Maryland 4-H Livestock Skillathon
Using EPDs to Respond to Breeding Scenario Questions

Overview

Beef producers have an effective tool available to help them make breeding choices including bull selection – that tool is EPDs. EPDs stands for Expected Progeny Differences. Expected Progeny Differences (EPDs) provide estimated genetic value of a specific animal compared to another specific animal of the same breed. EPDs are based on combined data reported by breeders to their breed association's world-wide performance record database. EPDs provide an estimate how a specific bull's progeny (offspring, calves) will perform.

The production goals and current production status of the producer's herd will help determine which EPD values should be used in making bull comparisons. For example, a producer primarily selling calves at weaning would emphasize and use birth weight and weaning weight EPD values. A producer selling finished market animals would also emphasize and use birth weight and weaning weight EPD values, but should also compare yearling weight, marbling, REA, and $Beef EPD values. A producer interested in keeping replacement heifers would emphasize maternal milk EPD values, along with birth weight and weaning weight EPD values.

Explanation of EPD Data for the Angus Bulls Example (found on the next page)

Birth Weight EPD (BW) is expressed in pounds. It is a predictor of a sire's ability to transmit birth weight to his progeny compared to that of other sires of the same breed. Heavier birth weights could lead to birthing difficulties, especially for first-calf heifers.

Weaning Weight EPD (WW) is expressed in pounds. It is a predictor of a sire's ability to transmit weaning growth to his progeny compared to that of other sires of the same breed. Larger WW EPD will predict heavier progeny at weaning.

Yearling Weight EPD (YW) is expressed in pounds. It is a predictor of a sire's ability to transmit yearling growth to his progeny compared to that of other sires of the same breed. Larger YW EPD will predict heavier progeny as yearlings.

Maternal Milk EPD (Milk) is a predictor of a sire's genetic merit for milk and mothering ability as expressed in his daughters compared to daughters of other sires of the same breed. It predicts the part of a calf's weaning weight attributed to milk and mothering ability.

Marbling (Marb) is expressed in percent. It is the predicted difference in adjusted carcass marbling score of a sire's progeny. A greater number indicates potential for a higher carcass quality grade.

REA (Rib-eye area) is expressed in square inches. It is a predictor in adjusted difference in rib-eye area of a sire's progeny, measured in square inches. Larger REA EPD will predict heavier muscled progeny.

Beef Value ($B, $Beef) is an index value expressed in dollars per head. Beef value is a predictor of the average difference in future progeny performance for postweaning and carcass value, compared with progeny of other sires of the same breed.

<u>Comparing Bulls</u>
Two bulls of the same breed can be compared by calculating the difference between EPD values. The EPDs of a single bull can also be compared to the breed's average EPDs. Using the EPD chart in the example below, Bull 1 has a weaning weight EPD of plus 49 and Bull 4 has a weaning weight EPD of plus 41, so the calves from Bull 1 should average 8 pounds heavier at weaning than calves sired by Bull 4 (49 – 41 = 8).

Angus Bulls (Example)

Scenario

Rank these bulls (Bulls No. 1-4) in the order they should be selected as potential herd sires for use on F_1 *Brahman X Hereford* ("Tiger Striped") cows run on large pastures in the Southern U.S. The top 30% of the female progeny will be sold as replacement heifers. Non-replacement females and all steer progeny will be sold at weaning to loyal customers who feed cattle in the Texas Panhandle and market on a carcass-based grid that pays premiums for high yielding cattle who grade low Choice or better. All cattle on this operation are expected to perform with minimal assistance. Feed resources have been limited in recent years because of significant drought.

Performance Data for Bull Numbers 1-4
_____EPDs*_____

Bull No.	Birth Date	Birth Weight	Weaning Weight	Yearling Weight	Milk	Marbling	REA**	$Beef
1	2-07-11	+ 1.1	+ 49	+ 98	+ 23	+ .47	+ .47	80.56
2	2-12-11	+ 1.9	+ 50	+ 101	+ 24	+ .45	+ .38	78.68
3	3-10-11	+ 0.7	+ 50	+ 100	+ 27	+ .24	+ .27	75.87
4	3-13-11	+ 3.7	+ 41	+ 82	+ 18	+ .38	+ .34	57.23
Breed average EPDs		+ 1.7	+ 47	+ 86	+ 23	+ .41	+ .35	57.80

*EPDs stands for Expected Progeny Differences
**REA stands for Ribeye Area

How would you rank these bulls as potential herd sires in the Angus Bulls scenario above?

_____, _____, _____, _____.

References:
Understanding Expected Progeny Differences for Genetic Improvement in Commercial Beef Herds (AS1770, Sept. 2015). https://www.ag.ndsu.edu/publications/livestock/understanding-expected-progeny-differences-for-genetic-improvement-in-commercial-beef-herds

EPDs Made Easy. UT Extension. https://extension.tennessee.edu/grainger/Documents/EPDs%20Made%20Easy%20publication.pdf