

5

Selecting Project Animals



The conformation and size of steer you choose will affect the success of your project. Try to choose healthy, high-quality, lean, muscular, and structurally correct cattle. You don't need the most expensive animals to succeed.

Objectives

After studying these materials and completing the suggested activities, you should be able to:

1. Name the external parts of the steer and be able to point them out on a live steer or label them on a diagram.
2. Tell what to look for when choosing animals for market steer projects.
3. Select a project steer based on projected frame size and finished weight.

Naming the External Parts of a Steer

It's important to know the words that beef producers use. When you know and use the right words, other people who raise beef cattle will be able to understand you.

The parts of a steer's body have special names. Some names have the same names as the meat products produced from them. For example, the back of a steer, directly above the ribs, is called the rib and is where ribeye steaks come from.

Learn the terms listed in the diagram on the next page. On a heifer or cow, you should also be able to identify the udder and vulva. On a bull, you should be able to find the scrotum and testes.

Things You Need to Know

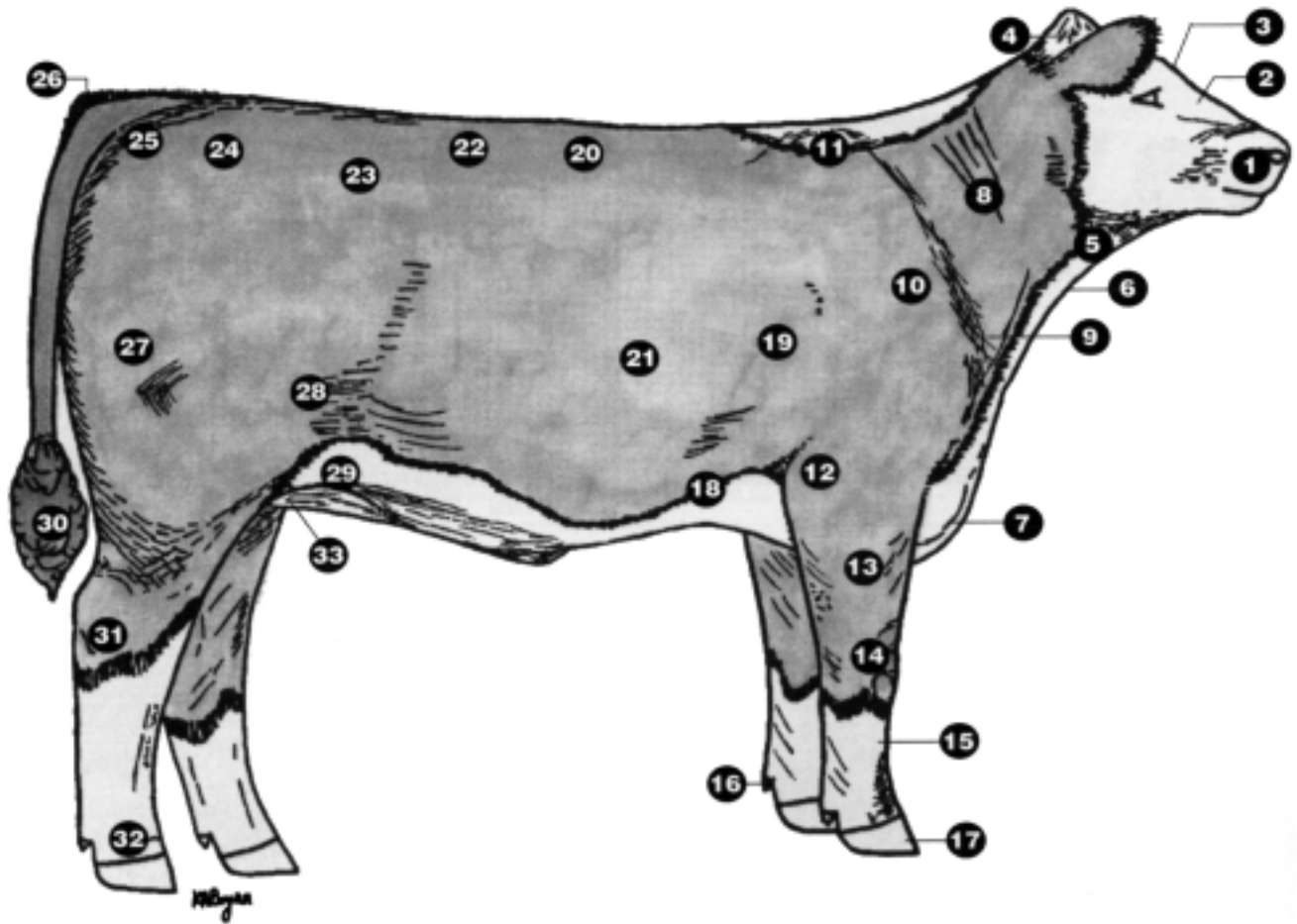
Before you select a feeder steer, you need to know and understand the three factors that influence the price paid for finished cattle.

The first factor is carcass weight. Ideally, packers prefer beef carcasses between 650 and 800 pounds. Carcasses of this weight produce steaks and roasts the size consumers want to buy. Normally, between 60 and 64 percent of the steer's live weight ends up as carcass weight, so live cattle between 1100 and 1350 pounds are most likely to produce carcasses in the preferred weight range.

The second factor is quality grade. Assuming they are receiving an adequate diet with sufficient energy, steers tend to deposit fat as they reach market weight. External fat deposits laid over the ribs, back, and brisket are easily seen by looking at the steer. Shortly after external fat begins to appear, the steer deposits small amounts of fat inside the muscle tissue. This small amount of intramuscular fat is called marbling. It is what gives meat flavor and juiciness.

When a steer is slaughtered, its carcass is cut between the 12th and 13th rib, and the amount of marbling in the ribeye muscle is visually evaluated by a USDA beef grader. The grader also studies the degree of hardness (or calcification) of

EXTERNAL PARTS OF THE STEER



- | | | | |
|----|-------------------|----|---------------------------|
| 1 | muzzle | 18 | lower forerib, fore flank |
| 2 | face | 19 | forerib |
| 3 | forehead | 20 | back or top |
| 4 | poll | 21 | rib |
| 5 | throat | 22 | loin |
| 6 | dewlap | 23 | hook or hip |
| 7 | brisket | 24 | rump |
| 8 | neck | 25 | pin bone |
| 9 | point of shoulder | 26 | tailhead |
| 10 | shoulder | 27 | quarter |
| 11 | top of shoulder | 28 | stifle |
| 12 | elbow | 29 | rear flank |
| 13 | forearm | 30 | switch |
| 14 | knee | 31 | hock |
| 15 | cannon | 32 | pastern |
| 16 | dewclaw | 33 | cod |
| 17 | hoof | | |

certain bones in the carcass to determine the animal's age. If enough marbling is present in the muscle tissue, and the grader decides the animal was under 30 months of age, the carcass receives a USDA quality grade of "choice." Choice grade carcasses are usually more valuable, because consumers will pay more for meat that is juicy and flavorful. About 70 percent of steers with at least 0.4 inch of backfat have enough marbling to grade choice. Steers with 0.4 inch of backfat are said to be "ideally finished" and should have enough marbling to grade choice.

The third factor is yield grade. If steers deposit too much external fat or are too lightly muscled, their value is lowered even though they may receive the choice quality grade. Yield grade is used to evaluate the percentage of lean meat in a carcass. Yield grades range from 1 to 5. A yield grade of 1 indicates a very lean, heavily muscled carcass. Few yield grade 1 carcasses have enough marbling to grade choice. An extremely lightly muscled, fat carcass would receive a yield grade of 5.

You need four pieces of information to calculate yield grades of beef carcasses:

1. *External fat thickness over the ribeye.* Measured in tenths of an inch three-fourths of the distance from midline to bottom of the ribeye muscle between the 12th and 13th rib. This thickness may be adjusted up or down based on the relative fatness of the rest of the carcass.

2. *Hot carcass weight* in pounds.

3. *Ribeye area.* Measured in square inches between the 12th and 13th rib.

4. *Kidney, pelvic, and heart fat percentage.* Estimated as a percentage of hot carcass weight. Average is 3.5 percent.

Here is the exact formula for calculating yield grade:

$$2.50 + (2.50 \times \text{adjusted fat thickness}) + (.20 \times \text{percent kidney, pelvic, and heart fat}) + (.0038 \times \text{hot carcass weight, pounds}) - (.32 \times \text{ribeye area, square inches})$$

Your task is to select an attractive, heavily muscled steer calf, then feed it so that it reaches

an acceptable market weight (1100 to 1350 pounds) and external fat thickness (0.4 inch) on the day of the show.

Selecting Feeder Steers

You may choose to buy feeder steers from a reliable source or raise your own for your project. If you buy your calves, choose healthy steers that have the potential to grow quickly and efficiently.

When ready for slaughter, ideal market steers should be heavily muscled and adequately finished. They have wide, muscular loins, and thick, meaty quarters. Steers should be free of excessive fat in the brisket and at the sides of the tailhead.

For your project, select healthy feeder steers that are big for their age and that have sound feet and legs. Look for long, deep-bodied, long-fronted, well-balanced steers with level, muscular tops. High-quality calves walk easily and stand wide when viewed from behind. Look for well-balanced steers that are attractive from a side view. Steers should be castrated, healed, dehorned, wormed, and vaccinated (see Section 8). Also, try to select calm, easily handled feeder calves. Tame animals will make your halter breaking job much easier.

Steers for 4-H projects can be bought from different places. Many 4-H members buy steers from the farms of neighbors or other persons known to raise good-quality, healthy steers. Steers may also be bought at feeder steer auctions. Some people are paid to take orders for steers and buy them for other people. Look for calves from producers who have sold steers to other successful 4-H'ers. Try to buy calves from someone who can show you good records of the vaccinations, medications, and dewormers the steers have had before you buy them. Ideally, steers should be vaccinated and wormed three to four weeks before you bring them home.

How Big Should My Feeder Steer Be?

Really, this amounts to two questions: "How tall should my feeder steer be?" and "How heavy should my feeder steer be?" First, we need to calculate how tall your feeder calf should be. In

general, taller, larger-framed animals tend to finish at heavier weights—sometimes too heavy to fall into the preferred weight range of 1100 to 1350 pounds when ideally finished. Likewise, short, small-framed steers may be ideally finished at less than 1100 pounds. To avoid either extreme, you should select calves of “average” frame size for their age.

Use the table below to estimate the finished weight of a feeder steer by measuring its hip height and using its age. For example, an eight-month-old steer measuring 45 inches at the hip would be expected to finish somewhere around 1200 pounds. See Appendix 1 to learn more about frame scores.

Now for the question of how heavy your feeder calf should be. In the real world of beef production, beef producers try to get steers to market weight and ideal finish as quickly as possible. 4-H market steer projects differ somewhat from the real world of beef production because you are trying to get a steer to the correct weight (1100 to 1350 pounds) and ideal finish on the day of the show. The weight of steer you start with is closely related to the size of steer you end up with on show day. Here are four steps you can use to estimate what the beginning weight of your feeder steer should be.



Examples of medium-, small-, and large-framed steers (left to right)

The first step is to figure out how many days you will be feeding your steer from the day you buy it until show day. You may have to use a calendar to count the days. This feeding period is usually between 200 and 300 days. The second step is to estimate how fast your steer will grow. A moderately framed steer eating a balanced, high-energy diet will gain about 2.5 pounds per day. Generally, large-framed steers gain faster and small-framed steers gain slower. Daily gain can also be affected by genetics, health, and the amount and kind of feed you offer your steer.

The third step is to calculate the amount of weight your steer will gain during the feeding

Hip height (inches)	Age (months)							
	5	6	7	8	9	10	11	12
33	800	—	—	—	—	—	—	—
35	900	800	—	—	—	—	—	—
37	1000	900	850	800	—	—	—	—
39	1100	1000	950	900	850	800	—	—
41	1200	1100	1050	1000	950	900	850	800
43	1300	1200	1150	1100	1050	1000	950	900
45	1400	1300	1250	1200	1150	1100	1050	1000
47	>1400	1400	1350	1300	1250	1200	1150	1100
49	—	>1400	1450	1400	1350	1300	1250	1200
51	—	—	>1450	>1400	1450	1400	1350	1300
53	—	—	—	—	>1450	>1400	1450	1400
55	—	—	—	—	—	—	>1450	>1400

Estimated finished weight

period. This is done by multiplying the number of days in the feeding period by the amount of weight you expect your steer to gain each day. For instance, if you are feeding your steer for 250 days and you expect it to gain 2.5 pounds per day, your steer should gain 625 pounds.

The fourth step is to calculate the size of steer you should start with. Subtract the expected weight gain (625 pounds in this example) from the desired ending weight (1225 pounds). In this example, you should start with a steer weighing about 600 pounds ($1225 - 625 = 600$). Use the table on this page to estimate the size of steer you should start with.

Remember, these are only guidelines. Your calf may grow faster or slower than average. A few steers are capable of gaining over five pounds per day at times during the feeding period. You can adjust your steer's rate of gain by changing the ration. Also remember that your steer will lose about 40 to 50 pounds during the trip to the roundup. This weight loss during

Days till show	Feeder steer size (pounds)		
	Large frame 1350 (3.0 ADG)	Medium frame 1200 (2.5 ADG)	Small frame 1050 (2.0 ADG)
200	750	700	650
225	675	640	600
250	600	575	550
275	525	510	500
300	450	450	450

ADG = average daily gain

trucking is called "shrink." Don't be surprised if your steer weighs less when it gets to the roundup than it did at home.

Deciding How Much to Pay

Farmers who feed and sell cattle for a living need to get more money when they sell their steers than it costs to raise them to market weight, or they will lose money. If you pay too much for your steer or spend too much to feed and care for it—and do not get a high enough price when you sell it—you will lose money too.

(Left to right)
Small-framed,
heavily muscled
steer; medium-
framed steer with
average muscle;
and large-
framed, lightly
muscled steer



Before you purchase a feeder calf, you need to fill out a budget for your entire project. A sample budget can be found on page 24. To decide how much you can afford to spend on a feeder calf, first estimate what it will be worth when you will sell it. Subtract what you think it will cost to pay for feed (see “How much feed will my steer eat?” in Section 6 to estimate how much feed will be required), veterinary care, supplies, transportation, bedding, marketing costs, entry fees, interest on borrowed money, and other costs. After subtracting these projected expenses, you’ll know how much you can afford to pay for your feeder steer.

Steers sold at 4-H auctions, especially champions, often sell for more money than steers sold at local sale barns or directly to packers. Most 4-H steers will not be champions, so don’t expect a grand champion price when you make your plans for the year. Real-world prices for cattle change from day to day, so it’s a good idea to follow market reports in farm newspapers or on

the radio to find out what fed cattle are worth. If you have access to previous years’ average sale prices for steers (not including champions) bought from your junior livestock sale, you can use that as a basis for estimating income.

When You Get Your Steer Home

Before you get your steer home, find out if and how long it has been weaned. You’ll also need to know if it is used to being around people. If your steer has not been weaned or seems afraid of people, keep it in a small area with good fences for the first two weeks until it gets used to eating and being around people. Do not turn a newly purchased calf into a large field with other cattle.

When you get your steer home, have plenty of good-quality grass hay available free choice. Find out if your calf had been fed grain before you bought it and try to duplicate that mix and amount of grain as closely as possible for the first few days. Then slowly switch to your grain mix. If your steer has not had grain before, offer only a

Nicely balanced
project feeder
steer



pound or two each day at first until it eats all of the grain, then increase the amount to three pounds per day. Increase grain gradually by three pounds each week until the steer reaches your desired feeding level. The steer should consume all of the grain within 30 minutes after feeding.

Almost all of the training required to show your steer correctly should be done at home before the roundup. Most of it should be done in the first two months you have your steer. When you first bring your steer home, spend time in the pen each day to allow it to get used to you. Calves may approach you out of curiosity. Move slowly to avoid frightening them. Allow calves to sniff your hands and body. You soon will gain their confidence and trust. With time, your steers will come to see you as simply another part of their pen—and the provider of feed!

Soon after you get your calves home, you should begin halter breaking them. Begin by placing a halter on your calf with the lead end of the rope going under the steer's chin and exiting from the left side. You may need an adult to help you get a rope on your calf. It helps to have someplace to confine your steer during this process. Some people let their calves drag the rope for a few days to get used to it before tying them up. At some point you should begin to tie your calf to a wall or solid fence for a few hours. (See Appendix 3 for information on how to tie a quick-release knot.)

The first few times you tie your calf, tie it knee high with no more than a foot of rope between the calf's chin and the wall or fence. Spend time with the calves while they are tied. Do not leave a steer unattended that is not halter broken. Brush, pet, and talk to your steer. Let him know that you're not going to hurt him. Most calves will quit fighting the rope after a few of these sessions, but you have to tie them every day, or they will forget what they learned. If the rope begins to irritate the steer's chin, reposition the rope to a new location under the chin.

After the calves are used to being tied, start training them to lead. Start by trying to lead them

to water after they have finished eating. Some calves don't want to go. It sometimes helps to have someone behind a stubborn calf to help get it moving. Other calves don't want to stop. It sometimes helps to have a second person on the halter with you to help slow the playful ones down. Either way, halter breaking is good exercise and should be completed within two months after you bring your calf home.

Implants

Commercial cattle feeders often use ear implants to improve growth rate and feed efficiency in finishing cattle. Implants are small pellets inserted under the skin in the middle of the backside of the ear. These pellets slowly release compounds into the bloodstream, increasing muscle deposition and improving feed efficiency in the animal. Since the compounds used in implants are related to those found naturally in cattle, they do not affect the safety of the beef produced by the implanted animal.

It appears, however, that implanted cattle have less marbling in the muscle than cattle that do not receive implants when both groups of animals are similar in frame size and fed to the same finished weight. Therefore, implanted cattle may have lower quality grades at slaughter. Also, although implants are completely safe, some consumers fear eating beef from implanted cattle.

If you choose to use implants to maximize growth rate, they can be reinserted at intervals specified by the manufacturer—usually every 60 to 90 days. To minimize possible negative effects on quality grade, however, it is probably best to avoid implanting steers within 100 to 120 days of slaughter. Also note that replacement heifers and bulls should not be implanted at all. If you've never implanted a steer before, have your leader or extension agent show you how.

Words You Should Know

Budget: An estimation of the profitability of raising market steers.

Conformation: A general term describing the way the external parts of a steer are put together.

Feeding period: The time from when you buy your steer until the show—generally 200 to 300 days.

Sound: Free from structural defects.

Fed cattle: Finished steers or heifers ready for slaughter.

Marbling: Intramuscular fat used to determine quality grade.

Yield grade: A measure of how lean and heavily muscled a carcass is.

Quality grade: A grade based on the amount of marbling and age. Used to predict how juicy and flavorful the meat from a carcass will be.

Intramuscular fat: Small amounts of fat deposited within the muscle tissue.

Finished: Market weight cattle with at least 0.4 inch of backfat.

Shrink: Weight lost during trucking.

Free choice: Available for eating at all times.

Suggested Activities

- Label the parts of a steer on a diagram or point them out on a live steer.
- Have members of your club answer roll call at a meeting with the name of a market steer part.
- Participate in a beef cattle judging practice session, workshop, or contest.
- Select a feeder steer using your knowledge of parts and desirable type.
- Visit a fair or show and listen to the beef judge give reasons for placing the steers the way he or she did.
- Visit a feeder steer auction to learn how steers are bought and sold or to look for steers that might make suitable project animals.
- Calculate how big your feeder steer should be, based on the dates of your show.

Extra Activities to Try

- Visit a feeder steer sale.
- Look up the local market price of steers each week in a farm newspaper or other source of price information. Make a graph of fed cattle prices each week for several months before the fair or roundup.
- Check feed prices with a local feed supplier.

Ideas for Presentations and Talks

- Identifying the parts of steers
- What to look for when selecting feeder steers
- What it costs to buy and raise a steer

Things to Talk About

- What are the main parts of a steer's body?
- What factors should you look for when choosing feeder steers for market projects?
- What is the normal weight of market steers when they are sold for slaughter?

