

EPDS - BALANCING TRAITS FOR PROFIT

by

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The profit equation in the beef business encompasses many production stages. Cattle must be low cost to maintain, reproduce with a high level of efficiency, grow rapidly, and produce a palatable, high quality product consistently. American beef producers have an advantage because historically they have been low cost producers of a high quality product. In the 21st century, it will be important for producers to develop cattle with the end product in mind.

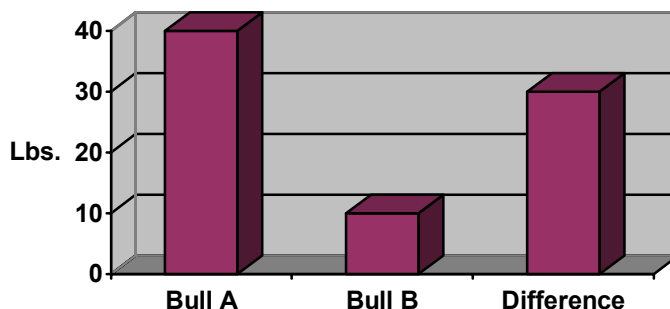
A successful business is operated based on facts about production cost and consumer demand. There are many small producers in the beef industry. All producers, large or small, should utilize the best genetics to produce a desired beef animal. Expected Progeny Differences (EPDs) offer the most accurate information about beef animals that will be in the breeding herd.

EPDs

An EPD predicts the genetic transmitting ability of an animal as a parent. The EPD is developed in genetic evaluation systems within a breed based on the actual performance of an animal, plus it incorporates all of the performance information of all of the relatives of an animal. EPDs are not new, having been utilized for over 20 years. Through the years, the amount of performance information available has increased dramatically, resulting in improved accuracies of EPD estimates.

EPDs are easy to understand if we remember the word "difference." Comparing EPD values of animals allows us to obtain a difference in performance among animals. Consider an example using weaning weight (Figure 1). A producer is interested in increasing the weaning weight of his calves. He has a choice of purchasing Bull A (40 lb. weaning EPD) or Bull B (10 lb. weaning EPD).

Figure 1. Comparing EPD Values



The EPD difference for weaning weight EPD between Bull A and B is 30 lbs. Thus, a producer could expect Bull A's progeny to weigh, on average, 30 lbs. more than Bull B's progeny at weaning when mated to his cow herd. Most breeds have EPDs for birth weight, weaning, yearling, and milk production traits. Other traits, including carcass traits, are also available for many breeds.

How To Utilize EPDs

Profitable cattle production is not a single trait phenomenon. It requires a balance of production, feedlot, and carcass traits. It is not easier to produce balanced trait animals. It requires disciplined breeding strategies over a long period of time. In the past, breeders have often selected for a single trait and changed that trait rapidly. However, that led to problems in other traits and producers who know how traits are related and keep things in perspective, have long-term success. First, a producer should identify what traits need improvement within his herd to better meet market demands. Secondly, select sires to improve those traits while keeping other production traits balanced. EPDs reduce the risk in cattle breeding. They allow a producer to identify the animals that can effectively produce beef with the most market demand. Remember, no one EPD is best for all production environments. Each producer has a unique production environment, labor resources, and marketing opportunities. There are some common objectives to consider:

- 1) Calving ease is critical. Controlling calving problems is critical to a successful operation. First calf heifers have more strict (lighter birth weight) needs than cows.
- 2) Increasing weaning growth is generally favorable. Increased weaning weight equates to more pounds to sell. The limits to growth selection are increased birth weight and increased size (higher maintenance cost) in replacement females.
- 3) Milk production levels should be matched to the feed resources available. More milk results in heavier calves at weaning, but heavier milking cows cost more to maintain and could be less efficient reproductively. Optimum, not maximum, milk production levels are best.
- 4) Carcass trait selection is becoming increasingly important and should be a consideration for successful breeding programs.

What About Carcass Trait Selection?

There is a lot of discussion in the industry about producing a more consistent, higher quality product. This is a reality if we are going to reclaim beef meat market share. Currently, premiums are available for superior carcass animals. These carcass premiums, however, do not have the cost effectiveness of improved feedlot gain and efficiency, and are a lot less valuable than improved reproductive performance and controlled cow production cost. But, carcass premiums will increase in the future and the demands for beef animals with predictable, known carcass traits will also increase. There is enough EPD information available currently for producers to begin breeding cattle with predictable carcass traits.

Putting A Value On EPDs

Successful breeders utilize EPDs to enhance their breeding of industry superior cattle. Most of the change comes through sire selection. Top purebred breeders will stack generation on generation to produce genetically superior cattle.

To put a value on EPDs you must learn what the average EPD value is for a trait within a breed. This allows you to determine if the animal you are considering is average or above average for his EPDs. Check a breed's sire summary to find current breed averages for EPDs. **Do not** compare EPDs between breeds since each breed has their own unique base EPD year and calculation process.

2003 EPD Averages for Sires of Selected Breeds*

Breed	Birth Weight	Weaning Weight	Yearling Weight	Milk	% IMF	REA	% RP
Angus	2.7	33	61	16	.00	.03	.02
Charolais	1.4	19	34	6.0	.00	-.09	--
Gelbvieh	2.0	38	60	19	.00	--	.00
Hereford	3.8	36	61	13	.00	.01	--
Limousin	1.4	12	23	4	--	--	--
Red Angus	0.5	28	48	15	.05	--	-.03
Shorthorn	2.3	15	24	2.8	--	--	.01
Simmental	2.7	34	56	5.6	.01	--	.01

*The EPDs above are average EPDs for sires for each breed in 2003. The EPDs are not intended, and should not be used, to compare breeds for specific traits.

Breed Association Web Site Address:

www.angus.org	Angus
www.charolaisusa.com	Charolais
www.gelbvieh.org/~aga	Gelbvieh
www.hereford.org	Hereford
www.nalf.org	Limousin
www.redangus1.org	Red Angus
www.simmgene.com	Simmental
www.chicattle.org	Chianina
www.beefshorthornusa.com	Shorthorn

GLOSSARY

What are Expected Progeny Differences (EPDs)?

Expected progeny difference (EPD) is the estimate of how future progeny of each sire are expected to perform in each of the traits listed. Interim EPD may appear in cases wherein is insufficient information to allow the calculation of an EPD through National Cattle Evaluation procedures.

Accuracy (Acc) is the reliability that can be placed on the EPD. Accuracy of close to 1.0 indicates higher reliability.

Production EPD

Birth Weight (BW) expressed in pounds, is a predictor of a sire's ability to transmit birth weight to his progeny, compared to the progeny of an average bull.

Calving Ease – Heifer: the ease with which a bull's calves are born to first calf heifers. Cows: the ease with which a bull's calves are born to cows.

Maternal Calving Ease, is the ease with which a sire's daughters (heifers/cows) calve.

Weaning Weight Direct (WN) expressed in pounds, is a predictor of a sire's ability to transmit weaning growth to his progeny, compared to the progeny of an average bull in the breed.

Weaning Weight Maternal (Milk) is a predictor of a sire's genetic merit for milk and moth ability as expressed in his daughters. In other words, it is that part of weaning weight attributed to milk and mothering ability.

Yearling Weight (YW) expressed in pounds, is a predictor of a sire's ability to transmit yearling weight, compared to the progeny of an average sire in the breed.

Ultrasound Body Composition EPD

Intramuscular Fat (%IMF) is a predictor of the difference in a sire's progeny for percent intramuscular fat in the rib eye muscle compared to an average sire in the breed.

Rib eye Area (RE) is a predictor of the differences in square inches of rib eye area of a sire's progeny, compared to the progeny of an average sire in the breed.

Fat (FAT) expressed in inches, is a predictor of the differences in external fat thickness of sire's progeny compared to the progeny of an average sire in the breed. Measurements taken between the 12th and 13th ribs and over the rump are used to generate the Fat EPD.

Percent Retail Product (%RP) is a predictor of the differences in pounds of saleable retail product of a sire's progeny compared to the progeny of an average sire in the breed.