Unlocking The Data Stronghold

Icing on the Cake

Balanced-trait selection can be sweet for the industry.

BY BARB BAYLOR ANDERSON

Any way you slice it, proper trait selection offers the beef industry the chance to taste profitability. But when that selection goes to extremes or singles out one trait, breeders may risk the well-being of their cow herd and carcass quality.

Market watchers say the key is to take a balanced approach to growth-, maternal- and carcass-trait selection that both meets the needs of the individual breeding program and gives customers a piece of the final product they desire. And it's getting easier.

"With the American Angus Association's sire-evaluation database — which is one of the best-kept secrets of the industry — we can select bulls to make changes in carcass traits and choose the other traits we want to see in our cows," says Mark Gardiner, Gardiner Angus Ranch, Ashland, Kan. "We can have our cake and eat it, too."

With such information at the disposal of Angus and commercial cow breeders, Gardiner questions why anyone would not use the database to review expected progeny differences (EPDs) and to find bulls with characteristics that meet their specific operations' and their customers' goals.

"We select bulls against birth weight and mature size and then select as much growth as possible with an emphasis on the maternal and carcass packages. Single-trait selection can lead to problems," Gardiner says. "I can do all of those things today. I couldn't 10 years ago."

In 1988 no bulls would have met Gardiner's "job description." By 1993 there were two or three bulls that may have met that need. Now, with the sire summary and a greater population of bulls from which to choose, Gardiner can select one from 300-400 bulls with the right package.

PHOTOS BY ANGIE STUMP DENTON

"Bottom line, if you use the wrong bull when selecting for a single trait, the effects on your cow herd can cause a lot of problems," says Robert Sand, University of Florida animal scientist.

"We have more information available today than even five years ago," confirms Bill Rishel, Rishel Angus, North Platte, Neb. "The database is big enough today that you can look for the traits you need most in your operation."

The right ingredients

But how do you determine what you need in a bull so you can both improve your cow herd and hang a better product on the rail?

"Selecting for a single trait is never a good idea," Rishel says. "We believe that when selecting for carcass merit, you must never lose sight of fundamentally sound cattle that first excel in reproduction and fertility.

"We seek to identify outstanding carcass-trait sires with moderate birth and acceptable yearling EPDs, positive scrotal circumference (SC), and maternal value. You have to have balanced bulls."

Rishel is concerned enthusiasm for single-trait growth selection is beginning to raise long-term quality issues for the industry.

"Choosing 'spread bulls' with extremes of both low birth and high yearling weights is not necessarily a desirable route to take. Spread bulls have been promoted because they can create revenue," he says.

"To some degree we think the spread syndrome — when emphasized to the detriment of other fundamental traits — is similar to single-trait selection," Rishel says. "Our carcass work demonstrates that 60- to 70-pound yearling EPD sires are very capable of producing finished steers at 1,250 to 1,300 pounds or at 14 to 15 months of age. If these so-called spread bulls bring along excess baggage, like increased mature size, we are not creating a better economic package."

Others echo concerns about selection for just high growth and the effect on maternal and reproductive traits, and they emphasize breeders can use other ways to get reproductive

efficiency and growth and still have a profitable carcass.

Trait-selection research performed by Dennis Banks, animal science professor, Michigan State University (MSU), East Lansing, Mich., and other specialists indicates that such balance can be achieved.

Over a four-year period, the MSU researchers studied the influence of selection for growth vs. milking ability in commercial cows using maternal Angus sires with low birth weight and high milk with one group of cows, and growth Angus sires with high yearling weight and high ribeye area (REA) on the others.

The researchers found calves sired by growth bulls overall were heavier at birth and weaning and larger framed than those sired by maternal bulls, but there were no differences in calving difficulty. Heifers sired by growth bulls had greater yearling weights, frame scores and pelvic areas than those sired by maternal bulls.

Steers sired by growth bulls had greater average daily gains (ADGs), final slaughter weights, frame scores, carcass weights and REAs than those sired by maternal bulls. At 13 months old, 80% of the maternal steers slaughtered graded Choice, and 88% of the growth group graded Choice.

Banks and his colleagues concluded that, in general, using sires with high-accuracy EPDs is the best way to select for specific traits and can be used to come up with a complete traits package for commercial herds.

"When breeders select for specific traits, our research shows they will get the expected difference in the average EPDs of sire groups," he says. "Our work confirmed increases in overall growth and performance and little detriment to grading Choice.

"But as an industry, we need to back up and look for balance. Just as when the pork industry in breeding for lean traits ran into meat-quality problems and reproduction issues, the same could happen with the beef industry. A more balanced approach is worth looking into and would be profitable for the industry in the long run."

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Taste, appeal

While maternal and growth traits are important factors to consider for the cow herd, Gardiner notes feed efficiency is important to both breeders and customers purchasing calves. Over the last 30 years, Gardiner says, research demonstrates that selecting for yearling weight may be one of the best ways to select for feed efficiency.

"Feed efficiency is hard to measure, but it is crucial," he says. The Gardiners have gone from 2.7 pounds (lb.) ADG with a feed conversion of 7.75-to-1 30 years ago to 5.37 lb. ADG with a 4.31-to-1 feed conversion today. "We've had nearly a 100% increase in ADG with 60% less feed. That means we can better compete with pork and chicken."

Taste and consumer appeal serve up another issue that must enter the balanced-trait-selection equation. Industry sources say marbling scores, REA, fat thickness (FT) and percent retail product are important for bull selection, too.

Consider the single-trait sire-selection work based on marbling EPDs performed at the University of Florida. In the study, sires with EPDs for production traits similar to the 1989 Angus calf crop average were selected for the control. Treatment sires were selected from the Angus sire summary for marbling.

University of Florida Animal Science Professor Bob Sand says production data revealed significant year, sex and calf-age effects for weaning weight and hip height when only Angus calves were evaluated.

Sand subsequently examined the 142 Angus steers born over a seven-year period to determine the effect of single-trait selection for marbling on carcass characteristics. He found the marbling score and REA increased in the steers when compared to control animals sired by bulls similar to the Angus calf crop for all production traits.

"Bottom line, if you use the wrong bull when selecting for a single trait, the effects on your cow herd can cause a lot of problems. We used a lot of different and good Angus bulls, so we didn't have problems. But selecting for a single trait is not the best approach," he says. "I do not think that we are obsessed with selecting for marbling, but we do need to strive for a balanced approach."

Rishel agrees that choosing for marbling alone is not the way to go.

"Most traits have some genetic antagonisms. If you look at the sire summary, many high-marbling sires are negative ribeye sires and vice versa," he says. "The best thing we can do is to find sires that defy such antagonisms and use them.

"The extent to which you select for marbling EPDs should depend on both your cow herd's needs and your customer's needs. If you select for percent retail product value, and the key word is *value,* then in essence you are selecting for muscle and marbling at the same time. This can be accomplished by using the sires that defy the genetic antagonisms and are positive for both marbling and muscle."

Gardiner agrees that selecting the right carcass-trait combination will cultivate cattle that the industry wants and the final product consumers demand.

"With Angus cattle, marbling usually isn't a problem. The percent retail product is most important," he says. "If breeders focus on the retail product EPD, which is composed of carcass weight, backfat and ribeye, they can help combat the general industry criticism that Angus don't yield (dressing percent) well."

Producers who market with value grids can benefit from such advice, adds Rishel. "If customers sell cattle on value-added grids, the amount added to the price of cash cattle at harvest time can be substantial.

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We've seen premiums as high as $100 to $200 per head with one customer averaging $77 per head, net premium on 112 steers," he says. "The goal is to stay away from discounts and have uniform carcass weight, yield and quality grades that meet the demands of the industry."

Recipe traits

Use of new technology in the future may allow the industry to better and more easily meet specific customer needs, as well as help Angus and commercial breeders drive balanced trait selection forward quickly in the sires they select.

"With ultrasound available now, that population of balanced bulls is just going to explode," Gardiner says. "It is becoming easier to find above-average carcass data. You can find the package you want in the sire summary and then look under the hood without killing a potential sire."

Gardiner predicts that within five years ultrasound will allow the industry to approach a cattle population that grades 40%-50% Prime.

"The population is moving quickly," he says. "We can sample cattle with ultrasound and increase the percentage of artificial insemination (AI) to the point where we can pinpoint the traits we want."

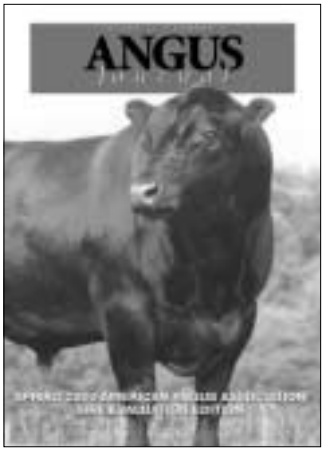
Those traits will have to include maternal, growth and carcass traits for Angus and commercial cattle to be profitable in the future, Gardiner says, including bulls with EPDs for low birth (less than 2-3 lb.) and high yearling (more than 70 lb.) weights and a positive scrotal circumference (SC).

"Without EPDs, this industry would not be able to survive," Gardiner says. "EPDs allow us to fit with what we want to do. As a breed, low-birth, high-growth and moderate-frame cattle are going to explode in numbers."

"It's tough to make changes in trait selection, particularly if you make the wrong changes by following fads. You can get into trouble," Sand adds. "For example, if you make extreme changes in birth weight, you won't make a profit from a dead calf or cow."

Ultimately, Gardiner expects the Certified Angus Beef (CAB) Program will help drive demand for balanced bulls.

"For CAB, we can use the technology and the database to breed cattle that will outgrow the trait leaders of 10 years ago and provide better maternal and moderate-frame cattle that excel on carcass traits," he says. "If you get the pounds in the right package, you can have it all."



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