

Crossbreeding for Success

Get a free lunch in the cattle business

by Lindsay L. Allen



Anytime a producer selects a bull to use, the hope is that the mating results in a positive pairing with a healthy, live calf that weans with the most pounds of beef as possible. One way to achieve this goal is through crossbreeding. Acknowledging the benefits of crossbreeding, Dr. Trent Smith, associate professor for Beef Cattle Breeding and Genetics at Mississippi State University, says, “There are not many free lunches in the cattle industry, but hybrid vigor, the result of crossbreeding, is one of those free lunches that I always encourage cattlemen to take advantage of!”

Hybrid vigor, also known as heterosis, is the performance advantage that results when crossbreeding versus straight breeding. Dr. Todd Thrift, associate professor for beef cattle management at the University of Florida, describes hybrid vigor as the genetic affect that results from combining animals that are unrelated and resulting in advantageous qualities.

Smith shared that the two main reasons why a producer would be interested in crossbreeding, and ultimately hybrid vigor, are to pair two complementary breeds together and to take advantage of traits that are hard to breed for, but increased through crossbreeding. He and Thrift both recognize that reproduction, calf survival and cow longevity are traits that respond well when crossbreeding.

“Most producers are looking for high quality cattle with sound retail/carcass merits; one of these traits is maternal and the latter is paternal. So, you find two complementary breeds, one that has good maternal traits and the other that brings in the size and growth, or paternal traits, that you need. Same goes for the environment – you may mate two breeds, one of which does well in your current environment and one that does not in order to produce an animal that will be able to perform,” Smith said.

“The second reason most choose to

crossbreed is to take advantage of traits that respond well to crossbreeding, like fertility. If we can increase fertility, that means we have animals hitting puberty sooner and coming into heat and that can increase our profit through hopefully more females breeding earlier in the season and older and heavier calves at weaning. Survivability of the calf is also increased with crossbreeding. When a crossbred calf is born, we know that they are more active and nurse quicker, and thus, survivability is increased. This is a trait that is usually low in heritability, but through crossbreeding we see positive results.”

Ron Melancon with MG/4M Farms raises registered Hereford and Angus cattle in Woodville, Miss., and crossbreeds some of his females to Brahman bulls. His goals for crossbreeding align with what Smith said. “We want the added growth, longevity and maternal characteristics that come from these crossbreedings

and we continue doing this every year because we see the increased feed conversion, more milk, longevity and heavier calves as weaning,” Melancon said.

Cow longevity is another area where we see positive impacts from crossbreeding. Thrift said it is not uncommon to see a 20-year-old Brahman crossbred cow that has been productive (had a calf) for 18 years in the Gulf Coast region. “Research proves this and while many in the Midwest think a cow has a 10-year productive lifespan, we know that our crossbred cows can perform for two plus decades. For my own operation, I only want and prefer females that I know can give me at least 15 years of longevity and reproduction and that is why I select the crossbred females,” Thrift shared.

“Breed selection when crossbreeding is very dependent on your environment and your goals. The Brahman cross is superior in the Gulf Coast region and provides ample benefits of hybrid vigor when in play,” Thrift said. “The data over the last 75 years shows us that as an environment gets worse, the benefits of hybrid vigor

“The decisions you make today in your genetic selections impact the next 20 years of your program.”

– Dr. Todd Thrift

increase. I’ll always take a crossbred cow over a straight bred cow purely for the hybrid vigor benefits.”

Smith points out that it is important to know your location and match the animal to the environment. “After that, you have to evaluate the end goal with your program and what you are wanting to market. When you know your environment and your end goals, you can then look for breeds that will fit,” he said. “I have producers who are focused on one or two particular breeds that don’t align to the environment and production goals they are working toward, but once you know what you are working with, there will be breeds rise to the top. Often times, breeders think they can take a low-quality animal and get a high-quality calf from crossbreeding; however, I always remind breeders that a good female is a good female and so it is often times more important to look for quality

animals than it is to zero in on specific breeds.”

Along the same lines, Thrift points out that a good crossbreeding program is a long-term program. “The decisions you make today in your genetic selections impact the next 20 years of your program. Crossbreeding is the single best thing we’ve done in the industry, and so to focus on the long-term hybrid vigor impacts in your herd that are sustainable for your program and needs will provide dividends in the long run,” Thrift said.

With all the added benefits that can result from a crossbreeding program, it may feel like you are getting multiple free lunches. Investing in a long-term program and capitalizing on hybrid vigor can be a sound operational decision. ➤

Crossbreeding Systems for Beef Cattle

An excerpt from an article first published by the Mississippi State University (found at <http://extension.msstate.edu/publications/publications/crossbreeding-systems-for-beef-cattle>):

Two-breed Rotation

The two-breed rotation is a simple system where females sired by Breed A are mated to sires of Breed B, and females sired by Breed B are mated to sires of Breed A.

After several generations of using this cross, hybrid vigor will stabilize at 67 percent of potential individual and direct heterosis with an expected 16 percent increase in pounds of calf

weaned.

This system requires two breeding pastures and identification of sire for each breeding female. The two-breed rotation requires at least one bull from each breed. Assuming each bull is used to service 25 females annually, a herd will need at least 50 breeding-age females for the system to be efficient.

Three-breed Rotation

The three-breed rotation is very similar to the two-breed rotation with another breed added. This rotation uses sires of Breeds A, B, and C. Breed A sires are mated to females sired by Breed B, Breed B sires are mated to females sired by Breed C, and Breed

C sires are mated to females sired by Breed A.

In a three-breed rotation, hybrid vigor stabilizes at 86 percent of potential individual and maternal hybrid vigor, and a 20 percent increase in pounds of calf weaning weight per cow exposed over the average of the parent breeds is realized.

Three breeding pastures are needed. The primary benefit of a three-breed rotation over a two-breed rotation is the increase in hybrid vigor. Using the previous example of 25 females per sire with three breeds of sire, at least 75 breeding age females are needed to be efficient. ➤