

Continuous Improvement

For Joe Mayer, the drought and the discovery of a genetic condition represented a unique opportunity to get better.

by **ERIC GRANT,**
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It's been a long time since Joe Mayer's cattle have seen much green grass, let alone a rain cloud in the skies above Guymon, Okla.

Mayer's native pastures are parched by years of lack of rain and snowfall, and the drought that has

Oklahoma in the 1880s, and during the last century, they've seen their fair share of tough times. It's precisely this history of survival and perseverance that's strengthened his resolve today.

In fact, Mayer has used the drought as an opportunity to cull his less-productive cattle and improve quality for better times ahead. After all, ranching is as much about continuous improvement as it is about raising great cows.

"We want cattle that can do it all," he says. "They have to calve easily. They have to breed back quickly. They have to gain and grade. Most of all, they have to do these things consistently."

Mayer has always been down to business when it comes to his cattle.

He was an early adopter of artificial insemination (AI) in the 1970s, seeing the relatively new technology as a way to breed to the industry's best bulls. When the industry developed expected progeny differences (EPDs), he knew he was finally equipped with a tool to breed cattle with precision to bulls that possessed the greatest genetic merit.

In fact, Mayer soon recognized

the American Angus Association provided him with two critical opportunities. The first was access to data and reliable EPDs, which allowed him to improve the productivity and quality of his cattle. The second was the *Certified Angus Beef*® (CAB®) brand, which drove demand — and premium prices — for his Angus calves.

All of this resulted in Mayer abandoning crossbreeding in favor of producing straightbred Angus cattle about 20 years ago.

Smart move

The decision has paid off.

"Using EPDs to select AI bulls and clean-up bulls with very strict standards has helped us improve our kill data to 98% to 100% Choice, 70% qualifying for CAB and 15% CAB Prime," says Mayer.

It's one thing to do it — it's something different to tell someone about it.

That's why Mayer enrolls his calves in the AngusSource® Genetic program, which helps him differentiate his registered Angus-sired calves from just black calves in the marketplace. He's made extensive use of the GeneMax™ (GMX) DNA test, which helps him identify cattle in his cow herd that are superior for gain and grade.

Mayer retains ownership of his steers and cull heifers, and sells them on the U.S. Premium Beef (USPB) pricing grid.

"We have a goal of getting all the CABs and Primes that we can

because the premiums we receive for quality help smooth out the risk of cattle feeding," he says. "The data we receive back is useful in determining if we are heading in the right direction."

Mayer typically selects bulls that rank highly in the breed for Beef Value (\$B) and rank in the top 1% for calving ease.

He uses timed-AI to breed his cow herd, then turns out high-quality Angus bulls to clean up for 30 days.

"The kill data we receive back will help us determine if a clean-up bull can earn the right to become an AI bull," he says. "In my mind kill data trumps everything; however, the 50K tests certainly help us make fewer mistakes by improving the accuracy of the EPDs. We use the parentage testing feature in GeneMax to determine the sires in multi-sire pastures."

Like other commercial producers across the country, the advent of the cattle industry's DNA age has resulted in powerful new tools to perpetuate productive, quality cattle, but also identify and manage cattle that carry genetic conditions.

Managing a genetic condition

Because Mayer has used some sires that carry the genetic condition called developmental duplication, or DD, he was both relieved and concerned when a DNA test was announced in late summer 2013.

DD is caused by a simple recessive genetic mutation. Cattle identified as carriers are either "DD Affected," or DDA, meaning they carry two copies of the gene (one inherited from each parent), or "DD Carrier" (DDC), meaning they are carriers with one copy of the gene (inherited from one parent). Cattle tested free of the condition are known as "DD Free," or DDF. Those that have a DDC ancestor in their pedigree that have not been tested free of the condition are flagged on their registration paper as DDP, denoting a potential carrier.

DDA calves can sometimes be born with a phenotype known as polymelia, which results in duplication of the front legs originating from the neck or shoulder region.

"In the last three years we've had about one polymelia-afflicted calf per 1,000 births, so we really didn't think anything about it," says Mayer. "We have more fall off a cliff and die than that."



Oklahoma cattleman Joe Mayer believes the cattle industry stands a lot to gain by advancements in DNA technology as a way to manage risk and improve quality.

gripped this part of the country is as bad as anyone can remember, including those who lived through the Dust Bowl days of the 1930s.

"I'm looking forward to this thing being a bad memory," says Mayer, a commercial producer who raises 1,400 head of straightbred Angus cows.

Mayer's family first came to

Unlike the drought that has gripped his ranch for many years now and that he can do little to change, Mayer says he can manage DD and other known genetic conditions.



The easiest way for Mayer to manage DD would be simply to use DNA-tested, DDF bulls as he moves into the future. After all, in order for the condition to be expressed phenotypically, both parents must contribute a copy of the gene.

Mayer recognizes that many of his DDC bulls possess significant genetic value for his breeding program, so he plans to breed them to DNA-tested, DDF cows in his herd. It's also important to note that many cattle do not carry a DD designation because they have no known carriers in their pedigrees and are therefore considered to be cleared by pedigree. DNA testing isn't always required to determine their DD status.

"We're not going to cull bulls that have \$115 \$B when we can still produce great cattle out of them. Cattle with this kind of genetic merit are extremely hard to replace, and they bring a lot to the table," he says.

For commercial producers, Mayer has this advice:

- First, study your breeding program to determine if the genetics in your cow herd are at risk of DD. If you've used genetics in the past that have been determined to carry the DD condition, then "DNA testing can provide you with information you need to move forward," he says.
- Second, "DDC cattle can calve easily, grow fast, convert well and hang on the rail with the best cattle in America," Mayer says. "You don't need to cull them; just manage them. If you do identify cattle in your cow herd that are DDC, remember it's a recessive gene, so don't breed carriers to carriers."
- Third, keep in mind that big numbers have nothing to do with DD. "High \$B bulls can be DDC or DDF, just like low \$B bulls can be DDC or DDF. Dollar Beef and DD are not linked in any way. DD is linked to pedigree," says Mayer.

In the end, Mayer believes the cattle industry stands a lot to gain by advancements in DNA technology as a way to manage risk and improve quality.

Unlike the drought that has gripped his ranch for many years now and that he can do little to change, Mayer can manage DD and other known genetic conditions.

Now, he has powerful tools to move forward and make his cow herd better.

"It's my hope that as more genes are mapped and better understood that some day it may be possible to identify genetic conditions at a very early age, and that we'll be able to stop the negative impact before it's able to impact more cattle," says Mayer. "In the meantime, we'll diversify our genetic base by using more lines of Angus cattle. In the future, we'll use different lines of Angus to avoid heavy concentrations of genetic conditions in our cow herd."

