



By the Numbers

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Carcass data collection

The American Angus Association has routinely collected both ultrasound scans and carcass data to be used in the Association's genetic evaluation to predict expected progeny differences (EPDs). Historically, ultrasound scans and carcass data were used to predict two separate sets of EPDs — ultrasound EPDs and carcass EPDs. As ultrasound technology advanced and more data were collected and analyzed, it was found combining ultrasound records with carcass data provided improved prediction accuracy of selection tools as well as eliminated breeder confusion created by separate evaluations. As a result, in the 2008 Fall Sire Evaluation Report, the Association reported only one set of carcass EPDs, which combined all sources of information.

Present

Currently, the Association's database is home to more than 1.8 million ultrasound scan records and more than 112,000 carcass records used in the weekly evaluation. Ultrasound scans are indicator traits that aim to explain the economically relevant carcass traits. Because these two measures are moderately correlated, both can be utilized to predict carcass EPDs.

Using the rule of thumb stated by Roberson in 1959, genetic correlations ≥ 0.80 between two different measurements indicate alternative measures of the same trait. In this case, the correlation between ultrasound and carcass measures range from 0.60 to 0.70, therefore ultrasound scans help explain carcass merit but, unfortunately, do not explain the entire picture. This is why 10-15 carcass records on a sire's progeny in correct contemporary groups with other proven carcass sires can add as much accuracy to EPDs as hundreds of ultrasound scans.

Although it is important to continue to scan progeny to add accuracy to their individual EPDs, the investment in carcass data collection can pay dividends when trying to prove a sire for carcass merit, as well as to increase the amount of data used to train genomic populations.

Proving sires

Producers and artificial insemination (AI) companies routinely set up young sire progeny tests to do just that. The first step in creating a progeny test for carcass collection is to identify a source of females to use. Producers wanting to evaluate young sires for carcass traits can work with a herd of registered Angus, commercial Angus or crossbred commercial females.

The most successful progeny tests involve herds that already have good reproduction and nutritional management. It is helpful if test herds have experience with AI protocols. This allows for easier set-up and execution of these types of tests.

Although only two calves of the same sex in a single contemporary group, harvested on the same day with two different sires represented are needed for information to enter into the Association's carcass evaluation, larger amounts of data add more prediction accuracy.

The Association recommends breeders aim to collect at least 15 steer carcass records each on at least two different sires in the testing group. This means identifying a herd of roughly 120 cows assuming 50% of the herd settles AI (60 cows); half of the cows are bred to the reference sire and half to the test sire (30 each); and, of those progeny, 50% are assumed to be heifers (results in 15 steer mates).

The second step is to choose reference sires. A reference sire should have a minimum accuracy of at least 0.60 on all carcass trait EPDs. Using a reference sire serves as a link between the new carcass data and the Association's existing database. Females should be randomly mated to both the young test sires and proven reference sires. This avoids creating bias in carcass results by unfairly mating the test sires to all the high-performing cows.

Once progeny arrive, certain data points must be collected preharvest in order for the information to flow into the system. Preharvest data include dam registration or dam ID (if using commercial females), sire registration number, calf ID, birth date and sex, and weaning weights collected between

120 and 280 days of age. If using commercial females, a dam birth date and herd ID is required. Other optional data may include calving ease scores, birth or yearling weights and a DNA sample.

Samples can be collected using hair, blood or a tissue sampling unit (TSU) labelled with the animal's individual ID and sent into the office. This sample can be used by the breeder to verify parentage of calves who are not readily sire-identified. These DNA samples could also be useful for future validation of genomic predictions. If you have questions or are interested in collecting a DNA sample on carcass progeny, please contact an AGI team member.

Required harvest information includes harvest date; hot carcass weight; marbling score; 12th-rib fat thickness; percent kidney, pelvic and heart fat (if available); and length of chill. This data can be submitted through AAA Login or an offline Excel spreadsheet. It is important to include preharvest growth data if it has not been previously turned in.

In conclusion

After data submission, producers will receive carcass data summaries providing within-herd ratios and adjusted carcass measures. The data will also then be included in the Association's weekly genetic evaluation. Remember, progeny must be sire-identified; however, it is not mandated these progeny must be out of registered Angus cows. In fact, if you are currently working with a commercial customer who retains ownership and receives individual carcass data, the Association will accept these data. The data will be properly vetted to make sure animals have the needed information to enter the genetic evaluation. The Association's weekly genetic evaluation is built to be able to handle data even if the dam's pedigree is unknown.

Together the Association and its members will continue to grow the Angus breed's market share in the industry. It is important members continue to invest in ultrasound and carcass data reporting to meet the needs of the commercial cow-calf, feeder and packing segments of the industry. For more information on carcass data recording, visit <http://www.angus.org/Performance/AHIR/PerfSireEvalGuidelines.aspx> or feel free to contact any member of the Performance Programs department.

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