Adding Meat to Carcass EPDs

Association Structured Sire Evaluation program aims to improve carcass data in database.

*Story & photo by **Kasey Brown,** senior associate editor*

By sheer nature of the cattle industry structure, some of the most important data — carcass data — are some of the most difficult pieces of information to collect. For the past 20 years, there has been a large emphasis on collecting ultrasound data to predict carcass traits. Dan Moser, president of Angus Genetics Inc. (AGI) and director of American Angus Association performance programs, says ultrasound is a very powerful tool for breeding animals because it is highly accurate; but it is not perfect. In terms of a genetic correlation, the closer the number is to 1, the stronger the correlation. Ultrasound data correlates to carcass data at 0.70 to 0.80.

Kelli Retallick, AGI director of genetic service, explains that carcass data are more closely related to the economically relevant traits (ERTs) affecting carcass profitability, whereas ultrasound data are indicator traits to explain carcass data points. ERTs are traits that directly affect profitability by being associated with cost or the income stream. Indicator traits have a genetic correlation to ERTs and can be used in analyses to increase the accuracy of ERT expected progeny differences (EPDs).

Adding strength

Some breeders are great at submitting carcass data, Moser grants, but the amount of carcass data is still lacking. He says there are 1.78 million ultrasound records submitted to the Association database because those are easier to gather. However, there are only about 110,000 carcass data records in the database, he adds.

"We don't want the ultrasound data to overwhelm carcass data," he says, "especially since many of our breeders sell their cattle on the quality grid."

Getting carcass data is certainly a worthwhile endeavor, Moser adds, especially for the most heavily used bulls in the breed so as to strengthen the database. This notion sparked the (re)creation of the American Angus Association Structured Sire Evaluation program.

The evaluation program is not a young-sire testing program. Moser says it doesn't really do much in terms of marketing advantages for the bulls tested, but it does add strength to the Angus database as a whole, which is why the Association thought it was an important investment.

Dan Moser

"Carcass data is expensive and hard to get back into the database, so as a service to its membership, the Association is taking charge on getting good carcass data on widely used animals to get a clear view on high-performing pedigrees," Retallick says. "In any pedigrees, good data reporting helps to make more accurate predictions."

Eligible bulls are those in the top 200 in terms of number of progeny registered. Retallick explains that these bulls are chosen because they appear in many pedigrees and this helps from a genetic standpoint to train predictions to a greater specificity by tying more animals to the training population.

The first calves will be born this fall, and the first carcass data will be reported in 2018. Some of the bulls being tested have carcass progeny data already; these are called reference sires. Some of the younger bulls have a lot of ultrasound data already, but the carcass data from their progeny will increase the accuracy of their EPDs.

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The test works by breeding these bulls in random contemporary groups in commercial cooperator herds. For the sake of the test, these herds need to be large, ranging from 250 to 600 females, and have experience using artificial insemination (AI). This allows for each bull used to have progeny in contemporary groups of about 15 to 20 to gather a sufficient amount of data. They must retain ownership of calves and submit the carcass data to the Association.

Cooperator herds benefit from getting to pick the bulls used in their herd, access to free or low-cost semen, and compensation once carcass data records are submitted.

For now, the test is not a breeder-nominated bull program, but Moser says that as it grows, the Association hopes to invite breeders to nominate bulls for progeny testing if the opportunity arises. The Association does encourage breeder submission of carcass data.

Evaluation in action

Greg Marlay, ranch foreman of Square B Ranch and Cattle Co. in Warsaw, Mo., says they became a cooperator herd because they used AI extensively in their registered and commercial herd and were already collecting extensive data. They were pleased that the Association had similar interests and thought it was a natural fit to join the evaluation program. Marlay noted simply, "We thought we'd learn something."

He explains they were given a fairly large list of available bulls, some of which they have used in the past. They chose 11 sires — three reference sires and eight younger sires.

The cows are set to calve in early September. Marlay says he is excited for calving season this year, and they changed their tagging system to keep the different sire groups straight. Square B uses AI extensively already, including estrus-synchronization protocols.

He explains they used a sequence of bulls to randomly breed the 460 females as they came through the chute. This way, all 11 sires were bred throughout the herd and each will have a contemporary group of progeny of about 30-40 calves.

Participating wasn't a huge change from normal for Square B, Marlay admits. "The biggest switch we made this year was that we don't normally use this many sires. Retaining ownership is something we've done and will continue to do."

The first Association sire evaluation

This structured sire evaluation program is not the first testing program managed by the Association, though it does have a different focus than its predecessor. The first evaluation program was specifically designed to develop growth-trait EPDs.

In 1972, the American Angus Association adopted a National Sire Evaluation Program, created to compare sires for performance and carcass traits through a progeny-testing program, which randomly mated superior sires to commercial or registered-Angus cows. The progeny records resulted in the first Angus *Sire Evaluation Report,* says Moser.

The "Group 1 Report," released in the fall of 1974, included information (and photos) on only 23 bulls, three of which were deceased at the time of printing, explains Retallick. She adds that the acronym EPD was actually never printed because few breeders at the time would have recognized what it meant.

The test formed the foundation of the Angus performance records database. However, Moser notes that the Association realized that growth-trait predictions could work with producer-submitted data, due to advancements in genetic data analysis and extensive use of AI. By 1980, the first-ever *Sire Evaluation Report* was published using all member-submitted Angus Herd Improvement Records (AHIR®) data in addition to data from designed matings.

The technology of live-animal ultrasound soon followed, and by the 1990s most Angus bulls had EPDs for carcass traits. These EPDs were calculated from their own ultrasound measurements and scans from progeny and other relatives.

Now the structured sire evaluation program has come full circle, not to create EPDs this time, but to enhance the validity of those that make a difference to Angus breeders' bottom lines.

Kelli Retallick

Not competition

The American Angus Association's structured sire evaluation program is not in competition with sire-testing programs by artificial insemination (AI) companies. Both types of tests add value to genetic predictions and add more certainty to selection decisions.

Brian House, beef program manager for Select Sires, explains that their young-sire program collects data on their up-and-coming young bulls by breeding them in herds across the country and testing them against proven reference sires.

"In the AI world, this testing program sets the tone for the bull's career, and it helps us find out early if he's going to make it or not," he explains.

Data from the testing program are sent to the appropriate breed associations, which, in turn, strengthen their respective genetic databases. House notes that birth weight, weaning weight and yearling weight data are collected and submitted. Some herds collect additional measurements, including calving ease, carcass data, hip height and even feed efficiency. Plus, he says they get maternal data from registered cow herds, too.

The young-sire testing program benefits breed associations, House says, because they sample bulls in many different environments across the country. The data are less biased by environment, though admittedly, management does play a part.

"All of these tests are beneficial to the membership because they tie everything together. You can't put a dollar sign on it; you can't put a score on it. With any structured evaluation that connects proven bulls to the younger bulls in the population that are going to get used heavily, everybody benefits," House asserts.

The types of tests differ in that young-sire testing programs are trying to gain accuracy on young sires as quickly as possible for marketing purposes and for the benefit of their customers. The Association's sire evaluation program is testing bulls already heavily in use to simply strengthen the database.