for the first time on a calf, place it over the top of the rope halter. Lead the calf with both halters a few times. This will gradually get it used to the chain. This should be done two to four weeks before the show. Eventually, the calf can be led with only the show halter.

When show day arrives, place the show halter on the calf and then place the rope halter over the top to tie the calf as you prepare it for the show. Most leather show halters are not strong enough to secure the calf if something startles it.

When tying the calf in a stall at the fair or show, tie it securely with the rope halter and a neck rope. This is done primarily for safety reasons. Cattle have a tendency to rub their heads on fences and can accidentally slip the halter off. The

neck rope serves as insurance for keeping the calf secured.

In addition, reconfirm that the following items are in order for the upcoming show:

- Show entries with the appropriate fees paid
- Cattle health papers, if necessary
- Registration papers for breeding cattle
- Show box with necessary equipment such as:
 - Extra rope halter
 - Neck rope
 - Show halter
 - Show stick
 - Scotch comb
 - Rice root brush
 - Brush for washing
 - Towels or rags
 - Feed pan and bucket
 - Fork, rake, shovel, etc.
 - Extension cord
 - Clippers
 - Scissors
 - Spray adhesive, hairset, hair oil, soap, etc.
 - Fan, if necessary
 - Garden hose
 - Blocking chute, if necessary

Transporting Cattle

Transport show cattle in a manner that will cause a minimum of stress. Most trucks or trailers

suffice when properly used. Good footing is a must. Sand with straw on top works best. If cattle are hauled a great distance, they should be tied so they can lie down. Don't overcrowd show cattle. Trips should be planned so cattle have at least a day or, better yet, two days rest before the show. This will allow them to regain their "shrink" and appear in a more natural condition.

Leaving for the Show

It is best to feed and water the calf lightly, or feed 50 percent of normal amount, the day before leaving for the show. Cattle travel better and will be more responsive to eating and drinking after arriving at the show.

It is important that the exhibitor get a good night's sleep and is well-rested before leaving. Shows are hard work and tiring—rest up!

Arriving at the Show

When you arrive at the show grounds, locate your stalls and place straw or other suitable bedding in the space provided. Unload the calf and place it in the stall to let it rest and get settled. Some people prefer to wash the calf before stalling it. Be certain to double-tie the calf with the neck rope when stalled.

Be sure to check with the show office and/or superintendent to get any necessary information about the show, such as weighing and check-in time, show time and show order.

Keep the calf comfortable and on the same daily feeding schedule as was used at home. Keep the calf clean, brush and comb its hair, and keep the stalls and bedding clean. Do not leave a water bucket or

feed pan in the pen all day long. This can be unattractive and will make the stall messy. In addition, if feed and water is constantly available, the calf will not consume them as vigorously.

While at the show, many visitors who are eager to ask questions and learn about cattle will stop by. Keep the stalls clean and attractive. Be courteous and polite to visitors and try to answer questions as best as possible.

Before the show, take the calf to the show ring to allow it to become familiar with the surroundings. This will help on show day.

Exercise and Tie-Outs at the Show

To keep cattle fresh and looking their best under the stress involved with transporting and showing them, tie them outside in the evenings. Tying at the tie-out provided by the show or merely tying to one's trailer is sufficient. Bedding should be provided. Tying out and proper exercise keep cattle from appearing stale at the show.

Show Day

On show day, rise early and make sure that there is enough time to get chores and preparations accomplished. Make certain that the calf is properly fed and exercised. It is best to rinse the calf with water to remove any dust and dirt. This will also serve to freshen up the calf. Allow enough time to dry the calf's hair and for the calf to rest before beginning preparation for the show.

The amount of time required to prepare the calf for the ring on show day will vary. Generally, allow yourself 45 minutes to 1 hour

for preparation. Begin by placing the show halter on the calf. Remember, it is a good idea to put the rope halter over the top of the show halter while working on the calf. Remove the rope halter just before entering the show ring.

Plan a systematic schedule for the fitting and grooming process. This might include the following:

- 1.** Place the calf in a blocking chute, if necessary, to restrain it
- 2.** Blow or brush all dust from the calf.
- 3.** Pull up the hair (boning) on all sides of the legs using a light-weight spray adhesive. This gives the calf a stouter boned, straighter legged appearance. Clip the long hair on the legs to smooth and blend in.
- 4.** Spray paint the hooves with black lacquer (if the calf has black or dark hooves) or with clear lacquer (if the calf has light hooves). Never use oil on the hooves as this has a tendency to collect dust when the calf walks.
- 5.** Pull up the hair on the tail head using adhesive. With scissors or clippers, clip the hair to give the rump a square, level appearance.
- 6.** Pull up the hair on the poll, if necessary, using adhesive. Once again, clip off any long, unnecessary hair.
- 7.** Rat the tail switch hair into a tight, oval-shaped ball. Spray with a heavy-weight adhesive and shape accordingly. Trim off any excess, long hair strands. This procedure will help fill in the lower quarter when viewing the calf from the rear and to give the calf more balance when viewing it from the side. Study the calf from a side view and position the bottom of the tail on an imaginary

horizontal line with the bottom of the brisket. Many people have a tendency to position the tail switch too high, which creates a heavy-fronted and shallow rear-flank appearance.

8. Using any one of a variety of hair setting products, brush or comb the body hair forward to give a smoother, wider body appearance. If the calf has a long dense hair coat, it may be possible to pull the hair up. Using an electric blower will help you work the hair up or forward.

9. Spray a light amount of oil mist on the calf's head to give it shine and luster. Be careful that oil is not applied where adhesive was used earlier as oil has a tendency to dissolve adhesive.

10. Before going to the ring, give the calf a drink of water. This will give the calf a fuller middle and make it more comfortable.

Before going to the show ring, make sure you have a scotch comb in your back pocket, the exhibit or entry number (if necessary), and the show stick. You should also be dressed in suitable and appropriate attire. This will be discussed in the next section.

If possible watch how the judge is working the classes. This will give you a better idea as to what is expected when it is time for your class. Also, know which person is the judge.

Exhibitor Attire

You should dress in a manner that does not divert attention away from your calf but rather complements the exhibit. Attire should be clean, attractive and practical. Dress pants/slacks or denim jeans and shirt/blouse are recommended. Some shows may have a

uniform dress code that includes a specially designed shirt or t-shirt. Check on rules before the show.

Shorts, skirts or dresses are **not** appropriate attire. Some type of substantial, leather footwear, such as work shoes or boots or western boots should be worn in the show ring. This is primarily for safety reasons. Tennis or athletic shoes or higher heeled fashion boots are **not** appropriate footwear for the beef cattle show ring. Pants should not be tucked inside western boots, as this may detract from the exhibit. It also is suggested that you wear a belt.

If you wear a cap or western hat, it should not interfere with your sight or hinder you from satisfactorily showing the calf. However, some judges are opposed to exhibitors wearing any type of cap or hat. Discretion is advised. Your hair should be well combed or brushed.

Showing the Calf

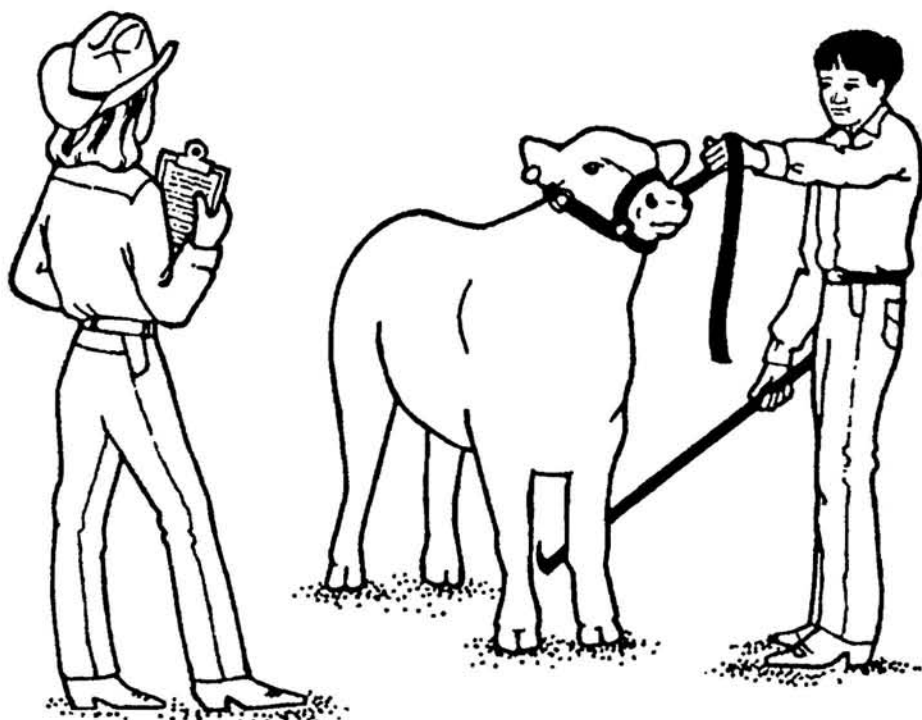
Before entering the show ring, you should have your exhibitor number on, a show stick and a scotch comb in the back pocket.

Always be prompt and ready to enter the ring when the class is called. When entering the ring, be alert and have the animal at its best.

Lead the animal from the left side, with the show stick in the left hand and the lead strap in the right. Hold the strap about 12 inches from the animal's head. Walk at the speed at which the animal looks its best. Always try to lead the calf in a clockwise direction, unless you are instructed by the judge or ringperson to do otherwise.

Generally, cattle will be lined up side by side at the beginning of the class. Leave plenty of room and try to place the calf's front feet on higher ground if possible.

Figure 14. Posing the calf in the ring.



A good exhibitor always knows the high and low spots of the ring and uses them to advantage. You should survey the ground far enough ahead so as not to be forced to set the animal in a low spot. Get the animal set as quickly as possible. If you pull up on the animal's head just before stopping, the calf will usually stop with its front feet placed correctly. In many instances, one hind foot will also be placed correctly, leaving only one hind foot to place. Scratch the animal's underline with the show stick once or twice to settle it and then place its feet. Make sure the top line is straight and the head is up. If time permits, check the hair coat to make sure it is properly combed.

When leading the calf around the ring stay to the outside edge of the ring. If the calf in front slows down or if that exhibitor appears to need assistance, be courteous and offer help if necessary.

At the appropriate time, the judge or the ringperson will ask you to stop so they can see a side view of the calf. Set the calf again. Make sure the calf is in line with the

other cattle in the class. As the judge walks around the cattle in the class, **be alert**. When the judge approaches, change hands on the lead strap and show stick. Calmly continue to scratch the calf's belly with the show stick. Stay to the front and left side of the calf (see figure 14 on page 25). If the judge moves to view the front of the calf take a short step back from the calf to allow the judge a better front view. If the judge handles the calf, calmly scratch the calf's belly with the show stick and maintain control. After the judge walks away and begins to handle the next calf in line, use the scotch comb to straighten any hair that the judge messed up.

Most of all, relax and let the judge view the animal. Do not overshoot; you are showing the animal, not yourself. A top showperson is an unnoticed part of the animal that is presented to the judge. When the judge signals you to move to another position, promptly pull out of line and get to that spot. Do this as rapidly as possible while still showing the

animal to its best advantage. Set the calf and stay alert. Be courteous to the showperson next to you; help to position the animal and provide assistance at the walk if needed. Show your animal from the time it enters the ring until it walks out the gate. Most of all, **be courteous and considerate**.

After the Show

When the show is over, replace the show halter with the rope halter and prepare to wash the calf. There are products specifically designed for removing the adhesive you applied earlier. Occasionally the aerosol hair oil will help break down the adhesive before washing. Soap and water alone **will not** remove the adhesive. It is important to wash the calf soon after the show, as many show-day hair care products can be irritating to the calf.

Sportsmanship

Always be a good sport. Whether you win or lose, be humble and gracious. Congratulate the winners and be sincere. In a like fashion, if you are fortunate enough to win a class or a show, accept congratulations from others humbly and sincerely.

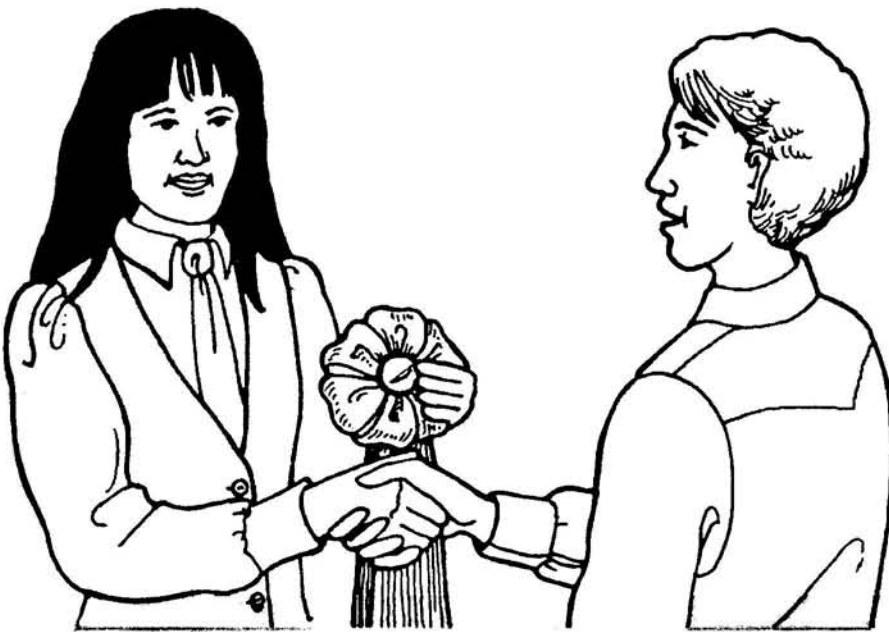
After returning home from the show, be sure to express appreciation with a thank you note or letter to the people who helped in some way. Some of the people to include are:

- Show management officials
- Superintendent(s)
- 4-H staff and leaders and/or FFA advisors

■ Buyer of your calf, if sold

(Note: It's also a good idea to send a picture of you and the calf.)

- Donators of trophies and awards
- Auctioneer



Suggested Guidelines for Fitting and Showing Beef Cattle

The exhibitor is evaluated. Evaluation includes the indication of care and preparation given the animal and the appearance of the exhibitor. **Note:** These guidelines are written for exhibitors who use their own animals in the contest. However, the general principles also apply in contests where animals are provided for exhibitors.

**Perfect
Score**

Appearance of the Exhibitor 10

- Clothing and person should be neat and clean.
- Clothing should be appropriate for the job and should not attract undue attention to the exhibitor or the exhibit.
- Boots or leather shoes should be worn for protection. Canvas shoes should not be worn.

Appearance of the Animal 40

- The animal should give every indication of being healthy and free of disease and parasites.
- The animal should show evidence of proper nutrition.
- The animal must be clean.
- Hair should be clipped to enhance the appearance of the animal. Head, brisket, underline and tail should be clipped according to breed recommendation.
- Hooves should be trimmed and shaped to enable the animal to stand squarely. Hooves should also be clean.
- The coat should be clean and free of stains. It should be lustrous to show evidence of care.
- Hair should be brushed or combed in a way that emphasizes the animal's strong points.
- Equipment used in the show ring should include a show halter, show stick and pocket dressing comb to dress the hair coat after the judge has handled the animal.
- All equipment should be clean, properly adjusted and in good repair.

Showing Procedure 50

- Cattle should enter the ring promptly in a clockwise direction when the class is called. Each animal should be led from the left side with the exhibitor holding the lead strap in the right hand.
- When posing or standing, the exhibitor should face the calf and change the lead strap to the left hand. The exhibitor should use the show stick in the right hand to set the animal's legs. A good exhibitor does not obstruct the judge's view of the animal or of other animals in the ring.
- Exhibitors should not leave the ring until the class has been placed, properly recorded, reasons given and awards presented.
- Exhibitors should be alert at all times and should carefully and quickly respond to all instructions issued by the judge, clerk or ringmaster.
- The exhibitors should be courteous to everyone involved with the show.

TOTAL 100