

Raising Calves for Freezer Beef Production

► Raising beef calves for a successful freezer beef program requires specific management practices. Learn about nutritional management, grower and finishing diets, handling facilities and more.

Proper nutritional management is paramount to finishing and harvesting beef cattle locally. Other things to consider are adequate cattle handling facilities, cattle breed differences, and harvest timing considerations. Efficiently raising calves to be finished for harvest requires attention to detail, and if done correctly, should yield a quality end-product for the consumer.

Nutritional Management

Beef calves should be weaned between 7 and 9 months of age, weighing between 500 and 700 pounds on average. Feed calves post weaning until they reach a finished weight target of between 1,100 and 1,300 pounds. This weight gain is most easily achieved utilizing available energy-dense grain-based feedstuffs. Quality grain-based feedstuffs will contain a total digestible nutrient (TDN) value ranging from 70 to 90 percent. Add roughage, such as hay, to this diet to achieve adequate energy density for each stage of growth. This roughage is needed to maintain rumen health and avoid conditions such as acidosis or bloat.

Post weaning, calves will be fed a grower diet until they reach approximately 800 pounds, followed by a finishing diet until harvest. Adding an ionophore to the diet will support increased daily gains. Ionophores are common feed additives that manipulate rumen microbial populations to increase feed efficiency and prevent bloat. An ionophore is often included in many available mixed feeds and mineral supplements, or they may be purchased and mixed with a given diet. Common ionophores include monensin (Rumensin), lasalocid (Bovatec), and laidlomycin (Cattlyst).

Grower Diet

Weaned calves should be fed to gain around 2 pounds per day until reaching approximately 800 pounds. A diet consisting of 60 percent grain or concentrate and 40 percent roughage (hay or grass) and containing 60 to 70 percent TDN and 13 to 14 percent crude protein



(CP) provided on an as-fed basis is ideal. Recently weaned calves should be given a few pounds of the diet each day to acclimate to eating from a bunk and transition their rumen onto a grain-based diet. Increase the amount of feed by 1 to 2 pounds per head each day until the calves are eating 1.5 to 2.0 percent of total body weight. If possible, feed the allotted amount to calves twice a day (half the allotted amount in the morning and half in the evening). Check feed bunks to ensure that all the feed is being eaten by calves. If there is feed left in the trough following a feeding event, decrease the feed amount until calves begin to clean up troughs. If there is no feed left, increase the feed amount accordingly until the calves are eating 1.5 to 2.0 percent of body weight. Include a roughage source, such as free-choice hay, to ensure that rumen health is maintained.

Finishing Diet

Transition feeder calves to a finishing diet after they reach approximately 800 pounds. A finishing diet provides larger calves with an increase in energy (TDN) allowing for an increase in daily weight gain. A finished steer or heifer is one that is ready for harvest. A finished calf will reach approximately 0.5 inches of back fat,

measured between the twelfth and thirteenth ribs. This amount of back fat is correlated with the amount of intramuscular fat (marbling) and is a live-animal predictor of a calf's ability to grade choice or above. A calf must carry significant carcass mass before harvest to produce beef with adequate consistency and taste. Calves should gain 3 or more pounds per day on a finishing diet. A finishing diet will contain approximately 80 percent grain or concentrate and 20 percent roughage with 75 to 85 percent TDN and 13 to 14 percent CP on an as-fed basis. Calves should be eating 2.0 to 2.5 percent of their body weight per day. Again, provide a roughage source such as free-choice hay to maintain gut integrity. The breed and genetic makeup of the calf will heavily influence the final weight of a finished calf, but the finished market weight will range from 1,100 to 1,300 pounds.

Cattle Handling Facilities

An adequate working facility is necessary to the success of any cattle operation. A proper working facility allows cattle to be vaccinated and dewormed as well as receive any other animal health treatment you and your veterinarian deem necessary. A working facility does not need to be elaborate. The basics are a dry lot to pen cattle and a way to move cattle through a chute to a head catch. The ability to accurately measure a calf's live weight will allow for more accurate management decisions during the feeding phases. It will also help to determine more accurate estimates of how much beef the calf will yield, thus leading to more profitable marketing decisions.

Confined feeding areas should be well drained and designed to prevent runoff from contaminating nearby waterways. Concrete pads around water troughs aid in reducing mud. Building mounds that are 3 to 4 feet high provide a comparatively dry area for calves to escape muddy conditions. Confined feeding areas require periodic cleaning. Manure should be removed after calves have been sent to harvest and before introducing new calves to the area.

Cattle Breed Differences

Cattle are classified in two species: *Bos taurus* and *Bos indicus*. Cattle in the United States are classified as British, Continental, *Bos indicus*, or American breeds.

British Breeds (*Bos Taurus*)

British beef cattle breeds were developed on the Isles of Britain. Common British beef cattle breeds are Angus, Hereford, and Shorthorn. British breeds tend to be early maturing when compared to Continental beef breeds. Historically, British breeds have been documented to reach market weight more quickly and produce lighter carcass weights. However, British breeds can exhibit superior marbling, which leads to an increase in product quality and ultimately higher value.

Continental Breeds (*Bos Taurus*)

Continental beef cattle breeds originated on the mainland of the European continent. These breeds are also referred to as exotic breeds and include Charolais, Chianina, Gelbvieh, Limousin, and Simmental among others. Continental beef breeds tend to grow faster with increased muscle mass and usually produce leaner carcasses with greater yield grades. Continental beef breeds yield more saleable product, but on average exhibit less marbling and thus yield carcasses with a lesser quality grade.

Bos Indicus and American Breeds

The Brahman breed is the most common *Bos indicus* cattle breed in the United States. The Brahman breed was developed using *Bos indicus* cattle breeds imported to the United States from India. *Bos indicus* carcasses exhibit a lesser degree of marbling and have smaller rib eye areas compared to other beef breeds. However, there is usually no negative impact on carcass quality in cattle that are no more than 50 percent *Bos indicus*. Extensive crossbreeding programs have used Brahman influence to develop synthetic cattle breeds, referred to as American breeds, such as Brangus, Braford, Simbrah, Santa Gertrudis, and Beefmaster.



Dairy Beef

Dairy production requires calving year-round to ensure consistent milk production. The process of raising dairy calves to be harvested is referred to as “dairy beef.” Dairy calves are fed milk replacer while being moved to a starter feed and are usually weaned at 5 to 6 weeks of age. Dairy calves can have greater maintenance energy requirements compared to the requirements of beef breeds. Dairy calves do require an increased amount of feed and days on feed to reach a market-finished weight. However, purebred dairy calves express a great degree of marbling but produce a small rib eye.

Crossbreeding Strategies

The goal of crossbreeding is to combine complementary characteristics from different breeds into one animal. Crossbreeding also results in increased hybrid vigor, also known as heterosis. Bulls from a given continental breed are often used in terminal crossbreeding programs. The calf resulting from a terminal cross is intended to be fed and harvested as opposed to being kept as a replacement female or herd sire. This cross results in calves that grow faster with increased yield grades while maintaining adequate carcass quality. Bos indicus–influenced cattle exhibit greater heat tolerance and insect resistance compared to Bos taurus breeds. Today’s dairy industry relies on “sexed and sorted”

semen and has been incorporating beef bulls to produce male calves. Beef bulls with lightweight birth weight expected progeny differences (EPDs) are being used at a greater rate because the male calves will ultimately end up in the beef supply chain. Crossbred dairy calves can grow more efficiently than their purebred counterparts.

Harvest Considerations

Freezer beef production relies on a strong relationship with a local processing facility. Local processing facilities have limited capacity, and appointments should be booked several months in advance. It is important to identify the desired finishing weight and then feed accordingly. Monitor average daily gain to ensure that animals are achieving that target weight. For example, an 800-pound calf that gains 3.5 pounds per day could be ready to harvest after feeding between 86 and 143 days. Communicate with your selected processor to determine the optimal delivery time for your animal. Reduce feed and forage intake of your animal up to 12 hours before arrival at the harvest facility. This modification in the feeding regime before harvest will aid in reducing animal shrink and minimize food safety risks from excessive rumen contents.



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