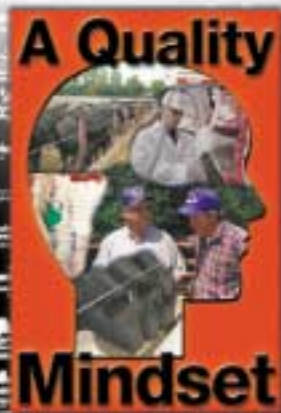


Don't Jump the Track

At the Kansas State University-sponsored Cattlemen's Seedstock Conference earlier this year, cattlemen and educators pondered profit-producing techniques for genetic selection. Will efforts to marry production and marketing guide the beef production train along the main line to success or derail it before it reaches the destination?

BY TROY SMITH



producers to practice multiple-trait selection for a balance of the three types of genetic traits. Under a value-based marketing system, he reminds producers, growth and carcass merit probably are of equal importance, while reproductive traits are twice as important as either one.

University of Missouri professor and beef geneticist William Herring echoes Marston's praise for EPDs as selection tools, as well as the warning against misuse. Despite their application to improved selection for individual traits, however, Herring says the question still plaguing producers is, "Which bull will produce the most profit for my operation?"

"Genetic trends show that selection has centered primarily on growth," Herring says. "That can lead to a correlated response in mature cow size and reproductive inefficiencies. That's not profitable. So there have been efforts to devise a trait selection index — an EPD involving multiple traits that are weighted according to their economic importance to specific production systems."

Weigh the EPDs

Herring says the focus of the Angus Sire Alliance was to develop a terminal-sire selection index, or profitability EPD, based on weaning and postweaning weights, feed consumption, and carcass characteristics. Over three years, the progeny of 89 sires were produced and sold in a progressive management and marketing system. The results showed a progeny profitability index range of \$42.29. Therefore, if the highest- and lowest-ranking bulls were used in a production system similar to that of the test, a difference in profitability of \$42.29/calf could be expected.

Selection index values might seem to offer a reasonable solution to the dilemma of selection for profit. However, Herring points to some serious shortcomings.

"It's not a perfect approach,

On the beef production train, the cowman handles the throttle. He tries to fuel his engine with the right mix of production traits, seeking fertility, calf survivability and growth, while gauging cow maintenance costs. Traditionally, he concerned himself with reproduction first, then growth. But during recent years, the biggest thing to roll down the track has been carcass traits.

"The cow-calf man is the engineer of the beef train, and his checklist is growing," says Twig Marston, Kansas State University (K-State) Extension beef specialist. "Besides

reproduction and growth, he has to deliver a product with acceptable marbling, percent of retail yield and carcass weight. And now there's a lot of talk about selecting for tenderness. There has been more discussion about tenderness in the last five years than during all of the last century.

"All of these traits are significant. Marbling is considered to be an indicator of quality. Beef carcasses are sorted for heavy and light and channeled toward matching markets. Retail yield hasn't received as much attention, but without product, there is no

reward. You have to produce pounds of red meat," Marston adds. "And you have to do it within your environment. Some people may be in a position to change it, but many are not. So, in general, genetics still have to fit the environment."

Marston cites the worth of expected progeny difference (EPD) values, including carcass EPDs, as a trestle for genetic change. However, misuse of EPDs can derail a locomotive driven by single-trait selection.

"Relationships between traits exist, and you can't select for one without influencing the others," offers Marston, urging

for just as with the EPDs you're familiar with, selection index values do not predict phenotype. Nor does a high index guarantee profit. The outcome is very dependent on management, climate and marketing system. Producers selling calves at weaning would weight traits differently than producers who retain ownership," he says.

"And while the signals for a terminal system might seem fairly clear — calves born alive, fast growth, and quick harvest of Choice, Yield Grade (YG) 2 carcasses, for a maternal or dual system, you have to add in consideration for reproduction, calving ease, milk and cow maintenance. That last one represents the largest share of the ranch budget. When you focus on females and make a mistake through genetic selection, you're going to live with it for a while," Herring warns.

"To develop an index, you have to estimate each trait's

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impact on profit. You see how much the relative economic importance of selectable traits can vary between production systems. Since relatively little is known about genetic relationships that exist among female reproductive traits, maintenance and lactation, it's difficult to develop such a tool for maternal systems."

Three-way balancing act

Can selection to increase carcass acceptability be compatible with efforts to maintain or increase cow adaptability? Jim Gosey is adamant about the need for a good fit between the cow herd and its resource base. The University of Nebraska Extension beef specialist also recognizes that herd progeny

must deliver a desirable product. The challenge is keeping those goals coupled while pulling the steep grade.

"We're going to have to accept that we may not get everything we want in one package, but I think we can come pretty close. Given time, effort and commitment, a producer can develop a plan to produce, not a perfect fit, but a profitable compromise between cow goals and carcass goals," Gosey says.

A producer can practice balanced trait selection through an index that deals with trait antagonisms. While antagonisms do exist, progress in multiple traits is possible through balanced selection. Granted, practical economic weights for each trait can be difficult to establish. But, Gosey

says, the way a producer markets cattle will determine how traits are weighted for a balance suited to that producer's operation.

Historically, he says, lack of a comprehensive identification (ID) and data collection system for carcass traits has obstructed the track leading to balance with production traits.

"There's no economic recipe that fits every operation and every marketing system, but to optimize the important reproduction and production traits while balancing them against carcass traits, several tools will be required," Gosey says. "We need an extensive database for all economic traits. We also need the correlation and economic weightings to construct selection indices for differing carcass goals. And some will need the discipline to use breed differences to avoid trait antagonisms. The key will be to strike compromise between reproduction, production and product."

