

Balancing act

Are producers placing too much emphasis on selection for carcass merit?

Drovers' Beef Quality Connection

By Troy Smith

The debate continues over whether too many cow-calf producers are placing too much emphasis on genetic selection for carcass merit. Certainly more producers are paying attention to carcass traits, hoping to take advantage of grid marketing programs that reward desirable end-product characteristics. Market analysts say nearly 50 percent of fed cattle are now sold through value-based pricing arrangements. Some observers predict the count could increase to 80 percent, by the end of the decade.

In their quest for carcass premiums, are some producers neglecting other economically important traits? Reproduction and efficient, early growth are factors that have the greatest collective impact on profitability in cow-calf herds. Those come first and the hanging of a desirable carcass is the last thing an animal has to do.

Reproduction has long been considered the most economically important consideration. Twenty five years ago, many industry experts agreed that reproduction was ten times more important than growth, and growth was twice as important as carcass merit. However, Michigan State University Animal Scientist Harlan Ritchie says more recent analyses suggest the relative economic value (REV) of these three trait categories has changed.

For producers marketing calves at weaning time, the REV ratio may be 2:1:1, while the three categories may be of nearly equal importance to producers that retain ownership of their calves and market fed cattle on a grid. According to Ritchie, the recent estimates suggest that increased selection emphasis on carcass merit can be justified today, compared to previous decades.

Unchanged is the fact that extreme selection for certain traits may have an antagonistic effect on other important traits. For example, long-term selection for retail product yield can have negative effects such as increased calving difficulty, delayed sexual maturity, reduced fertility, and increased mature weight. Research has also shown how intense selection for marbling may be correlated with increased external carcass fat and decreased percent retail product. Intense selection for more muscling and less external fat can have a negative impact on marbling, while increasing rib eye area beyond industry specifications.

Applying heavy selection pressure for one or a few traits, while neglecting others, won't work. According to Ritchie, genetic selection is a balancing act, where producers must meet the demands of their production environment and the marketplace.

Kansas seedstock breeder Mark Gardiner agrees, but he believes the process of genetic selection is easier today than any time in history. The reason is because producers have better tools, in the form of expected progeny difference (EPD) values.

“Yes, there are antagonistic traits,” says Gardiner. “In general, higher growth cattle tend to have larger birth weights and a larger mature size because of the positive correlation among growth traits. However, when cattle that defied these correlations were identified, it became possible (using EPDs) to select them and to change the population.

Producers are paid by the pound, adds Gardiner, so the goal is to produce pounds in the correct package. It is possible to select against birth weight and large mature size, while selecting for rapid, efficient growth. And Gardner sees no reason that producers can’t select for carcass merit as well as growth and reproductive performance.

Scientific evidence shows minimal correlation between marbling and percent retail product, so selection for both quality and red meat yield can be made simultaneously. And selection pressure for carcass merit can be applied without jeopardizing fertility or fleshing ability of females, states Gardiner.

He reminds producers that reproduction remains the number one performance trait, but fertility is of low heritability. Environmental differences between neighboring operations may affect cow herd fertility more than differences in genetics. Therefore, Gardiner places heavy emphasis on fertility as a threshold trait. In other words, he advises elimination of cows that do not fit the environment and are unable to conceive within a restricted breeding season.

Gardiner sees no reason that producers cannot make genetic improvement in growth and carcass merit, while maintaining a good fit with the environment. The key is to keep selection for all economically important traits in balance. Single trait selection never works, he says. Over time, balanced trait selection always works.

“We have the tools to do what we want. There is no excuse not to design cattle that do it all,” states Gardiner. “And I don’t think we can emphasize carcass traits too much, as long as they aren’t the only traits we emphasize.”