MEMBERSHIP TIPS

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Angus Herd Improvement Records — Part 2

Last month we discussed various acronyms used by the American Angus Association, and this article will focus on further exploring the Angus Herd Improvement Records program.

The American Angus Association was chartered in 1883, and for nearly 80 years, breeders relied solely on visual appraisal for genetic advancement. Winners in the show ring were coveted, and their genetics were sought after by those wanting to improve their herds. However pressure from the bull buyers representing the commercial sector guided the need for a more scientific method of genetic selection.

Introduced at the National Angus Convention in 1957, the idea of accepting performance trait records measured and collected by breeders across the country set the stage for the Angus Herd Improvement Records (AHIR®) program. This platform allowed records to flow into this newly formed database, where numbers were crunched, calculations were performed and within-herd results were returned to the breeders.

Paradigm shifts

Many key elements in our storied past were necessary for the success of the AHIR program, such as adopting the use of unrestricted artificial insemination (AI) and the initiation of the National Angus Sire Evaluation program — both in the early 1970s. These key developments allowed comparisons to take place across herds representing various environments, establishing the foundation of today's expected progeny difference (EPD) evaluation.

Changes were taking place both inside the Association as well as on farms and ranches. Within the office the American Angus Association was simultaneously implementing new advanced computer systems to handle the flood of incoming data. In the field breeders were weighing calves at birth, weaning and yearling to measure key data points for desired information. Association employees were trained to "classify" visual traits to better describe those traits associated with type, size and structure. Although this "classifying" of Angus seedstock was short lived, it was an attempt to improve visual appraisal for genetic improvement with a more consistent protocol.

With the initiation of the *Certified Angus Beef* ® (*CAB* ®) program in the late 1970s, the collection of carcass-related traits was also gaining popularity. Actual harvest data was difficult and expensive to obtain. This led to the use of ultrasound technology as an indicator trait to evaluate carcass merit on live animals. This shift took place in the early 1990s, was an industry game-changer and eventually the ultrasound and carcass database were merged into one analysis improving accuracy and clarity surrounding end-product selection tools.

The most recent industry shift has been the incorporation of genomics into the evaluation. By utilizing an animal's DNA, genomic information is made available relating to genetic merit. This revolutionary practice began in 2009 and has added additional pieces to the prediction puzzle, providing clarity to the genetic picture and reducing risk to customers using Angus genetics.

EPDs

The need for a nationwide accurate comparison between animals representing different programs across the country served as the foundation for today's EPD system. I often remind producers EPD stands for "expected progeny difference," not "exact performance depiction." In other words an EPD is an estimation of how future progeny will perform. They are not meant to be a precise estimate of the individual animal, but a prediction of the average of the resulting group of offspring.

Remembering the bell-shaped curve from Population Genetics 101, most progeny will fall in the middle (high point of the curve) with outliers on either end. The EPD is designed to describe the center of the bell-shaped curve (Figure 1). When we consider the randomness of inheritance from sire and dam, some will be overperformers, some

Fig. 1: *Normal bell curve*
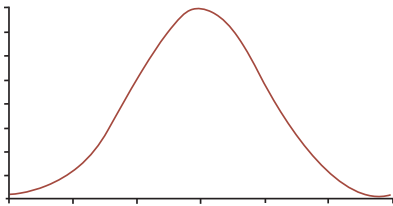
underperformers and most will fall somewhere in between. With the rules of biology, we always get the bell-shaped curve for any trait of interest. EPDs help us move the curve left or right, depending on the desired outcome. It's important to remember EPDs cannot change the variation within a trait (shape of the curve), only the direction and predictability.

Bank account

Imagine our Angus database as a bank and the phenotypes collected by breeders as currency. As you submit trait records to the AHIR program, you build your account. Adding genomic information from DNA samples submitted for analysis further adds to your account. However, if you submit genomic information without corresponding trait records, it resembles using your credit card without adding money into your account. Eventually, it will have less value.

Collecting and submitting data to the AHIR program is an investment, not an expense. Performance records don't cost you money, they make you money. Keep sending in those valuable trait records.

Data is power

Collection of phenotypic records has never been more important as this information is the currency for our EPD system. The practice of utilizing visual appraisal in conjunction with weights, measurements and genomic information continues to be a valuable combination of selecting the next generation of Angus seedstock. **AJ**

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Editor's note: For more information regarding the AHIR program, contact the Member Services Department or email me directly at jcassady@angus.org.