

Good Genetics Are Worth The Price

Do you buy a bull only to breed your cows or do you select a bull to improve the efficiency and profitability of your operation? Your answer to this question determines what you might pay for a bull. An assumption will be made that you are looking at the bottom line, profit, and the bull(s) you purchase will assist you in attaining that goal.

Cattlemen often ask the wrong question. They want to know what breed or breeds are best? Cattlemen should be concerned with choosing the "right" bull within the breed of choice. Yes, we want young bulls to be well-developed and heavy for their age. But, we now know that average daily gain (growth rate) is not the lone factor on which we rely.

The best tool for making decisions, lowering risks, and making selections more exact is called Expected Progeny Difference (EPD). There are EPDs for birth weight, weaning weight, yearling weight and milk traits on which we can place selection emphasis. There are breeds that provide EPD values for scrotal circumference, carcass, navel and sheath scores. Expected Progeny Difference is several times more reliable in predicting how the progeny of a bull will perform than looking at individual gain records.

EPDs allow one to measure (predict) progeny performance difference between all the bulls which are being considered within a breed. For example, whether you are at a purebred breeders farm, a bull test station, or a breed sale you can compare each bull by his EPD values and calculate (estimate) the performance difference of their progeny. With such a reliable tool, one can place a dollar value on bulls based on the weight difference of the calves they will produce. In calculating the true value of a bull, one not only looks at progeny weight difference from year

to year, but considers the weight difference of progeny produced by the bulls' daughters (when added to the herd) due to milk production and growth (referred to as total maternal).

Below, you will find EPD values for two bulls and a measure of their dollar value difference as they go into a breeding program. Please remember that the price used per pound changes frequently in the market place and you can recalculate as the price of feeder calves changes. Remember, too, we are comparing one bull against the other and not each against the breed average. For ease of calculation, let us assume that each bull will produce 100 calves.

<u>Bull 1</u>			
EPDs			
BW	WW	YW	Milk
2	20	30	11
<u>Bull 2</u>			
EPD's			
BW	WW	YW	Milk
1	5	10	1

100 Calves produced each
 80 Calves marketed, 50 steers, 30 heifers
 Price per pound \$.80 average

WW (weaning weight) and milk used for comparison
 Bull 1 has (20 lb.- 5 lb.) a 15 lb. WW advantage per calf produced
 Bull 1 has (11-1) a 10 milk advantage (10 lb. weight advantage to progeny produced by daughters of Bull 1).

Calves Marketed Have Weight Advantage

80 calves (15 lb. Wt. advantage), $80 \times 15 = 1200$ lbs., 1200 lbs. \times \$.80 = \$960.00
\$960.00 represents the added pounds on 80 calves and the advantage of bull 1 over bull 2. Extra pounds were due to superior genetics for growth (WW)

Benefit Due to Milk Genetics

20 Replacement heifers were retained (100 - 80 sold). Milk advantage for bull 1 was 10 lb. (11-1).
10 lb. of milk? No, daughters of bull 1 will, on the average, produce calves that weigh 10 lbs. more than calves from the daughters of bull 2 due to milk. Therefore:

Daughters of bull 1 will have a 10 lb. weight advantage per calf produced.

20 daughters \times 7 calves each (lifetime) = 140 calves.

140 calves \times 10 lbs. = 1,400 lbs.

1,400 lbs. \times \$.80 = \$1,120.

\$1,120 is the value of added pounds on the calves, produced by the 20 replacement heifers (bull 1 over bull 2) due to milk alone over their lifetime (7 calves).

More Maternal Benefits (Growth Plus Milk)

More realistically, when calculating the advantages contributed by a bull and his daughters, we should consider the total maternal value. Remember, total maternal includes both growth and milk (a combination of the two examples above).

Total maternal EPD = $1/2$ sires WW EPD + Sire's Milk; EPD In our example:

Bull 1 (total maternal EPD = $1/2$ (20) + 11 = 21 lbs.

Bull 2 (total maternal EPD = $1/2$ (5) + 1 = 3.5 lbs.

Total maternal advantage goes to bull 1 (21-3.5) = 17.5 lbs. Now:

20 daughters \times 7 calves each (lifetime) = 140 calves

140 calves \times 17.5 lbs. = 2,450 lbs.

2,450 lbs. \times \$.80 = \$1,960.

\$1,960 is the value added pounds on the calves, produced by the 20 replacement heifers (bull 1 over bull 2) due to both growth genetics and milk.

$\$1,960 + \$960 = \$2,920.00$ or the total value added by using bull 1 over bull 2.

The values used in this example are very modest, yet the \$2,920 difference between the two bulls is dramatic. With the selection tool (EPDs) now available, can you afford to buy bulls with unknown or inferior EPDs?

Summary

Expected Progeny Differences (EPD) are used to express genetic transmitting abilities of sires. The

values are reported as a plus or minus in the unit in which the trait is measured. It is well-documented that decisions made based upon EPD values are several times more accurate than selections made based upon an individual's performance.

Prepared by Henry W. Webster Extension Beef Specialist