What Is Beef It Up?
The 4-H Beef It Up! Project teaches recommended management practices for growing and raising cattle for meat production. Participation will help you do the following:

• understand how to produce a meat product of the beef industry
• learn entrepreneurship and record keeping
• manage a healthy, finished beef animal
• recognize current issues affecting the beef industry
• realize the pride of accomplishment

Who Can Participate?
Any young person age 9 to 18 as of January 1 of the club year can participate. You do not have to be a current 4-H member, but you must complete a 4-H enrollment form if you are not a member.

How Beef It Up! Works
As a Beef It Up! participant, you are responsible for purchasing one or two beef animals (steers only). You will care for your animal(s) for at least 200 days, starting in the fall. In the spring, you will enter one or both of your animals in the Alabama 4-H Beef It Up! Show. There are two categories from which to choose: halterbroke or penned. You may enter only one animal per category.

The goal is to produce an animal that is market ready and finished fattening at the time of the final assessment. There is no minimum weight requirement for your animal, but it should be between 16 and 20 months old at show time to ensure that it has had enough time to grow to market weight. The expectation is that you will process the animal when it reaches its optimal market weight and finishing.

Meeting Requirements
You and a parent or legal guardian will attend a mandatory meeting where the parameters of the program will be explained. You will receive dates and deadlines for participation, information to help you prepare and raise your beef animal, and dates and locations for validation. (See section Validation Process for details.)

Throughout the project year, you will participate in additional educational meetings on topics of management, record keeping, careers, and related optional activities, such as Livestock Judging or Livestock Skillathons. Additionally, you may participate in the Youth for the Quality Care of Animals (YQCA) program and the Beef Quality Assurance Program (see section with this title).

Testing and Assessments
Your knowledge and skills in the area of beef animal management will be assessed through an interview or showmanship examination, as well as through a pre- and post-test. At one of the meetings you will present an educational poster on a current issue affecting the beef industry.

You will complete a record book that demonstrates your record-keeping skills and understanding of both husbandry and entrepreneurship. Your project will not be considered finished without a completed record book. The outcomes will express your commitment to learn about meat production for the beef industry.

Validation Process
Validation is a step implemented in show beef programs to ensure that rules are being followed and members are in compliance with animal ID requirements. It also is used to establish the beginning weight of your animal. You will use this weight when making all of your calculations.
Animal identification is not only the law in the state of Alabama, but it is an integral part of an animal trace-back program in case of a disease outbreak. There have been instances of disease among cattle that have required the government to do a trace-back. Validation and premise ID are both required components of the Beef It Up! Project.

Following is the validation process:

- Obtain an Alabama premise ID. This is a number that is unique to your farm or the area where you keep your Beef It Up! animal. To get your number, you must fill out a registration form and mail or fax it back to the Alabama Department of Agriculture and Industries. Forms are available through Premise ID Support at (334) 240-7253 or animalid.premises@agi.alabama.gov. Mail or fax your completed registration to the following:
  
  Alabama Dept. of Agriculture and Industries
  Attention: Premises Registration
  1445 Federal Drive
  Montgomery, AL 36109-0336
  Fax: (334) 240-7198

  Once the form is processed, a confirmation letter containing your account number and your premise number will be mailed to you. You need to bring this letter with you to the validation site.

- Obtain an official animal identification tag. This often is called the 840 EID (electronic identification) tag and must be worn in your animal’s ear. All EIDs start with the number 840. You may order your tag ahead of time from the state veterinarian’s office; tags also will be available at validation sites. At the final Beef It Up! Show, animals without EID tags or with EID tags that do not match the numbers shown on the entry form will be subject to disqualification.

- Validate your animal at a validation site. Several sites are available throughout Alabama. The following information will be gathered to validate your animal: official premise ID number, 840 EID tag number, and animal body weight.

**Beef Quality Assurance Program**

As part of Beef It Up! you may choose to participate in the Alabama Beef Quality Assurance (BQA) Program. BQA is a nationally coordinated, state-implemented program that educates and trains cattle producers in good animal husbandry and management. A large part of the beef industry’s job is making sure that beef is safe and wholesome for consumers.

BQA programming includes best practices in areas such as parasite control, animal handling, vaccinations, herd health, humane euthanasia of cattle, the proper use of feed additives and medications, record keeping, animal handling, calf management, weaning and preconditioning, and culling, to name a few.

The goal of BQA is to help producers raise cattle under the best management and environmental conditions possible. The training is practical and based on scientific knowledge. BQA guidelines also are designed to build the trust and confidence of beef consumers in the entire beef industry. BQA provides a great opportunity for a relatively small number of beef producers to speak with a louder, more unified voice about how and why cattle are raised and managed the
way they are. This is what you are becoming a part
of through participation in the Beef It Up! Project.

BQA’s value to beef producers includes the
following actions:

• demonstrates the beef industry’s commitment
to food safety and quality
• safeguards the public image of the cattle
industry
• upholds consumer confidence in valuable beef
products
• protects the beef industry from additional and
burdensome government regulation
• improves sale value of marketed cattle
• enhances profitability through better
management

To complete BQA training and become BQA
certified, you will need to attend a meeting and
successfully pass a certifying exam. Alabama
Extension regularly provides BQA education and
certification throughout the state. 4-H Beef It Up!
participants that attend a BQA training event and
pass a certifying exam are then BQA certified.

Getting Started

Before bringing your calf home, you need to have
essential supplies in place.

Feeder

A feeder should be made of a material that is
both strong and easy to clean. Approximately
2 feet of feeder space per market calf is
recommended.

Waterer

The water container you select for your animal
should be made of a material that is easy to
clean. Plastic or metal are good choices. The
container should be big enough to hold a large
quantity of water and sturdy enough to withstand
overturning by a strong animal. If your pen is not
near a water spigot, you will need a hose. Keep a
long-handled brush near the waterer to make it
easy for regular cleaning.

Halter

There may be times when you need to restrain
your animal (during a veterinarian visit, for
example). We advise you to halterbreak your
animal as you work with him. You will need a
sturdy halter to do this. Halterbreaking is not
complicated, but it does require time, patience,
and strength.

Clippers (optional)

You will be required to clip your animal to ¼ inch
when you get to the Beef It Up! Show. Clippers
are an expensive investment, so you may borrow
a pair, if you prefer. Many Extension offices in the
state have clippers that you may use.

Blocking chute (optional)

Blocking chutes are used to restrain your
animal for bathing, grooming, and performing
examinations. You can construct a blocking
chute from wood or metal, or you may borrow or
purchase one; it all depends on your frequency of
use.

Basic Steer Management

Working With Your Calf

When your new calf first arrives, it will be nervous
and confused. You will need to work with it
to get it used to you and the routines of your
farm. Move around your animal slowly and talk
in a calm voice as it begins to recognize you as
its caretaker. Learn your calf’s behavior so that
you will notice changes if it should become ill.
Remember, this is a meat animal bound for the
market; always provide plenty of food and water
so that it is not stressed.

If you choose to halterbreak your calf, start by
ty ing it to a very sturdy object no higher than
a foot off the ground. A low tie point will keep your calf from choking if it fights the halter and falls over. For your safety, do not place yourself between the calf and a fence, or at the back of the calf near its flank, where you are at risk of being kicked. Wear gloves, preferably leather, and clothing that you do not mind getting dirty. (You will find more information about breaking and training your animal in the section Preparing for the Show.)

**Housing**

A dry, well-ventilated stall in a barn or a shed will help your animal avoid being stressed as it is raised. The space should provide warmth in winter, protection from rain and bad weather, and shade to escape the heat in the summer. A windbreak in the form of a shelter or a row of trees will keep your animal comfortable. If you construct new housing, keep in mind the direction from which wind tends to travel on your property.

Fencing is an important part of housing your animal. The materials you use to build the pen should be very sturdy, as your animal will be more than 1,000 pounds and very strong by the end of the project. Used materials such as old railroad ties or telephone poles are sturdy and may work well as fence posts or corner posts. Metal posts, such as T-posts, also are commonly used. The average distance between posts should be 10 feet.

Take the time to measure the space and determine how many feet of wire, posts, and hardware you will need to construct your pen. Using barbed wire, woven wire, cable wire, or electrified wire are all options with different price tags. A parent or guardian can help you figure out what it will cost either to construct or repair a pen. You can then build it into your budget for the project.

**Space Requirements**

The indoor space you provide should be large enough for your animal to stand up and turn around in easily. Remove any sharp objects on which your animal may hurt itself. A bruised carcass will mean a lower percentage of useable meat. Repair any broken boards or wire immediately so that your animal is not injured.

The outdoor space may be much larger, but a huge pasture full of grass is not necessary—2/3 to 1 acre is good. Give your animal as much space as you can provide. If you are raising more than one animal, they can be kept in the same space, but more paddock space will be needed. Keep in mind that the areas around the feeder and waterer are likely to become muddy if they are not covered. Your animal needs a space to retreat from mud during rainy days. Your space should be well-drained so that rainwater has a chance to leave the pen.

**Feeding**

Feeding your Beef It Up! animal will require a diet with protein, carbohydrates, minerals, and vitamins. A combination of hay (roughage) and grain (protein concentrate) will ensure that it receives both the proteins and carbohydrates it needs for good growth.

You must feed your animal every day, ideally in the morning and again in the evening. Do not skip a feeding. Also, do not let old feed accumulate in the feeder. Remove and discard old and stale feed before providing fresh feed.

Before you start, make sure you can find the feeds you want locally and at a reasonable cost. It is not unusual for a 50-pound bag of cattle feed to cost between $8.00 and $18.00, depending on your animal’s growth stage and your goals of production. Your budget also plays a role in the decision to purchase one feed over another.
Speak with your feed store representative to determine which feeds they carry regularly, which they carry seasonally, and which they will need to special order for you.

For the first few days after you bring your calf home, you will need to follow the feeding regimen that the animal was on before you purchased it. Ask the original owner if you do not know what that is.

Hays, such as bermudagrass or bahiagrass, are a good source of protein for your animal. You have supplement options as well, such as soybean meal or cottonseed meal. Proteins are used by your animal for growing hair and vital organs and for developing muscles. You should be able to feed your animal high-quality grass hay at a rate of about 15 pounds per day for a 500-pound calf.

Let your animal adjust to eating grass hay for 3 or 4 days before you begin feeding it grain. Grain is not always immediately recognized by beef animals as a source of food, so expect a short transition period as your calf learns to consume grain as well as hay.

### Table 1. Amount of Feed by Calf’s Weight

<table>
<thead>
<tr>
<th>Calf Weight in Pounds</th>
<th>Concentrate Pounds</th>
<th>Roughage Pounds</th>
</tr>
</thead>
<tbody>
<tr>
<td>500</td>
<td>5 to 6</td>
<td>7 to 8</td>
</tr>
<tr>
<td>600</td>
<td>8 to 11</td>
<td>7 to 8</td>
</tr>
<tr>
<td>700</td>
<td>12 to 15</td>
<td>6 to 7</td>
</tr>
<tr>
<td>800</td>
<td>15 to 19</td>
<td>5 to 6</td>
</tr>
<tr>
<td>900</td>
<td>18 to 23</td>
<td>2 to 5</td>
</tr>
<tr>
<td>1,000</td>
<td>20 to 27</td>
<td>2 to 4</td>
</tr>
<tr>
<td>1,100</td>
<td>20 to 30</td>
<td>2 to 4</td>
</tr>
<tr>
<td>1,200</td>
<td>22 to 32</td>
<td>2 to 4</td>
</tr>
</tbody>
</table>

Grains, such as barley, wheat, oats, milo, corn, or molasses, contain the carbohydrates and fats that are the energy source in your animal’s diet. Grain usually comes in the form of cracked or rolled corn, or perhaps crimped or rolled oats. Ground grains are often the wrong particle size for a beef project animal, and whole grains are not utilized by the calf’s body as well as rolled or cracked grains. This could affect rate of growth. You need for your animal to grow quickly!

If your animal has not been on any grain, begin grain feeding at a rate of about 1 pound per day. Watch your animal to make sure it is adjusting well to the addition of grain to the diet. After 2 or 3 days, increase the grain to about 3 pounds a day. After each increase or adjustment in the diet, you will need to watch your animal for signs of diarrhea or scour.

After a week, your animal’s grain intake should be 6 to 8 pounds a day. Ideally, after the first 2 weeks you will be feeding grain at a rate of 2 to 2 ½ percent of the calf’s body weight. Initially, this should translate to 5 pounds of grain in the morning and 5 pounds in the evening. Simultaneously decrease the amount of hay so that you are eventually feeding your animal half hay and half grain.

You want your beef project animal to gain weight as quickly as possible. Feed it 2 to 4 pounds of
hay every day, as well as 2 to 3 percent of its body weight in grain. You can expect your calf to consume about 3 pounds of grain for every 100 pounds of its body weight. Periodically weigh your animal to make sure you are staying on target for weight gain (about 3 to 5 pounds a day).

A common strategy is to finish the market animal with feeds that are high in protein concentrate and lower in hay or roughage (usually 80 percent grain to 20 percent hay). This also requires an increase in the amount of feed that the animal consumes. This aids in building a layer of fat within the muscle (marbling) as well as under the skin (finishing).

Your transition toward finishing your animal should always be gradual. Rapid changes in feed can upset the digestive tract and cause bloat or diarrhea, both of which are setbacks for your project. The duration of this diet should be no less than 100 days, with 120 days preferable.

The finishing diet is usually a commercial feed product. Although it costs more, it often contains a vitamin and mineral premix, which is a nice addition. A custom mix is likely to contain roughage, corn, a protein pellet, a vitamin–mineral premix, and other coproducts. This type of finishing ration is recommended to members with the skills and knowledge of many years in this program. You can purchase premixed feeds, but at a higher cost. Record your costs accurately so that you are able to calculate your cost of gain at the end of the project.

Vitamins are important for overall growth. An animal that is deficient in any particular vitamin may not grow as well or may begin to show signs of poor health. Using fresh hay will provide carotene, which is converted into vitamin A in the digestive tract. Vitamin D, also known as the sunshine vitamin, is readily available to animals that have access to the outdoors, but it may become deficient in animals always kept indoors.

Minerals are readily available in many grains and high-quality hays. It is mandatory, however, that you provide an additional mineral source. This can come from a mineral supplement given in the feed or from a trace mineral block you make available to your animal.

If your animal requires treatment with medication (through injection, the water, or the feed) at any time during the rearing period, you will need to follow your veterinarian’s instructions and allow a withdrawal period. This is the period of time after a medication is given during which the animal still has the medication in its system. You must not process your animal until the withdrawal period has passed.

Water
Water is the most important nutrient for animals. It lubricates the body’s systems and keeps your animal cool. It is a key component in many aspects of cell function, and the body must replenish its supplies several times a day. To keep cool, the body loses water through breathing, sweating, and by urination. Without fresh, clean water, your animal will not grow as well as it should. Thoroughly clean your waterer weekly by emptying it and scrubbing it clean with a brush.

In hot weather, a mature animal may drink as much as 20 gallons a day. Thirsty animals can be seriously affected by the quality of the water you provide. Your beef animal will not readily access water that is too hot, too cold, or too dirty. If you wouldn’t drink the water, don’t expect your animal to.

Cost of Gain
To understand the expenses associated with raising beef cattle, you need to calculate the cost of gain (COG). This will tell you how much you
are spending per pound on your animal. To get this figure you must keep detailed records of the amount of feed your animal consumes and what you spend on the feed (keep all your receipts!).

Here is how the calculation works: Say you purchase 5 bales of bermudagrass hay at $6.00 per bale, 15 bags of beef grower feed at $12.00 per bag, and a mineral block at $13.00. So far in your project you have spent a total of $223.00. Your animal has gained 512 pounds since validation day. The COG is $223.00 ÷ 512 lb = 44¢/lb.

If you are able to weigh your animal on a regular basis and calculate your cost of gain, you will see that the COG changes as your animal ages and as you change the diet. You will use this information to determine how much money you need to make upon the sale of your animal.

If you know how much money went into purchasing, feeding, and processing the animal, then you should have a good idea of what you need to sell it for in order to make a profit. You will put all of these calculations in your record book for the Beef It Up! Project.

**Steer Health**

A veterinarian plays a crucial role in preventing, diagnosing, and treating disease. It is important to establish a good relationship with a large-animal veterinarian to care for your Beef It Up! animal if it becomes ill and to work with you to develop an overall health care program.

**Vaccinations**

Vaccinations for your Beef It Up! animal can take different forms depending on your circumstances. Recommended vaccinations and boosters in Alabama include a respiratory suite, blackleg disease, *Mannheimia haemolytica*, and *Pasturella multocida*. Work with your veterinarian to determine the best vaccination schedule for your animal based on the vaccinations already administered by the breeder.

If your animal is housed at a farm with another herd, your strategy for vaccinations may need to follow that of the main herd to ensure overall herd health. If you keep just one animal at your home, your strategy may be entirely different.

Vaccines are available for many diseases. But not all diseases are a routine threat to many beef animals. Plus, some vaccines are not sufficiently effective to justify their use. The guidelines provided here for vaccinating cattle may not be applicable in all situations. Use them as a starting point to develop an effective vaccination protocol with your local large-animal veterinarian. You must properly store and administer vaccines according to label directions, adhere to designated meat withdrawal times, and follow all other Beef Quality Assurance (BQA) guidelines.

**Parasite Control**

Effective control of internal and external cattle parasites is an economically important management practice.

**Common internal parasites.** The brown stomach worm (*Ostertagia ostertagi*) is the most common detrimental internal cattle parasite, but a variety of other gastrointestinal worms and lungworms also affect cattle. Cattle with internal parasites tend to have a reduced appetite and decreased weight gain; a loss of protein due to damaged tissues; an impaired immune system; and, in some cases, anemia. Overall, a beef animal with internal parasites will produce less meat for your project.

There are many types of dewormers available to control various internal parasites, including stomach worms. Ask your veterinarian for recommendations on which product to use and a treatment schedule. Not all dewormers are the same, so try to use brand-name products whenever possible. You may save money on the initial purchase by using a generic product, but
you will lose in the long run due to poor product efficacy. Read all product labels and follow their instructions for storage, dosage, route of administration, and withdrawal guidelines. You need to do this to ensure that your Beef It Up! animal is processed to yield safe, wholesome food.

**Common external parasites.** These are usually insects such as horn flies, stable flies, face flies, horse flies, lice, ticks, and a few other problem insects. These parasites may be just a nuisance in some cases, but the energy that your animal spends to ward them off is energy that could have been spent as growth. An animal suffering from external parasites has decreased weight gain, a damaged hide, and anemia (in severe cases). External parasites also have the capacity to transmit several diseases that are bad for your animal.

There are products on the market that exist to control external parasites. They come in a variety of forms: spray, pour-on, back rub, dust, feed additive, or ear tag. Some dewormers for internal parasites have the added bonus of being effective against external parasites, as well. You need to look at the label and read the instructions carefully to be sure that the product you choose will work to eliminate your problem.

Horn flies are resistant to several insecticides. If you have a problem with this parasite, you will need to rotate your class of insecticide. It is best to obtain the advice of a veterinarian or your animal science Extension agent if you see problems escalating, as they can help you determine effective strategies.

**Administering Drugs Properly**
For drugs to work as intended, they must be administered and stored properly. Proper administration prevents injection-site lesions and drug residues in the meat. Before administering any drugs, keep in mind that your cattle will one day produce beef for human consumption. Ask yourself the question, Would I eat what I treat?

The best way to avoid problems is to follow FDA-approved label directions, identify each animal that receives the drug at the time it is given, and give the drug correctly. You will need to select the correct way to give the drug to your animal; choose the correct needle size and injection site; practice good sanitation; store and handle drugs correctly; use proper animal restraint; and adhere to all FDA-approved withdrawal times.

A withdrawal time is the time that must lapse from the last administration of an animal drug until food from that animal is safe for human consumption.

Select the best route of administration per FDA-approved label directions. Application may be in several forms:

- oral
- intravenous
- topical

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**Table 2. Needle Selection Guide**

<table>
<thead>
<tr>
<th>Weight</th>
<th>Intramuscular (IM)</th>
<th>Subcutaneous (SubQ)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Gauge</td>
<td>Length</td>
</tr>
<tr>
<td>Less than 300 lb</td>
<td>18</td>
<td>¼ to 1 in</td>
</tr>
<tr>
<td>300 to 700 lb</td>
<td>16 to 18</td>
<td>¼ to 1 in</td>
</tr>
<tr>
<td>More than 700 lb</td>
<td>16</td>
<td>¼ to 1 in</td>
</tr>
</tbody>
</table>
• subcutaneous (SubQ = under the skin)
• intramammary
• intramuscular (IM = in the muscle)
• intranasal

Most injections are administered either intramuscularly (into a muscle) or subcutaneously (under the skin). The product label will specify FDA-approved route(s) of administration. If the label allows for either subcutaneous or intramuscular administration, give the drug subcutaneously to reduce the likelihood of muscle damage.

Choose the correct location for the injection. The best site may not be the most convenient, but it will be where the product is most beneficial without damaging valuable cuts of meat.

For both vaccines and antibiotics, the triangular mass of neck muscle (figure 1) is the only acceptable site for IM and SubQ injections, unless the product specifically states that it can be administered in the ear or at the base of the ear. Here are guidelines to follow:

• Keep all injections in front of the shoulder.
• Never inject any medications into the loin or hindquarters.
• Never inject more than 10 ml (cc) into one site.
• Keep injection sites at least 5 inches apart and be careful not to reuse injection sites when making multiple injections.
• Avoid injecting in wet or manure-covered areas to minimize the risk of an injection-site lesion.

Choose the correct needle. The correct needle size and length is important to ensure that the entire dose of the drug gets into the animal properly with the least amount of tissue damage. The proper needle size also reduces the chance of needle breakage (table 2).

Types of Drugs
Over-the-counter (OTC). These drugs can be administered by a producer without the order of a veterinarian. They may only be used according to the label directions. It is illegal for a producer to use an OTC product in a manner other than what is specified on the FDA-approved label. A veterinarian can prescribe extra-label use of an OTC product when necessary.

Prescription (Rx). These drugs cannot be administered by producers unless prescribed by a veterinarian. The label will contain the statement, Caution: Federal law restricts this drug to use by or on the order of a licensed veterinarian.

Veterinary feed directive (VFD). All antibiotics administered in or on animal feed require a written feed directive from a veterinarian. The label will contain the statement, Caution: Federal law restricts medicated feed containing this veterinary feed directive (VFD) drug to use by or on the order of a licensed veterinarian.

Understanding Drug Labels
Follow label directions on all products (antibiotics, hormones, vaccines, dewormers, feed additives, etc.) to achieve the desired effect and efficiency. This includes following proper product storage, route of administration, reason for giving the drug, dosage, etc. Any deviation from label directions will decrease product efficacy and may alter withdrawal times. Plus, it is illegal in many situations.

Become familiar with drug labels, because you are ultimately responsible for any drug residues in your animals. All drugs, whether over-the-counter, prescription, or veterinary feed directive medication, will contain the following basic information on the product label:

• name of drug
• active ingredients
• instructions for use
• withdrawal times
• quantity of contents
• name of distributor
• cautionary statements

To reduce the chance of adverse reactions and minimize the risk of residues, read and follow all instructions on product labels:

• dosage (for example, 4 ml or cc)
• timing (how often and how many times given) (for example, 2 doses, 48 hours apart)
• route of administration (for example, intramuscular or subcutaneous)
• warnings or indications (for example, not for use in pregnant animals)
• withdrawal times, if any (for example, do not use within 28 days of slaughter)
• storage (for example, store at 2–7 degrees C)
• disposal (for example, burn container and all unused contents)
• shelf life (expiration date)

Failure to understand a product label is not a defense if meat from one of your animals is found to contain drug residues. Any use of animal drugs in a manner not specifically stated on FDA-approved labels is considered extra-label drug use and is illegal, unless prescribed by a veterinarian.

One exception to these rules is administering vaccines at a different interval than recommended on product labels. For example, a vaccine recommends an initial dose followed by a booster dose 6 to 8 weeks later, but you aren’t able to give the booster dose until 10 weeks after the initial dose. Use of vaccines in this manner is not illegal, but it may reduce the efficacy of the vaccine. To maintain maximum product efficacy, it is strongly recommended that all vaccines be administered at intervals recommended on product labels. Contact your local veterinarian or Extension agent if you have questions.

Biosecurity

Biosecurity is an innovative approach to managing the introduction and spread of disease on your farm. A biosecurity plan helps you to identify disease risks and control them through practical measures. There are five primary routes of disease transmission:

Aerosol

Disease agents contained in droplets pass through the air from one animal to another. Close proximity of infected and susceptible animals typically is required.

Direct Contact

A susceptible animal directly touches an infected animal’s open wounds, mucous membranes, blood, or saliva through nose-to-nose contact, rubbing, or biting.

Fomite

A disease pathogen is carried or spread from one animal to another by an inanimate object, such as boots, buckets, or milking and grooming equipment. Vehicles, trailers, and even humans can be fomites, spreading disease through foot or vehicle traffic onto or inside your farm.

Oral

An animal licks or chews on contaminated environmental objects or consumes contaminated feed or water.

Vector-borne

Disease is spread through an insect. Ticks and mosquitoes are biological vectors. They commonly spread disease after becoming infected by a
diseased animal and injecting the disease agent into another animal. Flies are a common mechanical vector, simply carrying the disease agent on their bodies and flying it from animal to animal.

Following are examples of biosecurity practices that will greatly minimize the risk of disease in your animal:

- Do not intentionally comingle animals from different herds.
- Provide a buffer between adjoining herds so that no fence-line contact is available.
- Isolate new herd additions for four to six weeks and test for appropriate diseases before allowing new animals to comingle with your herd. Identify isolation areas prior to purchase.
- Isolate animals returning from livestock shows.
- Post signs indicating that a biosecurity plan is in effect on your farm.
- Educate all visitors about the biosecurity plan in effect on your farm.
- Make sure that all visitors are dressed appropriately. Provide coveralls and boots, or check that visitors are wearing clothing free from contact with other cattle.
- Recognize that you are also a source of contamination to your herd. If you are around other cattle, shower and change clothes before working with your livestock.
- Clean and disinfect your truck and trailer after hauling cattle. Anyone hauling cattle for you should do the same.
- Clean and disinfect other equipment as necessary.
- Apply appropriate insect control.

**Preparing for the Show**

**Breaking and Training**

Breaking a calf to lead with a halter and training it to cooperate while being presented to a judge are probably the most challenging aspects of any beef project. Even as a feeder calf, the animal is often 5 times as large at the youth that is handling it. Yet nothing compares to the emotion experienced when a 1,200-pound market project animal responds appropriately to a tug on the halter. The key to making all of this happen is breaking and training the animal properly from the beginning of the project.

Despite the size of the beef animal, it is important that the initial breaking process be done as gently as possible. Animals have the ability to sense anxiety and frustration in a handler, and they tend to react negatively. On the other hand, if the animal senses a quiet confidence in the handler, it is likely to respond with confidence, because the handler is doing things that are in the animal's best interests. If this confidence and trust between the animal and handler are betrayed early in the breaking process, training an animal to respond appropriately in the show ring can become a very difficult task.

When you first bring your animal home, allow it a few days to settle down and become used to the new surroundings, as well as to you and your family. Place your animal in a relatively small, escape-proof pen or box stall that is free of obstacles that could cause injury. For several days, simply spend time with your animal as it eats; allow it to understand that only positive
experiences result when you are around. Once your animal gains confidence and understands that you do not plan to harm it, the actual halterbreaking process can begin.

Start by putting the halter on the animal and tying it to something solid for a couple of hours. It is best if the animal is placed in a head gate or squeeze chute while you fasten the halter. An effective alternative is to walk between a gate and the wall. When tying the calf, use a quick-release knot and tie it lower to the ground than the calf’s head. This way, if the calf falls for any reason while tied, it will not have difficulty breathing. The tying process should continue daily until the calf stands quietly, no longer pulling against the halter. Never leave a haltered calf alone until it has learned to stand quietly.

At this point, the training process can begin. Always keep in mind that your animal is strong enough to do almost anything it wants. The key is keeping it from finding that out.

A calf can only go where its nose goes first. If you have ever observed a beef animal escaping from its handler, the animal usually drops its head. If the handler never allows this to happen, the animal will seldom escape. Also, in breaking a beef animal to lead, you normally are standing in front of its shoulder or “flight zone.” This means that the natural tendency for the animal as you pull on its halter from the front is to back up or escape to the rear.

With all this in mind, place your animal in a small paddock, a large box stall, or an area within the barn while you teach it to lead with the halter. Begin by walking your animal in a clockwise direction in tight circles. Allow it to keep moving at a steady pace. During the first several attempts, it helps to have an assistant who can walk in front of an aggressive animal or behind an animal that does not want to move at all. Keep in mind that your calf can only go where its nose goes and only at the speed its nose travels. If you keep its head and its nose under control, the rest will follow.

During the early stages of training, conclude each session by taking your animal to water, feed, or another environment in which it is comfortable. It also is better to work frequently with the animal for brief periods of time as opposed to infrequent, longer sessions that neither you nor your animal will enjoy. Remember, your calf is a young animal and cannot focus on a single subject for long periods of time. If worked frequently for brief periods, calves quickly realize that the exercise is painless and is often followed by a pleasant experience. As they mature, their temperament also will mature to the point they can exercise or work for longer periods of time.

**Bathing**

Before bathing your calf, prepare the area where it will go after bathing is complete. This needs to be a clean pen with fresh bedding. Tie your calf to a fence with a short (1 ½ foot) lead. Preferably wash your calf on a concrete or well-drained rock surface. If you can wait until a warm day, your calf will appreciate it. Otherwise, warmer water makes for a calmer, happier calf. If neither option is possible, your calf likely will be in a bad mood after the bath. Practicing with it afterward probably will not be a good idea.

Using a hose with a spray nozzle, start by spraying the legs. There can be a great deal of mud on the legs, so you will need to take your time wetting the area. Move up the animal one side at a time. Focus on the head last. Avoid
getting water in the eyes, nose, and ears. Watch the amount of pressure from the spray nozzle near sensitive areas such as the belly or face. Use a grooming comb to remove anything stuck in the hair.

You can now soap up the calf using a bucket and a large sponge. Baby shampoo works well. There also are products at feed stores or in show supply catalogs that may help calves of a certain color. If a lot of dirt is on the back or upper legs, a stiff brush or a curry comb can help you work the soap down to the skin to loosen dirt. To rinse your animal, start at the top of the back and work downward toward the legs. Do not leave any soap in the hair.

Once rinsed, your calf should be dried. If it is a warm and sunny day, you can walk your calf until it is dry. Putting a calf back in its pen while still wet invites bedding or dirt to stick to the hair. If a cattle blower is available, you can use that to dry the calf faster. Otherwise, numerous clean towels will need to be used.

Grooming
Grooming requirements for the 4-H Beef It Up! Show are minimal. If you are showing an animal that is halterbroken, it will need to have a ¼-inch clip all over the body. Bathing and drying your animal will make it easier to do that. The length will be verified using calibrated cards. If you are showing a penned animal, no grooming is allowed.

Showcasing Your Project
Show Classes
The Alabama 4-H Beef It Up! Project allows you to enter one of two divisions: halterbroke or penned. If you raise more than one animal, you may enter one animal in each category, as applicable.

The penned division allows younger, disabled, or inexperienced exhibitors to experience raising an animal for beef production without the requirement that the animal be halterbroken. The animal cannot be aggressive or entirely fearful of human contact.

You should work with your animal daily to get it used to being around humans. During the farm visit, the behavior of your beef animal around humans will be assessed to determine how well you are familiarizing your animal with people.

Along with the division, you will need to select the breed class for your entry. You will choose one of the following: (1) English breeds and their crosses; (2) Brahman breeds and their crosses; or (3) European breeds and their crosses. You will identify the breed classification on your entry form. The breed classification is based on the visible characteristics of the animal only. No registration papers, certificates, or affidavits will be required.

At weigh-in, three experienced classifiers will verify that the animal is entered in the correct breed class; if it is not, they will place it in the correct breed class. Their decision is final, and you will not be able to make changes to your class.

Weigh-in
The final weight of your project animal is determined at weigh-in. Your calf will be grouped with animals of similar weight for market-class judging in either the halterbroke or penned division.

You will use the ending weight along with the beginning weight of your animal (determined at validation) to calculate the average daily gain (ADG):
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The three classifiers will examine your animal and signify whether they agree or disagree with your breed classification. If they agree, they will hold up a green card. If they disagree, they will hold up a red card. Two of the three classifiers must agree with your breed selection.

If your animal has been entered into the halterbroke division, the length of the hair will be checked. The hair must be clipped to ¼-inch all over the body. In cases where the hair is too long, you will be allowed one opportunity to recclip the animal to meet the requirements before being checked again. If the hair still does not meet the requirements, the animal will be disqualified from the halterbroke division and may be reassigned to the penned division, if you desire.

Class Expectations
Halterbroke division:
• Your animal must be clipped to no more than ¼ inch on the body, except for the tail switch. The tail switch may be ratted and balled or may be bobbed off.
• Animals with unruly behavior that you cannot control will be disqualified from the show. If a halterbroke animal gets loose from you in the show ring three times, it will be dismissed and not allowed to compete in that class.
• Nose leads are not allowed when showing your animal.

Penned division:
• There are no clipping requirements. No grooming or enhancement of the animal is permitted.
• Judges have a background in and knowledge of feedlot cattle selection.
• The judge is given your animal’s average daily gain for consideration in deciding its placing.

Showmanship/Interview
Participants in the penned division will be automatically entered in the showmanship segment. These segments are designed to build self-confidence as well as communication skills. Both interview and showmanship will be split into junior and senior categories. The category you are placed in will be dependent on your age as of January 1 of the current year. 4-H members ages 9 to 13 are in the junior category; ages 14 to 18 are seniors.

Testing Your Knowledge
Throughout the project, you will learn details of your animal’s anatomy, as well as how to feed and manage its health. You will learn how to calculate the same math problems that larger-scale beef farmers use in their operations—calculations such as the average daily gain, feed-to-gain ratio, and cost of gain. Beef farmers use these figures to gauge their animals’ growth and to make important production decisions about feeding plans and wise use of money.

The pre- and post-tests you take will show how much you learned in the course of raising your animal. The pre-test will be given at the mandatory meeting and the post-test at the final show event.
Career Options

Do you like science? Here are some careers to consider:

- field technician operations: work with farmers to troubleshoot housing and health problems
- veterinary medicine: work with farmers to help improve beef health within their herds
- beef nutrition: design and evaluate feeds and ingredient quality to make sure animals are getting the best nutrition they can
- feed mill: support beef farmers with essential products that they need to support their herds
- food safety quality control: help maintain high standards of quality for food products
- food product development: work with beef companies to test new food options
- genetics: research beef strains to provide safer and more nutritious meat choices

Do you like business? Here are some careers to consider:

- agricultural sales: help beef companies sell safe and delicious food to consumers, or sell products to the companies themselves
- finance: keep beef companies profitable by tracking how and where they spend their money
- human resource management: service beef company employees
- agricultural lending: lend money to beef farmers and beef companies for needed equipment and improvements
- computer science: bring the latest technology to beef companies

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For more information, contact your county Extension office. Visit www.aces.edu/directory.

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