

# Angus breeders explore the possibilities of Genomic-enhanced EPDs

by Tina L. LaVallee

This fall a group of American Angus breeders gathered at the North Carolina Angus Field Day to hear the latest innovation in herd data collection. David Gazda, American Angus Association Regional Representative, was on hand to discuss the genomic-enhanced EPD and its importance to every breeder.

“Which bull will do the most for my herd? Which heifers do I need to keep? Questions like these have been on the minds of cattlemen since the bovine was first domesticated and remain crucial to the success of any herd,” Gazda explained. Breeders have long sought ways to simplify these answers through record keeping, though the results can still leave something to be desired. The American Angus Association has long recognized the importance of gathering and organizing information on large numbers of cattle to form a database that could be used for overall breed improvement. The result has been the largest and most complete collection of performance information available for any breed of cattle. Now the American Angus Association has teamed with IGENITY to move the Angus breed into the next level of data collection.

EPDs, or Expected Progeny Differences, are a set of numbers representing various traits, including birth weight, weaning weight, maternal milk, marbling and rib eye size, to name a few. These figures are devised from data submitted by American Angus Association members on what they gather from individuals in their herd. The information forms a numerical profile that follows the registered Angus throughout its life, with updates according to new data submissions or submissions from progeny. The result of this effort has been a relatively accurate record of expected performance that can be used as a tool in breeding selection. True accuracy, however has remained elusive, especially on animals less than one year old. The addition of genetic testing for these same performance traits has the potential to open new doors in seedstock selection. As expected, there were many questions about this technological leap and its relevance to the average Angus breeder. Mr. Gazda began by giving a brief background of the IGENITY Profile for Angus, which has been available to Angus breeders for a little more than one year. The Angus breeder submits the DNA sample from the selected animal, which then undergoes a High Density Whole Genome Scan with 50,000 genetic markers. Information from the scan is used to create a genetic profile consistent with the current data base for Angus EPDs. The genetic profile results are tabulated along with data submitted by the breeder to the American Angus Association and ultrasound data collected from the animal. The resulting EPD, called a GE-EPD, reflects both the estimated values of a standard EPD as well as the presence of genetic markers for each identified trait.

At this time, there are 14 economically important traits, such as feed efficiency, marbling, tenderness and ribeye size, included in the list of genomic-enhanced EPDs and more will be added in the near future. “Carcass traits are the only ones available right now, but the genetic profile identifies more traits than are now expressed with EPDs,” Gazda explained. Data collected from each genetic profile is archived so that re-testing will not be necessary as EPD measures are created for additional traits.

Accuracy is the primary advantage of the GE-EPD. “All EPDs allow us to make comparisons between individual animals within the Angus breed,” Gazda said. “But accessing the potential of young, non-parent cattle is much more dependable with the genetic profile.” Without a genetic profile, the standard EPDs for an Angus calf with no ultrasound record are only averages of the sire and dam’s EPDs and have a default accuracy level of 0.05. When a genetic profile is added, the accuracy levels fall to 0.28 to 0.38 depending on the carcass trait .

Many of the breeders openly questioned the importance of genetic profiling in their personal operations. While it may be impractical to profile every animal in a herd, a GE-EPD can be a very useful tool in purchasing breeding stock and deciding which replacement heifers to retain. Angus Genetics Inc. reports that the increased accuracy of adding a genetic profile to a weanling bull is equivalent to adding about 16 progeny to its marbling EPD. This extra information on very young animals can help reduce risk and allow seedstock producers to make faster genetic progress. “The bottom line is that this is a new tool for the Angus breeder and each person will have to decide if it is beneficial to them,” said Gazda. “The most important thing is that it is available

today and is still developing.” At one time ultrasounding for carcass data was cutting edge, but now it is an expected measurement for most registered Angus seedstock. Genomic profiling is an industry breakthrough and its impact will gain importance as categories grow to include traits vital to all breeders.

For more information on genomic-enhanced EPDs, please contact the American Angus Association at [www.americanangusassociation.com](http://www.americanangusassociation.com)