

BREEDING AND PERFORMANCE

Improving the quality of your beef cattle herd would seem to be simple: breed the best to the best. Putting this strategy into action is not so straightforward. What criteria will you use to decide what is best for your herd? There are many factors for the individual breeder to consider: your own environment and the resources available, the condition—both strengths and weaknesses—of your herd right now and the goals you have in your mind for your herd.

There are many different tools available to help today's cattlemen make selection decisions. EPDs are one of the best objective predictors of how well cattle pass on traits and can be a very powerful selection tool. While there's some complex math involved in calculating them, EPDs are not a magic formula. The better they are understood the more useful EPDs will be. Research shows that up to 90% of the genetic change in a herd will come through sire selection. One reason for this is a bull can have many progeny within a single breeding season while a cow is usually limited to a single calf. There are many subjective and objective criteria available to a bull buyer. Details like color, size, conformation, stance and walking ability can all be judged by "eyeballing" an animal. Many long time breeders become quite skilled at making subjective judgements about the best bull based on these criteria. Still others can include an assessment based on their knowledge of the traits of the ancestors represented on the animal's pedigree. A lot of potentially useful information about genetics is not available simply from physical assessment of an animal. Looking at an animal cannot tell you if the bull will sire calves with low birth weights that grow fast, provide easy calving, good milk production, fertility or carcass traits. In the end what the breeder really wants to be able to do is to objectively compare animals within a breed, regardless of their age or herd location. If we are able to isolate the influences in an animal's performance that is due to genetics from those influences due to environment the breeder can select animals with the particular traits that he wants to pass on to the next generation. EPDs can help us do this.

Building an EPD starts by collecting basic data for comparison. One could collect data on nearly anything. Cattlemen are generally interested in economically valuable traits such as mothering ability, growth and carcass traits. The data for most EPDs is collected by measuring and weighing animals, their offspring and their parents. Birth weights, calving ease scores, 205 day weights (weaning weight) and 365 day weights (yearling weight) can all be observed recorded and then used to rank animals in the same contemporary group. **(A contemporary group is a group of animals from the same herd, year and season raised together under the same conditions.)**

Taking this basic data from numerous herds, we are able to arrive at an estimate of value for each animal, compared to the breed average for each trait. **This value is called an Expected Progeny Difference (EPD)** and it is the most accurate way to rank animals on genetic merit for various traits. An EPD is a prediction of how offspring of an animal may perform based on the information we have about the performance of that animal, its parent and other relatives. It is a measure of the value of the animal as a parent for a particular trait. It is important to understand that EPDs are just a predictor and many factors can cause the quality of the EPD to vary between bulls in the same sire summary. EPDs are not absolute figures. They are estimates based on averages. They allow you to

fairly compare bulls from different environments, different herds and different contemporary groups within a breed. **In summary an EPD is a way of estimating the genetic potential of an animal based on its own performance and pedigree records and those of all the animals to which it is related (especially parents and offspring).**

The quality of performance information is up to you as a breeder. The reliability of EPDs depends on the performance data submitted by breeders. The quality of data is important. The more data available the more reliable the EPDs will be. Selectively reporting data means that some animals with all their progeny reported will be unfairly compared to those animals with only their “best” reported. That is why the American Murray Grey Association has made the decision to go to Whole Herd Reporting. This will cause submission of ALL performance information for a herd regardless of whether the calf will be registered or not. Even if a calf dies it still should be reported so that the cow receives credit for having a calf. Of course the quality of the data is important. It is VITAL that breeders supply COMPLETE and ACCURATE information and indicate the management of the animals so that the animals can be compared as contemporaries. (If you are grainning several or only one animal, they need to be noted as a different group than other animals being fed differently).

The idea of a contemporary group is to compare like to like. All animals within a contemporary group should be from the same herd, the same year, and season and most importantly **RAISED TOGETHER UNDER THE SAME CONDITIONS**. If some animals are treated better than the others in the age group then their performance will falsely appear better at the expense of the others in the group. If anything is done differently to some of the animals then they should be put in a separate contemporary group. Some reason to split off into another management group includes: sickness, creep feeding, different pasture conditions any kind of special treatment (good or bad). All management differences since birth must be considered because management during one period can influence performance in subsequent periods. Even if the two groups were together SOME of the time this means they were APART some of the time. So the management was not identical and this can influence performance. For example when animals have been placed in different contemporary groups prior to weaning they will remain in different groups, even if the animals are feed together after weaning. This is because management prior to weaning still impacts post-weaning gain. It is the job of the statistical model to account for differences in environment and make adjustments accordingly to arrive at comparable EPDs.

Make sure the animals in your management groups are treated alike and then let the formula do its work. Just as putting together animals that have been treated differently results in unfair comparisons, inaccurate weights will also unjustly make some animals appear better or worse than others. Birth weights should be taken by 24 hours after birth. 205-day weight should be taken between 180 and 300 days and 365-day weight should be taken between 301 and 500 days. You should try to weigh as close to these dates as possible and weigh all cattle of the same sex on the same day using the same scale.