

Single-Step EPDs: Sounding Like a Broken Record

With new technology comes a learning curve, and if you are a student like me, repetition is necessary to grasp the major concepts. Since there are some new changes with the transition to the single-step multi-breed genetic evaluation, we will discuss some of those a little further to drive home the significance.

With the move to the new single-step genetic evaluation, it has been noted the accuracy values you will see in the registry will be lower than values from the previous EPD runs. That certainly sounds confusing, but there is a method to the madness. When EPD calculations first began, there simply wasn't enough computer power available to do the tabulations necessary to come up with the true accuracy of an EPD. Instead, the scientists of the day used a technique called the approximation method to come up with as good of a prediction of accuracy as the technology of the day could compute. Geneticists realized that while these approximations of accuracy were the best they could do at the time, they were probably a bit overinflated compared to the "true" accuracy of an EPD. Thanks to technology advancements, we are now able to process the tabulations that produce the truer accuracy value that wasn't possible before. It will take some time to wrap our heads around bulls that were once listed at a 0.90 accuracy might now be closer to a 0.65, but remember that the newer, lower number is a better representation of the accuracy value. It's like your neighbor's fishing stories: If he told you he caught a 15 pounder (old method of accuracy calculation), in reality he probably caught a 10 or 12 pound fish (new single-step accuracy method)!

A neat feature of the new single-step genetic evaluation is how genomic data is handled during the calculations. We have already covered how the new system eliminates a step in the current process of calculating genomically-enhanced EPDs. What's interesting is that with the new system, not only does genomic data affect the animal that has been genomically tested, but also related animals. If you have genomically tested your herd bull, then the information gathered from his genotype has an effect on his offspring's EPDs, as well as half and full siblings and other closely related animals. That does not mean that just having DNA on your herd bulls is a good substitution for genotyping your replacement females or sale bulls. Obviously, having information on an animal's own genomic profile will be more valuable than just having the sire DNA tested. After all, Dad's genetics are only half the story! Testing the offspring gives you the full genomic story.

The transition to single-step genetic evaluation by the members of IGS will open up doors that previous genetic evaluation technology could have never unlocked. On the surface, the presentation of EPDs in DigitalBeef will look like things never changed. It's the science and technology behind the EPD runs that will create the differences. Like rebuilding the engine in your car, the power "under the hood" will lead to a better driving experience, or in this case, a better genetic evaluation and decision-making tools for Shorthorn breeders and their customers.