

## Understanding EPD's

An EPD is a prediction, based on available data, of what the animal is expected to transmit to its future offspring. EPD values are used to compare animals; for example, the difference in EPD between two bulls is a prediction of the expected difference between the future performance of progeny of the two bulls. Since an EPD predicts future progeny performance, it is regressed towards zero or a pedigree value, depending on the heritability of the traits and on the amount, relationship and distribution of the information available. For example, if Bull A has an EPD for weaning weight of 12 and Bull B has a weaning weight EPD of 27, then we would expect the calves sired from Bull B to be about 15 pounds heavier at weaning than calves from Bull A, assuming the cows they breed are of equal genetic quality to each other. EPD's simply provide a comparison between animals using all available data.

An EPD normally has an accuracy value printed with it which can vary from 0 to 1.0, based on the amount and type of data used to predict the EPD. This accuracy provides the user with an indication of the likelihood of possible change in the EPD when more information becomes available. For example, an EPD with an accuracy of 0.99 is not very likely to change when additional information becomes available on the animal. But an accuracy of 0.02, for example, indicates that the EPD is not too reliable as it is likely to change when additional information on more calves becomes available. Accuracies are **not** included in the catalog data as they are all rather small on these bulls as they have not yet sired any progeny.

Not all breeds choose to get EPD's on all traits, thus you'll notice some difference in what EPD's are available on bulls of various breeds in this catalog. While most traits are easily understandable, two that are sometimes a bit confusing are the different weaning traits and calving ease traits. For weaning weight, three figures are usually included: weaning weight, milk (or maternal weaning weight), and total maternal weaning weight. The weaning weight figure shows the genetic effect associated with the ability of the calf to grow. It is the sire's direct genetic effect on weaning weight. The milk, or maternal weaning weight, has to do with how well the daughters of the bull are expected to produce milk. It is a predictor of a sire's genetic merit for milk and mothering ability as expressed in his daughters, or, in other words, that part of weaning weight attributed to milk and mothering ability. The total maternal weaning weight is the sum of the maternal weaning weight and 1/2 of the weaning weight. This index is the expected amount of pounds that a sire's daughters' calves will differ from the breed average assuming the daughters are mated to sires of average genetic merit for weaning weight. A bull's calving ease EPD relates calving ease of calves sired by the bull, while daughter's calving ease estimates how easily his daughters will give birth to their calves.

Some breeds are now calculating economic indexes that allow comparison of a dollar value difference between calves sired by different sires. These indexes can be used much like EPDs. In fact they are calculated from EPDs by making certain assumptions about the economic value of the contributing traits. The Angus breed, for example has the \$F index (indicating value in the feedlot), \$G (indicating carcass value), and \$B (indicating total feedlot and carcass value). If bull A has a \$B index of \$45.50 and bull B has a \$B index of \$30.50, then bull A's progeny (if mated to similar cows) should produce \$15.00 more profit per head than bull B's progeny when fed out and marketed on a carcass grid program.