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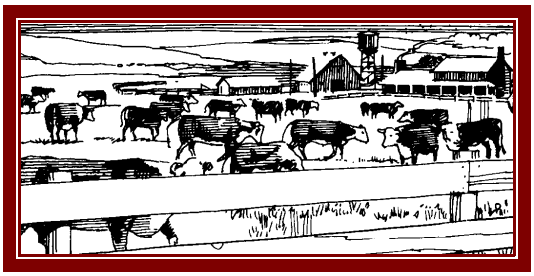

Selecting for Carcass Merit

Norris J. Stenquist, Animal Science Specialist

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Today's consumers are asking for leaner, less-fatty beef. Much of the leaner beef now produced results from trimming excess fat before the product is sent to the consumer. For the future, the hope is to trim excess fat genetically by producing leaner, more heavily muscled beef cattle.

The current beef grading system may contribute to the production of slaughter cattle that are carrying excess fat, or condition. Quality grade is still important economically because the price spread between choice and select carcasses can be quite wide under certain conditions. The value of an animal, whether it grades choice or select, depends on the degree of marbling.

From the standpoint of carcass quality, producers are especially interested in the potential to reduce waste fat and at the same time maintain or improve the carcass marbling to at least a low choice grade.

Dr. Jim Brinks of Colorado State University estimates that the heritability for fat thickness, fat trim, and marbling averages 40–45 percent. He estimates that the genetic relationship between fat thickness and marbling is fairly low, about 15 percent. Given this low genetic relationship, the opportunity exists to lower fat thickness while maintaining or improving marbling.

Another factor to consider in carcass merit is weight. Today's market is served by carcasses weighing 550–950 pounds. However, there is a trend toward carcasses weighing 600–800 pounds, with an ideal weight of 650–750 pounds. Carcasses in this weight range will produce the greatest yield of closely trimmed retail cuts and will be the least costly to produce for both the feedlot operator and the packer.

Another consideration in carcass merit is cutability. Yield grades 1, 2, and 3 are acceptable from a production standpoint. But grades 4 and 5 are not acceptable, are costly to produce, and represent carcasses from cattle that are highly undesirable. Trends indicate increased demand for carcass yields grading 1 and 2 and reduced demand for grades 3 to 3.3–3.5.

The demand for leaner, heavier-muscled cattle to fill grade, cutability and thickness requirements is growing, and the feeder and packer are both looking for this type of animal.

Cow-calf operators must produce cattle that meet the standards for carcass merit. They must also consider other factors, including matching cow size, milk level, and fertility to available ranch resources. These producers must also produce an environmentally adapted cow, moderate in size and milking ability and excelling in reproduction—weaning a calf each year. The cost of maintaining the cow must also be kept low.

Given the above requirements, selecting sires for maternal (heifer replacement) versus terminal (slaughter cattle) needs may be quite different. Terminal sires should be able to produce

well muscled cattle that can make efficient gains in the feedlot. Their carcasses should have enough marbling to grade low choice with a maximum of 0.3–0.4 inches outside fat cover.

A big problem with some terminal sires is their ability to produce the desired grades without producing excessively large carcasses. The maternal breeds that make up our cow herds have more marbling ability than our terminal breeds. This quality needs to be identified and selected for in our breeding programs. Muscling and other desirable carcass characteristics can also be improved along with reproductive efficiency.

Slaughter cattle produced by both terminal and maternal sires from our existing cow herds can be selected to fit today's market specifications. We will need to collect enough data to identify sires, both maternal and terminal, that are producing desirable carcasses. Once these sires are identified, Expected Progeny Differences (EDPs) for carcass merit can be developed, and carcass quality should improve rapidly. Genetic improvement is a low-cost, permanent method of meeting the goals of carcass merit.

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