

# Crossbreeding or Should We Say Effective Breeding Systems

Herd size and fence are determining factors when bull selection is used, at least when the concepts of crossbreeding and breeding systems are discussed.

If the goal is to excel in calf growth and to maintain a cost-effective cow herd, crossbreeding the available breeds of cattle certainly becomes a discussable point.

Within the last couple of decades, the purebred focus has improved and standardized many of the cattle breeds available to the cattle producer. Sire selection within a breed has been perfected, offering multiple sires that excel in numerous traits. The sheer number of identified traits exceeds the needs of the commercial producers, so selection indexes were developed.

Selection indexes are being refined within breeds. These indexes may lead to the development of maternal and paternal genetic lines that allow for more effective sire selection to meet the needs of the terminal producers and maternal replacement producers in the industry.

A review of the poultry and swine industries indicates paternal and maternal lines can be developed and very effectively utilized. Yes, the business structure within the poultry and swine industries is completely different, and, generally, history would say producers in the beef industry have

little desire to move toward a more corporate structure.

So what opportunities are available for individual beef producers to capitalize on terminal calf production while maintaining a cost-effective cow herd? Recently, Dickinson Research Extension Center researchers evaluated and pondered the results of this very question.

For ease of discussion and simplicity, the larger cattle had a 10% advantage when a cattle system is evaluated based on calves as the unit of production, but when based on acres as the unit of production, smaller cattle had a 10% advantage in total herd revenue. These percentages are going to vary depending on the various aspects of individual cattle operations, but the conclusion certainly notes the opportunity for producers to try to capture both sides of the question: growth and cost-effective maternal production.

So what should a producer do? Begin by selecting sires within the current breed of use that would meet the desired criteria. The challenge is finding a pool of sires that excel in maternal and terminal production. In fact, one could say they are relatively unavailable.

Growth and carcass traits coexist. Growth and milk coexist. Growth and controlled birth weight coexist.

But the challenge of growth and the combination of the right replacement traits are more difficult. The solution may be reaching out to other breeds or lines within a breed.

Either way, one big stumbling block always appears – that is, the need for different bulls means more pastures and more fences. For now, remember these so-called crossbred calves can excel in growth. They are vigorous from birth and throughout life. They withstand the stresses of the environment better and are just all-around better calves.

The crossing of cattle breeds or selected lines of cattle opened a new dimension in the daily grind of raising cattle. Producers loved the freshness of vigor; thus, a new term – hybrid vigor or heterosis – was developed. That technically referred to the measureable and nonmeasurable advantage in the calf, which was greater than the average of what one would expect based on the average measureable performance of each parent breed.

For producers, this was a gift from Mother Nature. Thus, this was the beginning of crossbreeding in commercial cattle production.

Commercial production systems soon were developed to explore and document the advantages of crossbreeding, and more refined

breeding systems were established. Rotational and terminal crossbreeding systems were put on paper and made the educational sessions of the time.

The classic, the black baldie, was produced and named. The Hereford and Angus-crossed calf excelled, and when the females were kept as replacements, these crossbred cows had improved fertility and successful pregnancies. These improvements were good.

But for many people, being good is never good enough. If the traditional English-bred cattle would respond to crossbreeding, why not search the world and bring in more breeds? Producers did and brought in new breeds that were distinctly different from the traditional breeds.

Another classic was created. The black baldie cows were bred to imported Charolais cattle, and calf growth simply mushroomed. These so-called “terminal” calves excelled in red meat production and feedlot performance. These classic Hereford-Angus crossbreeding programs were well documented, and the advantages are real.

Perhaps Mother Nature’s gift should be opened again. And just maybe some fence could be added to the list. **HW**

## Breeding Systems Are Coming of Age

Pondering in life is good. So let’s ponder this: “Can the beef industry produce terminal and replacement bulls?”

Historically, the answer is “yes.” Through the decades, many breeding programs have been proposed to offer cattle producers the opportunity to implement cattle-breeding systems that involve terminal and replacement bulls.

Perhaps we should ask a slightly different question: “Does the beef industry fully utilize terminal and replacement bulls?” Now the response is muted, and a faint “maybe” can be heard.

Either way, bull selection begins with pondering. Is the beef operation going the right way? Did I buy the right bull or bulls? Do I need to make a slight correction in the bull pen? These are not easy ponderings.

Pondering starts at the local level. Do my cattle fit the demands of the ranch or farm? How do my cattle fit the numerous marketing opportunities? Am I too sensitive to constructive comments? Is the input fact or fiction?

Fact or fiction is important when pondering because not all input is fact. The producer is stuck in the middle, much like the net on a ping-pong table, and can get confused and frustrated. Are the cattle right or wrong? Did I buy the right bull or the wrong bull?

Really, you can have two rights. If you divide the beef business into segments, the beef producer and the feeding industry may find themselves on opposite sides of the net. As the ball is bounced vigorously back and forth, the effort is to ponder what the right answer is to bull selection. Are efficient growth and carcass traits or cost-effective maternal and reproductive traits the desired outcome? Is one more important than the other?

The Dickinson Research Extension Center has spent several years playing ping-pong, seeking the right answer. This year, after a three-year evaluation of cattle type integrated within production changes, a light came on. We have two answers.

We pondered the facts collected from the research. Larger cattle have a 10% advantage when a cattle system is evaluated based on calves as the unit of production, but when based on acres as the unit of production, smaller cattle have a 10% advantage in ranch revenue.

Now what do we do? For decades, cattle producers dedicated themselves to the improvement of cattle and the utilization of those cattle within production systems. These thoughts have many tentacles of impact, but a very important thought is opening the door to a systems approach to cattle production.

Cattle management data, performance data and genetic data continue to expand into the future by using new technology to analyze previously collected data along with new data. The results only strengthen the need to develop more cost and market-driven beef production systems. In a nutshell, producers should capture the opportunity to select sires that will sire the correct breeding stock, followed by larger-scaled terminal beef production through efficient, low-cost cow herds.

That can be done. In other words, the answer is “yes” to the cattle feeder and the cow herd producer.

Once the industry decided the walls would not cave in when Hereford bulls were mated to Angus cows or vice versa, the world of beef cattle systems was created. Life was simple: All a producer needed to do was to take an established herd of purebred or straight-bred cows and mate them with a different breed. The majority of producers at the time had Angus or Hereford, thus the cross.

Why bring up the past? The same situation is true today, although producers have more beef breeds from which to choose. This is a reminder of what followed those initial breed crossings.

Each breed had been tracked meticulously, and parentage

documentation was exhaustive and some extraordinary results were becoming visible to the naked eye. Those “crossbred calves” excelled in growth. They were vigorous from birth throughout life. They withstood the stresses of the environment better and were just all-around better calves. And producers loved it.

What was so great? Producers started with smaller cows and bred them to terminal bulls and sold the calves. Or did they? Well, we all know what happened. Producers kept many of those terminal calves, and we still are living that story.

We just don’t seem to know how to close the chapter. But we do, if we want to. Cattle breeding systems, whether across breed or within breed, are at the heart of long-term, cost-conscious, efficient beef production.

With the current capacity to generate, evaluate and incorporate sire data across the industry, the chorus is getting louder. The comingling of breeds through crossbreeding and the data analysis of those breeds of cattle that may contribute to a designed system hint that perhaps the process already has started. Pondering in life is good. So let’s ponder. **HW**