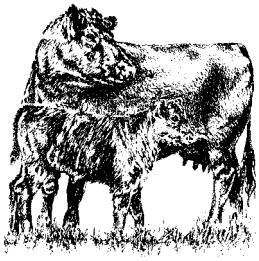

Western Beef Resource Committee

Fourth Edition

Cattle Producer's Handbook

Genetics Section 837

Understanding and Using Sire Summaries

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Sire summaries are produced and published by breed associations to provide current genetic evaluations on progeny-proven sires within their breeds. While the sire summary formats may vary among breeds, they all are designed to use best linear, unbiased prediction procedures to produce expected progeny with legitimate performance records. An EPD is always the best estimate of an animal's genetic worth given the data available for analysis; so EPDs provide a genetic description of an animal for the traits included in the analysis. Sire summaries are, in a sense, similar to a parts catalog where goal-oriented producers can go to find the cattle or lines of cattle with the genetic parts, or "pieces," necessary to help them attain their goals.

Expected Progeny Differences (EPDs)

EPDs provide a tool for genetic comparisons of cattle that can be used by both purebred and commercial cattle producers alike. Expected progeny differences are expressions of the relative genetic merit of beef cattle for various traits. EPDs are used to compare the predicted progeny performance between two bulls (or females) within a breed, regardless of age or herd location.

EPDs are expressed in the actual units of measure for a given trait. In other words, EPDs for traits such as birth weight (BW), weaning weight (WW), and yearling weight (YW) are expressed in pounds, whereas EPDs for scrotal circumference are in centimeters and EPDs for hip height are in inches.

EPDs are used to compare two bulls (or females) within a breed. The difference in the EPDs for those bulls would be the predicted differences in the average performance of those bulls' progeny. For example, consider the EPDs for the bulls in Table 1.

Table 1. Birth weights and growth EPDs for two bulls.

	EPD, lb		
Bull	**BW**	**WW**	**YW**
A	+4	+20	+30
B	-2	+5	+20
Difference	6	15	10

These EPDs do not mean that Bull A would increase a herd's birth weights by 4 pounds and add 20 pounds to the calves at weaning and 30 pounds to the calves as yearlings. They simply allow us to predict the difference between the average weights of the two bulls' calves if they were mated to the same group of cows. When compared to Bull B, we can expect calves from Bull A to average 6 pounds heavier at birth, 15 pounds heavier at weaning, and 10 pounds heavier as yearlings.

In addition to the numerical EPD, an accuracy value (.00 to 1.00) for that EPD will also be calculated during the breed's genetic evaluation program. Accuracy is a measure of confidence that the EPD reflects the true genetic merit of an animal. EPDs are calculated from individual performance, performance of ancestors and siblings, and progeny performance. As the amount of information that goes into an EPD increases, the accuracy of that EPD increases. EPDs with low levels of accuracy (.10 to .30) are likely calculated with no progeny information included and are thus more susceptible to change during the next evaluation when more data (progeny) are included in the analysis. On the other hand, EPDs with high levels of accuracy (.80 to .99) already have included a relatively large number of progeny and are less susceptible to dramatic changes.

Contemporary Groups

Proper contemporary grouping is the cornerstone of accurate genetic evaluation. A contemporary group is simply a group of cattle of the same sex raised in the same environment and weighed under the same conditions. When

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