

MATCHING GENETICS TO PRODUCTION GOALS

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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. The American beef producer has 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. Key phrases for success include: “run the operation as a business,” “establish realistic production goals,” and “produce a known quantity beef product.”

Beef Production As A Business

Over 90% of the nation’s beef producers have cow herds of less than 100 head with an average herd size of 21. Beef producers have cows primarily as a byproduct of land ownership. Many simply have cows because they have forage lands that are not suitable for grain farming. As a result, these producers are generally slow to adapt technological changes and are unwilling to devote a great deal of management energy to their beef enterprise. The result for the beef industry has been production of a commodity product that has limited predictability.

To be successful, producers need to operate their beef enterprise as a business, not as a hobby. To do this, producers should consider the following:

- Develop a business plan that establishes production goals. Develop this plan with input from others involved in your business and write it down.
- Develop flexibility in your attitude and expectations for doing business. Do not assume one method is the only method for doing business.
- Be a keen observer of production outcomes and have a vision for future market strategies and goals.

Establishing Production Goals

When setting goals, a producer needs to have a holistic understanding of the beef industry. Typically, one must break old management traditions in the cow business to be successful in the future. For all operations, being a low cost producer is important. A five-year summary of Illinois IRM/SPA records has shown that reducing feed cost has the biggest impact on commercial beef herd profitability. So, a reasonable goal is to evaluate methods that will reduce feed cost while maintaining reproductive performance. The key to goal setting is to establish what outcomes your beef operation can reach and then develop a plan to meet your goals. At this point in time, though, a major goal for beef producers should be low cost production of a consistent high quality beef product. If you are a purebred producer, then your goal should be to sell cattle that will have predictable, consistent performance for valuable beef

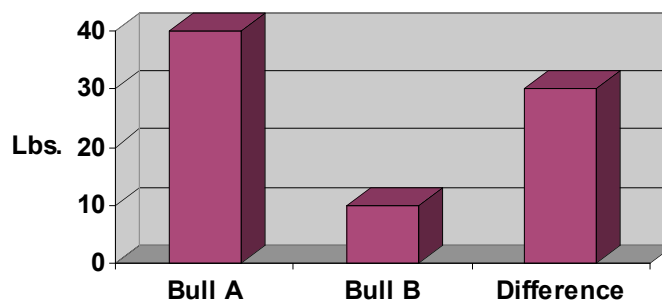
traits. Cow/calf producers must remember that a weaned calf is not the finished product. All animals produced must meet an increasingly higher standard for beef quality and consistency.

Producing A Known Quantity Beef Product

We currently have the most genetic information available about beef cattle than at any time in history. An Expected Progeny Difference (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 limit to growth selection is 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 always 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 (check web pages listed in Appendix A) 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.

Sire Selection Steps

- 1) Choose a breed(s) that has superiority for the traits you want to produce in your beef cattle.
- 2) Select sires within those breeds that excel in the traits you want to produce by doing the following:
 - a) Gather EPD information on potential service sires.
 - b) Know the percentile ranking of a bull's EPD within his breed.
 - c) Determine the priority for traits for your herd's needs (i.e., calving ease, growth).
 - d) Select bulls whose EPDs best match the traits that are important for your selection priorities.

- e) Purchase bulls whose phenotype excels from the EPD acceptable bulls you identified.
- 3) Pay for predictable genetics.
- 4) Document the performance and carcass characteristics of your cattle.

2002 EPD Averages for Sires of Selected Breeds*

Breed	Birth Weight	Weaning Weight	Yearling Weight	Milk	% IMF	REA
Angus	2.7	33	61	16	.00	.03
Charolais	1.7	14.3	24.5	8.4	--	--
Gelbvieh	1.9	35	61	18	.00	.00
Hereford	3.9	35	58	12	.00	--
Limousin	1.6	11	22	4	--	--
Red Angus	.9	28	48	13	.05	.00
Shorthorn	2.3	15.5	24.3	2.8	--	--
Simmental	3.4	35	58.9	7.8	.02	.02

*The EPDs above are average EPDs for sires for each breed in 2002. 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