



The Juggling Act of Bull Selection

Balancing expected progeny differences (EPDs), genomics, indexes, performance and structure is important for your next bull purchase.

by *Kayla Jennings*

As bull catalogs fill the mailbox and late nights are spent analyzing data or assessing phenotype on bulls via video or photo, there is no doubt breeding decisions are at the forefront this time of year. While producers utilize the various selection tools offered today, it is easy to become overwhelmed in a hurry. Fortunately, as part of the National Cattlemen's Beef Association (NCBA) Cattlemen's College on Jan. 31, Matt Spangler, Ph.D, University of Nebraska, and Shane Bedwell, chief operating officer and director of breed improvement for the American Hereford Association (AHA), provided some insight.

Bedwell says it is important to remember producers may deviate slightly from each other on selection criteria based upon unique, individual factors. "We understand that each selection decision maybe

caters a little bit different to your own environment, to your own setting and production goals that you have," he says.

From the ground up

From a phenotypic standpoint, it is absolutely critical bulls are sound on their feet and legs. If the goal of the producer is to breed cows to produce calves with longevity, which it is, the bull has to move fluidly in order to do that. Bedwell notes producers should look for overall functionality of bulls before deciding to utilize them during the breeding season — that functionality is where structure comes into play.

When looking at a diagram, Bedwell says it is easy to see what the correct angles look like. Cattle should have a 45-degree angle on the front part of the shoulder to the top part of the shoulder and another 45-degree angle from the point of

the shoulder coming in to the top of the knee looks like. While it is more challenging to see these things in a pen of live bulls, he says it is important to look for them.

"That's how that bull is going to get the absolute most athleticism out of his front end," he notes.

Moving to the rear skeleton, Bedwell stresses the importance of good joint mobility in the stifle.

Ideally, there is a 45-degree angle from the top of the pin bone going down into the stifle joint. Additionally, there should be another 45-degree angle from the stifle joint going down into the top of the hock.

"If we lose that, we're losing the overall locomotion and movement of that bull," he says. "The things that I've found to be the most successful when you're trying to identify these cattle is to study their top line, and study how they hold their head when they move. The other thing is to go to the ground and see how they fill their track."

Bedwell says if something looks wrong on their topline or they are not filling their track, that problem is indicative of a skeletal issue.

Genetic tools

Today, cattle producers have more genetic evaluation tools available than ever to combine with phenotypic evaluation. This advantage is huge because it moves the industry forward when it comes to selecting higher quality cattle, based on several criteria points.

"If we think about the fundamentals of genetics," Spangler explains, "it's that the phenotype, what we see, really comes about through not only genetics but the environment. It's really the cumulative effect of both genetics and environment."

Spangler compares bull buying to grocery shopping. Before going to the store, it is important to have the list of needs beforehand. This is no different when attending a bull sale. Spangler advises producers to take time on the front end to prepare a list of breeding objectives for the operation.

He says producers should ask themselves:

- Am I keeping back replacement heifers?
- Do I plan to sell calves at weaning, or will I background them and sell them later as yearlings?
- Am I going to retain ownership all the way through the feedlot and sell on a grid value-based system?

“The answers to those questions dictate what traits are economically relevant for you,” he notes. As a producer raising replacement females, sustained cow fertility (SCF) would be one of those traits because fertility drives the bus when it comes to beef production. Growth would be second and carcass would be the third trait of relevance to that producer, according to Spangler.

Maternal calving ease and maintenance energy are two more traits he spotlights. Put simply, he says if a bull has female progeny that have trouble calving, and she takes more feed to maintain the pregnancy and to take a calf to weaning, she is not economical to keep. Moreover, this bull is not the best bull to breed to the cow herd.

For the commercial producer, Spangler says it is important to remember the merit in crossbreeding, as well. He notes a study done by the United States Meat Animal Research Center that found crossbred females compared to their purebred contemporaries were able to stay productive in the herd for a little over a year more.

“That means they have about an extra calf in their lifetime,” he explains. “And they have a cumulative weaning weight advantage of 600 lb.” That additional 600 lb. is a substantial economic advantage for the producer.

Still, the additional pounds mean nothing if those cattle are not selected to fit the environment. Spangler uses a scenario of an operation with little feed availability. In order to get the most out of the

land, the producer should utilize the genetic tools to select cattle that are feed efficient and high in growth.

The reality is, with little feed those cattle need to still maintain the ability to have healthy, strong calves that improve the bottom line. Because of environmental reasons, cattle that work in this hypothetical operation may not work in other areas. Again, that example is why Spangler stresses the importance of establishing goals based upon the environment, then using the genetic tools to select for those.

The balancing act

Identifying the “grocery list” of traits can be challenging. Spangler cautions it is easy to get caught up in single-trait selection.

“The problem with that is traits are correlated to one another,” he explains. “Once I ignore the first trait and start selecting on the second one; there’s the potential I erode progress I made in the first trait over time.”

Additionally, he sees producers sometimes overlook a bull which was just below the established threshold in one trait but superior in all others. Passing over those bulls sometimes means passing over the potential to move the cow herd forward with the right mating.

“The other thing that you have to understand if you’re buying a bull, is there’s more than one trait that impacts the profitability of your ranch,” Spangler explains. “So it’s not just calving ease, and it’s not just weaning weight. There’s a multitude of traits that impact profitability, and you have to select for multiple traits simultaneously.”

That process can be cumbersome, but, fortunately, there are economic indexes to aid in the process. Indexes are established by weighing several traits together and producing a number indicating the economic value of that animal — considering those traits. Spangler breaks

the exhaustive list of indexes into two categories — terminal and maternal. The terminal indexes are for producers looking to raise cattle to enter the feedlot, and the maternal indexes are more suited for developing females.

In addition to these indexes, genomically-enhanced EPDs (GE-EPDs) are becoming increasingly more popular. “The benefit of that, particularly those of you purchasing young yearling bulls, is that it increases the accuracy of their EPDs,” he explains. “It mitigates the risk of you having made the wrong bull selection decision.”

Genomics provide a look into what exactly the bull is capable of before he even has progeny hit the ground. Spangler highly advises producers utilize this technology when selecting bulls. He says it is yet another way the industry has worked to aid producers in selecting the best bulls to produce the highest-quality calves.

Bedwell and Spangler both agreed in saying there are several pieces to consider when selecting bulls this breeding season — phenotype, genotype and environment. At the end of the day, tools and resources are available to producers to simplify these decisions. Producers interested in more information regarding selection can visit: Beef.UNL.edu; NBCEC.org; and Hereford.org. **HW**



Matt Spangler and Shane Bedwell speak to producers about the value of phenotypic selection in combination with genetic tools.