4-H Bucket Calf Project

A Guide for 4-H Members, Parents and Leaders

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INTRODUCTION

There are several reasons for raising calves without their mother. Occasionally, a cow dies giving birth or doesn't produce enough milk to support a growing calf. Some people buy calves to raise for beef and to use grass grown on a few acres. Some are bought to help control weeds. It also makes a great beginning 4-H or FFA beef project.

The 4-H Bucket Calf Project is designed to introduce youth 5 to 18 years old to beef and dairy 4-H projects. By allowing youth the experience of working with a smaller, less intimidating size of animal, they become comfortable with beef and dairy cattle as they grow. This project is designed to reach completion in one calendar year.

A bucket calf is an orphan or newborn calf purchased when they are 2 to 14 days old. The calves must be beef or dairy steers. The calves are started on a bottle (or bucket) and nipple.

The purpose of the project is:
- To design a cattle project to fit the physical size and maturity level of youth being introduced into the cattle industry.
- To teach proper health care and nutritional requirements of young cattle.
- To teach basic beef management skills without a large investment.
- To provide a better understanding of the feeder cattle industry.
1. Project participant must be a 4-H member in good standing between the age of 5 and 18 years old.

2. Only one calf per year per project participant.

3. Once a 4-H’er has selected and/purchased a calf, they must register the calf in the project. The registration cost is $30. Registration must be turned in no later than April 30, 2018. After the calf is registered in the project, the calf will be tagged with an official ear tag.

4. Select and/or purchase a **BEEF BREED calf born between October 1-April 30** or **DAIRY BREED calf born between March 1- April 30 of the current project year**. Calves should be at least 120 days old by the final show in November.

5. Project participants are responsible for maintaining the 4-H Bucket Calf Record Book throughout the project. The record book must be turned in by the end of the final show held in November of the current project year.

6. Begin Project- Select and/or purchase a calf within two weeks of birth. Calf ownership should be registered at Project Kick Off.

7. Identification- Tag calf with official 4-H ear tag by Project Kick Off.

8. Project Classes:

   a. Showmanship Classes (divided by participant’s age)

   Showmanship is defined as the ability to present your animal to the best of its genetic ability and involves knowing the basic skills of the show ring, while bringing attention to the animal’s strengths and minimizing the animal’s weaknesses. The judge may also test 4-H’ers on their knowledge of their animal, project experience and industry knowledge.

   b. Market Classes (divided by calf weight)

   A good market steer has a powerful look with a large volume of muscle. Look for muscle expression and thickness at and through his top, rump and hindquarter. Another important criteria is a correct degree of finish to indicate quality and cutability in the carcass he will yield. He will have a wide chest with depth and spring of rib with a long body and a moderate frame size, this will allow his weight to range between 1,100 to 1,300 pounds.
c. Sales Talk Classes (divided by participant’s age)

The Sales Talk contest evaluates an individual’s ability to effectively present and market their animal to prospective buyers. This is done using a mock sales situation complete with a live animal and potential buyers. Contestants are judged on knowledge of their animal, ability to understand what the potential buyers are looking for, and overall effectiveness in convincing the judges to buy the animal.

1. Decisions of the Sales Talk Coordinator are final.

2. The sales talk shall not exceed 5 minutes.

3. Participants shall make their presentation to a panel of 2-3 judges who can ask questions at the end of the talk.

4. You must use your calf – not a picture – during the talk. Another exhibitor must hold your calf while the talk is being given.

5. Contestants will be graded on 4 categories –


   b. Presentation – originality, organization and ability to relate information about the animal to the judges.

   c. Poise & Delivery – articulation, composure, response to questions, gestures and eye contact.

   d. Overall Effectiveness – How convincing was the sales pitch? Were the judges actually sold on the animal?

d. Costume Class

An optional costume class is also a fun way for participants to exhibit their project. Both the 4-H'er and calf are dressed in a costume for this class. No costume should cause harm to the calf or restrict the animal nature movement.

e. Master Bucket Calf Project Participant (combines scoring of showmanship class, market class, sale talk class and record book)

This class is for best overall participant at each show. The winner will be determined by combining the scoring/placing of each 4-
H'er in their showmanship class, market class, sales talk contest and record book contest. The 4-H'er with the high overall score will be deemed the winner.

9. End Project- Project ends when calf is sold at weaning age, as a feeder calf or end of 4-H year.

10. Sale of Animal- All project participants are responsible for the sale of their animal at the conclusion of the project.

11. In the case of death of the calf, no refund or replacement animal will be provided. The participant may turn in a record book for competition.

12. Bucket Calf Record Books should be turned in on or before January 2018. For a copy of the Bucket Calf Record Book, visit the Laurens County 4-H webpage or the visit the Laurens County 4-H office.
WHERE TO BUY CALVES

It is best to buy calves at the farm whenever possible. However, you can buy calves through dealers that pick up calves at the farm and deliver them to you. Experienced dealers know how to care for calves in transit. Sale barns are the easiest market for both the buyer and seller but can require extra care for the calves when you get them home. These calves are exposed to diseases and are under stress from being moved to and from the sale or auction. Care at the originating farm may have been less than desirable with calves sold through sale barns. Calves may be purchased at the farm from dairy or beef producers. For more help on locating calves, contact your local Cooperative Extension Office.
Prices vary depending on demand, health, breed, and location. Typically dairy breeds are more available and, therefore less expensive. Prices will vary from $50 all the way up to $500 in extreme situations. An average price should be $150 unless there are other price factors.
Like all warm-blooded animals, dairy calves have only a very few basic requirements for normal growth and health—fresh water, proper food, and adequate shelter. A bucket calf’s housing needs are simple, but it takes a truly concerned and “caring eye” to see that these simple needs are met. There is probably no other management program that varies more from one project to the next as much as calf housing.

Keep calves in individual pens until they reach weaning age. Separate pens prevent the calves from suckling on another and reduce the spread of calf disease. Housing calves individually allows you to watch the calf’s daily feed intake and monitor it for diarrhea (also called scours).

Preferably arrange to use barns or pens that can be emptied completely for brief periods before starting more calves. After a calf is removed, clean and sanitize the entire pen to prepare for another calf.

A variety of housing systems work well, provided that each meets the following minimum requirements:

1. **Prevent direct contact among calves from birth to at least two weeks after weaning.** This reduces the risk of young calves transmitting diseases to each other. Although a few producers report success with “warm housing” (indoors) or with elevated slotted-floor stalls, the most popular method of housing for young calves is the individual calf hutch. Suitable calf hutches can be made on farm or purchased. Three major advantages of hutches are: (1) they are relatively inexpensive, (2) they are easy to clean and sanitize after each calf, and (3) they are easy to move to a new, clean location after each use.

2. **Provide shade from direct solar radiation.** It’s not that the calf shouldn’t have access to direct sunlight, but the calf must be allowed access to shade if needed. Heat-stressed calves will go off feed, become hyperthermic, and may even die. Outdoor calf pens must be partially covered and walled to prevent excessive heat caused by the sun and to guard against cold winter rains and wind. Pens open to the east gain warmth from the morning sun and provide shade during the hotter parts of the day. Rain seldom falls from the east.

Hutches again work well for young calves up to 2 weeks after weaning. Be sure the hutches are well ventilated so that they don’t become a miniature oven on hot humid days. Once older calves are grouped together, natural shade from trees or shade from properly managed shade structures (barns, shade netting, etc.) is adequate. Make sure there is enough square footage of shade for all calves. Check the shaded area frequently and prevent it from becoming a damp, manure-laden breeding ground for disease.
3. **Provide a clean, dry place for the calf to lie down.** Calf housing should be bedded to keep the calves comfortable and dry. Sawdust, shavings or straw are most commonly used for bedding. If the base under the bedding allows drainage, you can simply add bedding every few days to provide a dry bed for your calves. If the base is concrete or some other solid material, you need to remove the soiled, wet bedding at least weekly and replenish it with clean bedding. You may want to plan for an extra pen in this case to confine the calf while you clean its pen. The constant exposure to a large population of harmful bacteria will eventually overpower the calf’s natural resistance and predispose the calf to disease. If a calf has no alternative but to lie on damp bedding, the bedding will conduct body heat away from her. This loss of body heat steals energy that the calf could have used for growth. Hutches are frequently bedded with straw, wood shavings, sand, or fine gravel. Older calves grouped on pasture will tend to find clean dry places to lie down, provided there are adequate shaded areas.

4. **Provide ventilation without being drafty.** Ventilation should provide fresh air at all times without drafts blowing directly on the calves. An ammonia smell indicates more fresh air is needed. Allow more air into the area through broad, continuous openings in the barn or hutch to prevent draft. A young calf’s respiratory system normally harbors potentially harmful bacteria, but the calf’s natural defense system keeps them in check. Stagnant air traps bedding vapors that irritate the calf’s respiratory system and weaken the young calf’s natural defenses. This can lead to labored breathing, coughing, pneumonia, etc. Too much ventilation can lead to drafts that create problems for calves in cold weather. Too much air movement, especially under a calf in an elevated stall with mesh floor, can chill the calf and rob it of energy needed for growth. The design of most commercial hutches allows steady air movement without draft. A large part of success with calf hutches depends on proper orientation with slope of the land, path of the sun, and direction of the prevailing wind.
Feeding a Newborn Calf
The first and most important feed given a newborn calf is colostrum. Make sure the calf has had colostrum after being born. Colostrum is the first milk produced by cows and is made by the dam for about 3 to 7 days after the mother gives birth. It is the calf’s primary source of nutrition and fluids. It is essential to the well being of the newborn calf because colostrum contains essential antibodies that help the calf immediately fight off infectious diseases and nutritional deficiencies and gets your calf off to a good start. The antibodies in colostrum are absorbed through the cells of the intestinal lining and into the bloodstream where they can effectively fight off disease. From birth to 6 hours, nearly 100 percent of the available antibodies are absorbed from the gut. After 6 hours, the absorption rate declines significantly, and by 24 hours very little antibody is absorbed.

A calf needs 4 to 5 percent of its body weight in colostrum by the time it is 12 hours old and preferably within 1 to 2 hours. For an 85-pound calf, this means a minimum of 2 quarts (4 pints). If the calf does not get this colostrum it will likely become sick and may die. Each calf should receive 8 to 10 percent of its body weight, about one gallon, of colostrum in the first 24 hours. Feed it from a single, clean nipple bottle. Continue feeding colostrum to the newborn through the first 3 days if colostrum is available. Even though antibodies are not absorbed, they can still protect the gut locally, which help resist infectious scours.

Bottle Feeding your Calf
A calf will instinctively nurse its mother, but nursing a nipple bottle or drinking from a bucket is a new learning experience. Teaching a calf to suck from a nipple bottle is much easier than teaching one to drink from a bucket. A nipple bottle is convenient for measuring the correct amount of liquid feed.

The easiest way to teach your calf to consume milk or milk replacer is to take advantage of the calf’s instincts. Since calves will instinctively nurse, insert one or two fingers in its mouth (yes, they have teeth, but only on the bottom) and let the calf start sucking. Then insert the nipple of the bottle in its mouth and let it continue to suck. If bucket feeding is used, force the calf’s mouth into the bucket of milk while it is sucking on your finger.

In addition to colostrum fed at birth, calves need milk for the first 6 weeks of life. After that, they can digest vegetable starches and sugars. Further milk feeding is nutritious but may be more costly than feeding cereal grains.

There is a tendency to feed the baby calf too much and the older calf too little. Pasteurized dairy farm tank milk or milk replacer should be fed at a rate of at least one
bottle twice a day or up to 10 percent of the calf’s body weight for the first 6 weeks. For example, 10 percent of an 85-pound calf is 8.5 pounds or 1 gallon.

All liquids should be fed at room or body temperature. This allows the calf to more easily regulate its body temperature and makes drinking of suckling easier. While nipple bottle allow easier feeding with newborns, older calves easily learn to drink from a shallow bucket.

**How Often to Feed**

Calves are fairly adaptable to a variety of management practices; however, a successful calf feeding program should be as consistent as possible day to day. While calves are generally fed two equal feedings per day, weak calves benefit from more frequent feeding of the same total amount. Single daily feeding may increase the incidence of scours because of the high intake of total solids during a single, short meal. The project recommends feeding at least two equal feedings per day.

Thoroughly clean any utensils used to feed calves. Milk residue, colostrum, or replacer is a great growing ground for disease-causing bacteria. Play it safe and ensure minimum exposure by thoroughly cleaning and sanitizing all utensils used after each feeding. Store equipment in a clean, dry place.

**Milk Replacers**

Newborn calves lack sufficient enzymes to use such non-milk foodstuffs as grains, sugars, vegetables, and forages. Therefore, good milk replacers are made from dried milk and milk byproducts such as skim milk, buttermilk or whey with animal or vegetable fats, antibodies, vitamins, and minerals. Milk replacers can be fed as the only food source once colostrum has been provided. It may be fed along with a good calf starter as a combination or mixed ration.

Different milk replacers are available. Base your choice of milk replacers primarily on quality rather than price. Quality depends on the level and source of protein, fat, and carbohydrate. A good milk replacer will contain at least 22 percent protein and 15 percent fat. Because of fat level, it is easier to mix when warm water is added. For most calves, 10 percent fat in the milk replacer is adequate. However, at 20 percent fat there is less diarrhea and faster growth in calves. Calves raised in cold environment grow better when fed replacers containing more fat (an energy source) during the winter months. Milk replacers should contain at least 20 percent protein when the protein is from milk products. When specially processed soy protein is used extensively, the protein level should be high (22 to 24 percent).

Milk replacer may be fed warm, but not above 100°F. Mixing smaller amounts allows for easier mixing. Avoid changes in amount or temperature of milk or replacer. Follow label instructions when using milk replacer. Holding the level of liquid feed constant encourages the calf to consume calf starter as its size and appetite increase. A calf needs 8 percent of its birth weight in milk or milk replacer a day. If a calf weighs 100 pounds at birth it should be fed 8 pounds of liquid in two equal feedings each day (Table 1). Likewise, a calf weighting 80 pounds should be fed about 6.5 pounds each day in two equal feedings (Table 1).
TABLE 1: MILK REPLACER CALCULATIONS

<table>
<thead>
<tr>
<th>Calculation</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>100 lbs X 0.08 = 8 lbs</td>
<td>1 gal = 4 quarts</td>
</tr>
<tr>
<td>So, feed 2 quarts per feeding, twice a day.</td>
<td></td>
</tr>
<tr>
<td>80 lbs X 0.08 = 6.4 lbs</td>
<td>1 gal = 4 quarts</td>
</tr>
<tr>
<td>So, feed approximately 1.75 quarts each feeding</td>
<td></td>
</tr>
</tbody>
</table>

Each calf should be fed from a separate nipple bottle or bucket to avoid spreading diseases from one calf to another. Calves raised separately do best. Separate pens will reduce disease transmission and make it easier to feed. **Water should be made available for the calf even though it is being fed milk or milk replacer.** It is best to offer water at least 20 minutes after feeding the liquid feed because water helps maintain the clotting enzyme (rennet), which is needed in the calf’s stomach.

Milk replacers designed for calves more than 4 weeks old should not be used for younger calves. Carefully follow the label directions on the milk replacer bag.

**PROJECT RECOMMENDED MILK REPLACER**

<table>
<thead>
<tr>
<th>Provider</th>
<th>Name of Product</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tractor Supply</td>
<td></td>
</tr>
<tr>
<td>Newberry Feed</td>
<td></td>
</tr>
</tbody>
</table>

**Feeding Calves After They Are Started**

Within a few days after the calf is born, it should be encouraged to consume dry feed, both calf starter and hay, to avoid upset stomachs and prevent nutritional scours. Dry feed consumption is necessary for the calf to develop a functional rumen. In the beginning, feed small amounts of calf starter and a grass or grass-legume hay. Hay quality is very important. Look for hay with green color, fine stems, and many leaves. It is important to keep the dry feed fresh, so do not feed more than the calf will cleanup in a day. Once the calf starts eating dry feed, clean water should be made available at all times.

**Calf Starters**

The first dry feed offered to calves is called “starter.” Starter is a very palatable, coarse textured or pelleted concentrate or grain mix. It should contain 75 to 80 percent total daily nutritional requirements and 15 to 20 percent crude protein.

Calf starters should be coarsely ground, rolled, or pelleted. If the starter is ground too fine, palatability and feed intake go down. Coarse, dry feed promotes development of the calf’s first stomach, called the rumen, and provides nutrients for growth.
A bucket is convenient for encouraging calves to consume calf starter (a dry feed, which can be put in the bucket as a calf finishes the milk replacer). Teach your calf to eat dry feed as soon as possible. Place a small amount in its mouth after each milk feeding or place a small amount in the feed box to encourage your calf to eat. About half a pint, or a quarter pound of grain, is all a small calf will eat each day. Increase the amount gradually as your calf is eating about 2 to 3 pounds of grain at 3 months of age and about 3 to 5 pounds of grain at 6 months of age (depending on the breed and condition of the calf).

Good calf starters contain adequate protein, vitamins, and minerals. You can purchased prepared calf starters from most feed dealers. Feed the starter according to recommendations on the container. A dairy cow grain mix with 16 percent protein is a good calf starter. It shouldn’t contain protein or nitrogen from urea. Calves can’t use urea until their rumen is completely developed.

**Water is Important**
Make clean, fresh water available at all time. To prevent the calf from drinking too much water at one time, put the water in a difference container and location than you used for milk feeding.
Weaning- means changing the calf’s diet from one composed mostly of milk (bottle feeding) to one that is all dry feed. It is not practical to feed milk or milk-replacer after calves are consuming enough dry feed to continue growing well. Calves can be weaned between 4 and 8 weeks of age. Wean calves when their starter intake is 1 ½ to 2 pounds per day. In some cases, calves must be maintained longer on liquid feed because of low grain intake. As calves mature, lower or increase the amount of grain you feed them to meet the desired weight gain and the relatives prices of grain and roughages. The change from a diet composed of milk and dry feed to one that is all dry feed can create some stress on your calf.

This is one reason why it is important for your calf to eat calf starter and hay at an early age, so it will be somewhat adjusted to dry feed. You can quit feeding milk as you wean as long as plenty of fresh water is available. Calves receiving larger amount of liquid feed can be gradually weaned to reduce trauma. In general, early weaning reduces feed and labor costs.

Calves should consume some high protein hay for at least a week before they are weaned. The growth and development of the rumen as well as the nutritional requirements of young calves depend mostly on grains but also on forages.

The key for determining when a calf can be weaned is the amount of calf starter it is eating. Calves can be weaned when they are consuming at least 1.5 pounds of calf starter diet listed below (See Table 2). Calves should also be provided trace-mineralized salt at all time in a location out of the weather, especially if it is not provided in the feed ration. An alternative ration that makes ½ ton mix of feed is located in Table 3).

<table>
<thead>
<tr>
<th>TABLE 2: CALF STARTER DIET</th>
</tr>
</thead>
<tbody>
<tr>
<td>Corn, Cracked</td>
</tr>
<tr>
<td>Oats, Rolled</td>
</tr>
<tr>
<td>Soybean Meal</td>
</tr>
<tr>
<td>Molasses, Liquid</td>
</tr>
<tr>
<td>Limestone, Ground</td>
</tr>
<tr>
<td>Trace Mineral Salt</td>
</tr>
</tbody>
</table>
TABLE 3: CALF STARTER RATION

<table>
<thead>
<tr>
<th>Ingredient</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Corn (Cracked) or Milo (Rolled)</td>
<td>400 lbs</td>
</tr>
<tr>
<td>Oats (Crimped or Course Ground)</td>
<td>200 lbs</td>
</tr>
<tr>
<td>Wheat Bran or Barley</td>
<td>100 lbs</td>
</tr>
<tr>
<td>Soybean Meal or Cottonseed</td>
<td>165 lbs</td>
</tr>
<tr>
<td>Dehydrated Alfalfa Pellets</td>
<td>70 lbs</td>
</tr>
<tr>
<td>Dicalcium Phosphate</td>
<td>10 lbs</td>
</tr>
<tr>
<td>Trace Mineralized Salt</td>
<td>5 lbs</td>
</tr>
<tr>
<td>Vitamin D Supplement</td>
<td>250,000 IU</td>
</tr>
<tr>
<td>Vitamin A (Stabilized)</td>
<td>2,500,000 IU</td>
</tr>
<tr>
<td>Aureomycin or Terramycin</td>
<td>15 gm</td>
</tr>
<tr>
<td>Liquid Molasses (If available)</td>
<td>50 lbs</td>
</tr>
<tr>
<td>Prairie Hay or Green Alfalfa</td>
<td>Free Choice</td>
</tr>
</tbody>
</table>

The amount of nutrients consumed is important to the recently weaned calf in order for it to continue growing well. Until the calf is about 3 months old, continue feeding all of the calf-starter your calf will eat, plus free choice hay. At that time, a less expensive grower mix could replace the more expensive calf starter (Table 4). An alternative calf grower ration (After 4 Months of Age) is located in Table 4 below.

TABLE 4: ALTERNATIVE CALF GROWER DIET

(1/2 TON MIX)

<table>
<thead>
<tr>
<th>Ingredient</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Corn, Cracked</td>
<td>76 pounds</td>
</tr>
<tr>
<td>Soybean Meal</td>
<td>17 pounds</td>
</tr>
<tr>
<td>Molasses, Liquid</td>
<td>5 pounds</td>
</tr>
<tr>
<td>Limestone, Ground</td>
<td>1.2 pounds</td>
</tr>
<tr>
<td>Trace Mineral Salt</td>
<td>0.3 pound</td>
</tr>
<tr>
<td>Dicalcium Phosphate</td>
<td>0.3 pound</td>
</tr>
<tr>
<td>Salt</td>
<td>0.2 pound</td>
</tr>
<tr>
<td>Vitamin Supplement</td>
<td></td>
</tr>
<tr>
<td>Vitamin A</td>
<td>1000 IU/lb</td>
</tr>
<tr>
<td>Vitamin D</td>
<td>140 IU/lb</td>
</tr>
<tr>
<td>Vitamin E</td>
<td>20 IU/lb</td>
</tr>
<tr>
<td>Additives:</td>
<td></td>
</tr>
<tr>
<td>Lasalocid and/or other</td>
<td></td>
</tr>
<tr>
<td>Coccidiostat may be</td>
<td></td>
</tr>
<tr>
<td>added</td>
<td></td>
</tr>
</tbody>
</table>
**TABLE 5: ALTERNATIVE CALF GROWER RATION (AFTER 4 MONTHS OF AGE)**

<table>
<thead>
<tr>
<th>Corn (Cracked) or Milo (Rolled)</th>
<th>700 lbs</th>
</tr>
</thead>
</table>

Weaning is a stressful experience for calves. You may notice that your calf may bawl for milk for a couple of days, especially near feeding time. Because the change of diet causes stress, the only thing you should at weaning is to discontinue feeding its liquid portion of the diet.

Doing other things such as moving it to a group pen, dehorning, vaccinating, etc., can cause additional stress. Clean water along with clean, dry housing with protection from the elements will ease any stress problems.

**Monitor Calf Growth**

Check weight gains to determine if calves are growing at the desired rate. Periodically checking calf weight and height also helps you evaluate your feeding program. Also observe body condition and skeletal growth. Over-conditioned or fat calves may be receiving too much feed or the ration may be low in protein. Lack of condition or skinny calves indicates underfeeding or poor quality feed. If you don’t have access to scales for weighing your calf, a weighing tape will estimate its weight accurately. You may be able to get a tape from your feed dealer or buy one from a farm store.

To estimate weight, place the tape around the calf’s body directly behind the front legs (the heart girth). Make sure the calf is standing squarely on its feet. Have the tape fit firmly but not tight. Then read the weight directly from the tape.
KEEPING YOUR CALF HEALTHY

Preventing disease in the newborn calf gets them off to a good start, reduces death losses, and is cheaper than treating sick animals. Observe calves regularly, feed them correctly, and provide clean surroundings. Regular use of a rectal thermometer helps detect sick calves with fever early. Normal body temperature is 101.5°F. Early detection is essential for effective treatment.

Seek advice from your local veterinarian in planning your disease prevention and treatment program. The veterinarian knows the diseases most prevalent in your area, appropriate vaccinations, and will prescribe proper care and use of drugs. Your veterinarian may give advice by phone at minimal cost. Calf raisers should not vaccinate or treat calves without a veterinarian’s guidance.

Is Your Calf Sick or Well?

What is normal?
If you think your calf is sick, it is a good idea to make the following checks before you call the veterinarian.

- **Respiration** (breathing rate)- Simply watch the animal breathe and count the number of breaths per minute. Normal breaths per minute for cattle range from 20 to 28.
- **Pulse** (heartbeat)- you can check the heartbeat by holding your ear against the lower left side of the calf’s chest and listen to the beats. Or, you can feel the pulse with your fingers, by putting your finger on the artery that crosses the jawbone at the middle edge of the lower jaw. Normal heartbeat per minute for cattle range from 60 to 70.
- **Temperature**- For a small amount of money you can buy an animal rectal thermometer. Be sure and tie a string to the end of the thermometer to maintain control. Shake the mercury down below 98 degrees, and then insert it in the rectum. When the thermometer has been inside the calf for one to two minutes, pull it out and wipe it off with a paper towel or dry rag. Then read the temperature. Normal temperature is 101.5 degree F. Be careful not to take these tests right after your calf has been excited or overheated. Also, outside temperature should be taken into consideration along with activity level.

Appearance and Behavior

One of the first things junior calf feeders need to learn is how to tell if calves are sick, or may be getting sick. Before you can tell if calves might be starting to get sick, you need to know how they act when well. One of the signs of healthy calves is eating. If calves start to eat less, or don't eat at all, this may be one of the first signs of sickness. Also, if
calves are alert, stretch their backs when they get up, and are ruminating, then they're probably not sick.

Ruminating is a characteristic of animals with a complex digestive system called ruminants, such as cattle and sheep, but not swine or horses. Ruminants eat fast and then later "reprocess" the coarser part of what they eat. They do this by regurgitating these parts back to the mouth, re-chewing and mixing with saliva, and finally, re-swallowing. This is commonly referred to as "chewing the cud", and is a sign of a contented, relaxed, usually healthy animal. If you observe closely, you can see the physical signs of rumination.

If you'll watch your calves regularly, you'll better understand normal behavior. Then, if calves start to get sick, you'll recognize the early signs. But if you don't know how a healthy animal acts, you may not notice problems until a calf is very sick.

**How does a sick calf look? What is a not normal**

Now what are some of the signs of sick calves? Well, you've probably already guessed some of them from what we've already talked about. We'll first just list some symptoms and then talk about what might cause them:

1. Leaves some feed or quits eating entirely
2. Dull eyes, not alert, droopy ears
3. Diarrhea (scours)
4. Runny Nose
5. Dry Nose
6. Cough
7. Temperature
8. Swollen or puffy left side
9. Limping
10. Unusual skin conditions

As I've said before, if calves leave some feed they may be in the early stage of sickness. Or, it may just be that you're giving them more than they want to eat. Dull eyes, droopy ears, and general depression also may be early signs of problems to come.

Diarrhea, also called loose bowels or scours, is usually a sign of problems. There are several types of scours. Loose, bubbly scours without other signs may be due to feeding problems, especially too much high grain feed. Scours along with other symptoms may be due to some kind of infection. Scours with blood may be due to a particular infection called coccidiosis.

A runny or dry nose along with coughing is generally a sign of advanced sickness, often a respiratory infection (lungs, throat, nose). If you see these signs in calves, it is a good idea to take their temperature. To do this you need a rectal thermometer. Be sure to get the kind with a hole in one end so you can tie a string through the hole. This will prevent the thermometer from being drawn up inside the rectum, which could cause serious injury.
Don’t be concerned if the temperature is a little higher than you might expect. Cattle have a higher normal temperature than people. The normal rectal temperature of cattle is between 101 to 102 degrees, and this may go up a degree or so for some animals, especially during the heat of the day in summer. If a human has a temperature this high, they’re probably sick, since the normal temperature of humans is between 98 and 99 degrees.

Some experts consider 104 degrees to be the dividing line of a serious condition in cattle. Respiration rate also can be a guide. The normal rate in cattle is about 30 breaths per minute (one every two seconds), over twice as fast as humans. But this rate can vary a lot.

If calves look swelled or puffed up high on the left side just in front of the hip, this is due to a condition called bloat. Cattle ordinarily belch large amounts of gas during digestion. But various things can interfere with this normal loss of gas. Severely bloated calves can die quickly.

A sure sign of problem is limping. This may be due to injury, hooves trimmed too close, or infections such as foot rot. Swelling and heat just above the hoof are signs of foot rot.

Watch for various kinds of skin problems. Loss of hair may be caused by such things as ringworm, lice, or mange. Warts also can be a problem.

These are some of the more common signs of sickness or unusual health conditions in cattle. Again, study your calves closely every day and you’ll be more aware of potential problems. It is a good idea to write down symptoms and conditions so when you talk to your parents, County Extension Educator, Ag Teacher, veterinarian, or other advisors they’ll have a better idea of what might be wrong.

Once you determine that your calf is sick (if you have no previous experience with sick calves) call a veterinarian immediately. The quicker you involve someone with animal health expertise the better the chance your calf has of a quick recovery. Young calves get sick very easily and with a quick response and challenging the disease, you increase their chance of survival. Also, different diseases require different medicines for best results. Your veterinarian will be the most up to date on medication for specific infections. The following is probably the most common problem with bucket calves.

**Calf Scours**

One of the more devastating problems with young calves, scours may be caused by: bacteria, viruses, and nutritional or environmental factors. Diarrhea causes dehydration, a loss of water and minerals from the body. An irritation to the digestive tract caused by one of the above factors results in inefficient digestion of food. It is sometimes difficult to distinguish scours caused by infection organisms from scours caused by other factors such as overfeeding, irregular feeding, or rapid changes in feed. Infection scours usually affects several calves with foul smelling diarrhea, and some animals may die quickly.
**Quick Treatment Necessary** By far, the most important treatment for scours is replenishment of vital fluids and electrolytes. Numerous powdered formulas are available commercially that help return fluids into the calf that are lost in the diarrhea. You should keep a supply on hand to meet a scours problem. Consult your veterinarian for the best product and for the amount of mixture you need to give sick calves.

Scouring calves are usually losing body weight because of dehydration, and are unable to digest their food well enough to maintain or gain body weight. The greatest concern for a scouring calf should be to replace the loss of minerals and avoid body weight loss. Therefore, the immediate treatment should be to replace the lost minerals by feeding an electrolyte solution in addition to milk or milk replacer.

Effective electrolyte powders for mixing with water are available from your veterinarian. The electrolytes should be mixed according to instructions and fed 10 to 15 minutes after the milk or milk replacer. It is important not to feed the electrolyte solution immediately after the milk, since the solution will dilute the milk too much and will affect the digestive enzymes.

Since a scouring calf’s digestive system is upset, the feeding schedule should be changed to avoid overloading the system. Milk or milk replacer should be fed at the rate of 1 percent of the calf’s birth weight, but this total amount should be divided into four equal feedings. A good feeding schedule would be: morning, noon, evening, and bedtime. The same amount of electrolyte solution should be fed approximately 15 minutes after the milk. When the scouring condition begins to subside, the number of feedings can be reduced to three times per day and then two times per day. Finally, the use of the electrolyte solution can be withdrawn during a three-day period. For more information about calf scour, call or visit your local county office the Clemson University Extension Service or your local veterinarian.

The following list contains some other diseases and problems that you should be aware of:

- **Bangs (Brucellosis)** Heifers kept for replacements must be vaccinated for this disease, at six months of age, which causes abortions in cattle.
- **Blackleg** is a bacterial disease that can be picked up from spores in the soil. Signs include: swelling in neck, hip and shoulder, along with fever, lameness, and depression.
- **Bloat** is a nutritional disorder that causes excess gas to be trapped in the rumen (stomach compartment). A visible swelling of the left side above the flank is the primary signal.
- **BVD (Bovine Viral Diarrhea)** is a viral disease transmitted through contact. Clinical signs include: diarrhea, fever, sores on lips and gums, lameness, and dry cough.
- **Clostridium Toxoids** are bacteria (including Blackleg) that destroy tissue cells. Vaccination for control of these bacteria may be given (2-way to 8-way) for immunity. One of the most commonly used vaccines is 7-way plus Haemophilus.
- **Coccidiosis** is transmitted in feed or water and is characterized by diarrhea, dehydration, loss of appetite, depression, and weakness. Keep pens and feed bunks clean and dry.
• **Diarrhea** involves many aspects including nutrition, environment, and infectious agents. Fluid loss results in: dehydration, electrolyte imbalance, loss of appetite, coma, and death.

• **IBR (Infectious Bovine Rhinotracheitis),** also called Red Nose, is a viral disease of the respiratory system. Clinical symptoms are elevated temperature and crusty nose.

• **Lepto (Leptospirosis)** is a bacterial disease of animals and humans. Transmitted by contaminated feed or water it causes fever, bloody urine, loss of appetite, and anemia.

• **Pinkeye** is caused by any number of irritants (weeds, flies) to the eye. The eye turns reddish and fluids drip from the corner. If left untreated, a white film eventually forms causing blindness.

• **Pneumonia** is caused by any number of viral or bacterial agents. Shallow rapid breathing, listless appearance, and high temperatures characterize pneumonia.

• **Scours (diarrhea)** cause extensive fluid loss and sudden death. Immediate treatment with an electrolyte solution will help prevent dehydration.

• **Ringworm** causes unsightly patches on the skin. Ringworm is caused by microscopic molds or fungi and can easily be transmitted to people.

• **Warts** are skin tumors caused by a virus that enters the skin through an abrasion in the head, neck, or shoulder area. Minor surgery or vaccines may be used to treat warts.

### Antibiotics

Feeding antibiotics (terramycin or aureomycin) stimulates the growth of young calves and reduces the incidence of calf scour. Feed recommended level (50-100 mg. Once-a-day) in the milk, starting with the first bucket feeding. Antibiotics should also be contained in the calf starter ration.
RESOURCES


4-H BUCKET PROJECT
REGISTRATION FORM

Name of 4-H Participant: ___________________________________________________________

Address: ______________________________________________________________________

City: ___________________ State: ___________ Zip Code: ____________________________

Telephone Number: _____________________________________________________________

Home: _________________________ Cell: _________________________________

Email Address: _________________________________________________________________

Breed or Breeds Involved or Description of Animal: __________________________________

_________________________________________________________________________________

_________________________________________________________________________________

Return this registration form and $15 registration fee to by **APRIL 30, 2019**:

Laurens County 4-H
219 W. Laurens Street
Laurens, SC 29360

Your registration fee will provide you with:

- Official 4-H project ear tag
- 4-H Bucket Calf Project Guide
- 4-H Bucket Calf Record Book
- Participation in Laurens County 4-H Showmanship Clinic (TBD)
- Opportunity to show in the Laurens Youth Livestock Shows (TBD):
  - Showmanship
  - Confirmation
  - Sales Talk
  - Costume Contest (optional)

If you need help locating a project calf, contact asmccar@clemson.edu or 864-984-2514 ext 113.

Clemson University Cooperative Extension Service offers its programs to people of all ages, regardless of race, color, gender, religion, national origin, disability, political beliefs, sexual orientation, gender identity, marital or family status and is an equal opportunity employer.