Balancing Act in Female Selection

Discussions on balancing novel and proven traits give insight to female selection.

*by **Nicole Lane, Raney Lovorn,** editorial interns; & **Troy Smith,** field editor*

Attendees of the 2015 Beef Improvement Federation (BIF) Annual Convention had the opportunity to hear how genetic selection is applied on two different commercial cow outfits representing very different production environments. Ken Stewart of Okeechobee, Fla., and C.J. Blew of Hutchinson, Kan., described their respective selection practices during the event hosted in Biloxi, Miss., June 9-13.

Stewart is manager of Rollins Ranches, which grazes 10,000 cows at four Florida locations, using Red Angus, Gelbvieh and Charolais genetics. He emphasized the importance of selecting genetics that are well-adapted to the environment.

"Cattle must fit the environment. I'm unaware of an instance where it is cost-effective to make the environment fit the cattle," stated Stewart. "I believe in raising your own replacement females. If you're going to buy them, purchase heifers from a single source — one where you have the ability to evaluate the cow herd and know they would work in your own environment."

PHOTOS BY TROY SMITH

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In Stewart's opinion, expected progeny difference (EPD) values are the most valuable selection tool. He advised use of EPDs to optimize rather than maximize production. Selection indexes are another tool he uses as a way to evaluate a blend of useful genetic traits. He also selects on the basis of phenotype, but avoids extremes. While not currently used at Rollins Ranches, Stewart sees value in DNA testing and may apply it to selection of commercial cattle in the future.

►"Every sire we use is DNA-tested, but that's no reason to abandon [progeny] performance testing," said C.J. Blew. "We collect performance data. The challenge is to manage it. We're seeking help with that and hope to establish in-herd EPDs."

The managing partner in his family's commercial Red Angus operation, C.J. Blew also retains home-raised heifers as replacements, emphasizing selection for type, quality and functionality. He told the symposium audience that heifer selection really begins with sire selection. Blew also uses selection indexes, but he advised fellow producers to know what traits are included in an index, along with how the traits are weighted in its calculation. In contrast to Rollins Ranch, Blew does use DNA testing.

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Blew cautioned other producers against using too few selection tools, or relying too heavily on any particular tool.

— by Troy Smith

Cow lifetime productivity

Mike MacNeil of Delta G presented a report from the BIF Cow Lifetime Productivity Task Force. The goal of the task force was to review current systems for genetic evaluation of breeding females and stimulate progress toward more effective systems of evaluation for genetic potential.

MacNeil defined efficiency as creating a balance of inputs and outputs. He emphasized that "cow efficiency" is an incomplete picture. To evaluate efficiency, one would need to evaluate the entire life cycle and production system of a cow and her offspring. While his report focused on the breeding female, he explained that it is only a portion of the picture of total cow efficiency.

MacNeil identified the biggest impediment to improving genomic evaluation as the lack of data. This is due to a shortage of accurate recording and appropriate organizing of contemporary groups, a responsibility of the producer.

Another barrier MacNeil recognized is the lack of cull data reported. He said explicit data about what females leave the herd and why would improve current EPDs. He suggested disposal codes that are simple, but provide a description of reason for culling for future data collection.

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He shared that scarcity of whole-herd data and incomplete reporting limit the opportunity to evaluate genetic probabilities for cow efficiency.

"If you can't measure the phenotypes and report the data, the smartest analyst in the world can't make an EPD out of it," MacNeil said. "The fact that you don't report the data from the culls creates a problem for the EPDs for the ones that you measure."

Evaluation is also greatly facilitated by

►When selecting bulls to fit their diverse environmental challenges, panelists (from left) Ron Melancon, Jimmy Holliman and John Raftopoulos offered different solutions based on varying experiences.

indicator traits and genomic predictions, additional components that can be exceedingly expensive and difficult to measure.

MacNeil suggested reevaluating what data should be collected and reported and how that data should be collected. He emphasized the importance of making data collection as easy and convenient for the producer as possible and being strategic about the indicator traits that are collected to avoid the over-collection of information.

He also predicted that some components of cow traits are measured too late in life to be beneficial in genetic selection. MacNeil suggested producers could instead evaluate indicator traits, one tool being genotypes, earlier in life to achieve the same or better results.

MacNeil acknowledged that more work needs to be done in this area to improve cow efficiency and selection.

"The current suite of genetic evaluations does not fully serve our needs relative to identifying efficiencies," said MacNeil. "There is more work that we need to do in terms of genetic evaluation."

— by Nicole Lane

Real-world adaptation

A panel of successful ranchers from a diverse set of operations discussed the importance of adaptability in cattle. Moderated by Trent Smith, panelists John Raftopoulos, Ron Melancon and Jimmy Holliman spoke from personal experience.

John Raftopoulos of Diamond Peak Cattle Co., Craig, Colo., ranches in the high-desert country of western Colorado. Owning about 3,000 cows, the Seedstock Producer of the Year nominee specializes in breeding cattle that are equipped to handle high altitudes and are resistant to high-mountain disease.

Ron Melancon of MG Farms has ranched at Woodville, Miss., for close to 25 years and owns around 800 head of American-cross animals. His operation is family-centered and produces cattle suited for the heat and humidity of his region.

Jimmy Holliman, a previous BIF president, is a Mississippi native with a purebred seedstock operation raising Simmental cattle at Auburn's Blackbelt Research and Extension Center, Marion Junction, Ala. Holliman ranches on land with high levels of fescue, and his cattle need a higher tolerance to endophyte in order to thrive.

When facing the challenge of getting first-calf heifers to quickly rebreed and have their second calf, the panel had a variety of different responses.

Melancon's solution was to ensure his heifers reached their mature size prior to calving to avoid the stress of growing, milking and maintaining body condition all at the same time. Holliman agreed nutrition and helping heifers reach mature size is a key to getting heifers to rebreed.

Raftopoulos advised producers to leave heifers on grass a little longer and keep their body condition score (BCS) a little lower to give them the time they need to grow and increase their fertility.

When selecting bulls to fit their diverse environmental challenges, the panelists again offered different solutions.

Holliman selects bulls to use by artificial insemination (AI) primarily by word of mouth because there is little information on the individual bull's heat tolerance or hair coat. When not using AI, he relies primarily on bulls from within his own herd.

Raftopoulos relies heavily on bulls that have been through a pulmonary arterial pressure (PAP) test to maintain his herd's ability to thrive in high altitudes.

The panel offered solutions to problems facing cattlemen all over the country using their own personal experience. Their general consensus was that each herd had different environmental issues and adapted to them in vastly different ways through trial and error.

— by Raney Lovorn

Disposition has effect gate-to-plate

Temperament isn't always a trait considered when selecting a herd bull or replacement heifers, but Reinaldo Cooke of Oregon State University said it is worth taking into consideration.

Temperament, also referred to as docility or disposition, is a highly heritable trait that can ruin a producer's day, but Cooke emphasized it could also have an impact on the pocketbook. In his research on both *Bos indicus* and *Bos taurus* cattle, Cooke found that animals with what he categorized as an "excitable" temperament are actually less efficient than cattle with an "adequate" temperament.

The reason for this is cortisol, a stress hormone that is released when the animal responds to human handling or other events in fear, he explained. Elevated cortisol levels can inhibit metabolic processes, delay puberty and postpone ovulation.

PHOTO BY RANEY LOVORN

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In a study of Braford cattle, Cooke shared, there was an 8% difference in pregnancy rates between animals that had lower cortisol levels compared to more excitable cows with higher cortisol levels.

Effects of stress from temperament and reaction to handling extend to the feedlot, as well. In research of Braford calves, animals with higher cortisol levels had the same average daily gain (ADG) as the calmer calves, but significantly lower hot carcass weight (HCW) and meat quality, leading to a $30 value difference between the two temperament groups, Cooke reported.

He explained that there are several factors that affect the temperament of cattle. Female and younger animals can be expected to have

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a slightly more excitable temperament due to added hormones and, for young cattle, the lack of human handling. Breed type can play a role in temperament. *Bos indicus* cattle are more temperamental than *Bos taurus.* The type of production system can also be a factor since cattle in some operations can spend months on rangeland with no human interaction.

Temperament is both a heritable and a learned trait, Cooke reminded the audience.

"You can make a calm cow an aggressive one; you can make an aggressive one into the devil," he said. "The handling can increase levels of cortisol and have significant impacts on pregnancy rates."

Cooke's research revealed that both natural temperament and attempts to help cattle learn improved temperament. He found that animals handled frequently and gently at a young age, acclimating them to human handling, can learn that the chute and processing are not things to be feared. Reducing the natural stress of being around humans resulted in decreased cortisol levels.

Cooke concluded that excitable temperament is detrimental to overall productivity of the cow herd as it can affect pregnancy rates, feedlot performance and more. He recommended selecting animals of moderate disposition to maintain their safety in the pasture and competitiveness at the feedbunk, but culling the animals that cause problems because those issues extend far beyond the processing chute.

— by Nicole Lane

Editor's Note: *Troy Smith is a freelance writer and cattleman from Sargent, Neb. The 2015 BIF Annual Convention was hosted by Mississippi State University and the Mississippi Extension Service June 9-12 at the Beau Rivage Casino and Hotel in Biloxi. The* Angus Journal *and* LiveAuctions.tv *provide comprehensive online coverage of the event at* www.BIFconference.com. *Visit the Newsroom for summaries, proceedings, PowerPoints and audio of the sessions; the Awards page for announcements of award winners; and the Photos page for photo galleries of the tour.*