



# Systems for Sustainability

*A systems approach looks at the big picture of beef industry sustainability and how producers play a role.*

*by Kasey Brown, Angus Beef Bulletin associate editor*

We've all heard about sustainability, but it can still be an abstract concept at times. A systems approach can help us understand the concept, find leverage and overcome the challenge. Clay Mathis, director of the King Ranch Institute for Ranch Management, Texas A&M University-Kingsville, explained the systems approach for beef sustainability to virtual attendees of the 2020 Beef Improvement Federation (BIF) conference June 8-12.

There are important trends associated with sustainability, Mathis explained. There are many that affect the industry both globally and nationally. Increased world population means increased food demand, while also increasing urban sprawl and land value. Consumers have greater interest in food production practices. That leads to more regulations and, thus, more complexities to doing business. There is also the increased speed of technological development.

On the ranch level, trends include increased climate variation and drought, increased commodity and input prices that are surpassing beef prices, increased land values, and decreased willing and skilled ranch labor.

Mathis used a causal loop diagram to illustrate just how complex the relationships can be that influence the beef industry's

sustainability — aiming for the goals of environmentally sound, socially responsible and economically viable. Each aspect of the loop affects the others. A virtuous cycle is when these relationships function in our favor, but they can easily turn to vicious cycles if not managed appropriately.

For example, he said, the beef industry has done really well in improved management of cattle and natural resources — because it had to. Raising cattle is a low-margin business, so efficiencies had to be found to stay in business. However, he observed, cattlemen must work hard to keep improving because of external factors like drought that directly affect those natural resources and an operation's bottom line.

"We have got to have a reinforcing virtuous cycle where greater environmental soundness [and] social acceptance of our beef production practices lead to the support of profitability so that we can continue to produce beef," he said.

So how do cattlemen ensure those virtuous cycles? As an industry, Mathis said, consumer trust is paramount, which is more than simple transparency. At the ranch level, leverage will come in improving cattle management, which also bolsters consumer trust. Consumer trust will drive profitability most, but it is not easy to change.

The greatest opportunities lie in

improving markets. Mathis noted 85% of our beef production is purchased domestically, with 15% being exported. Expanding export markets relies on product quality and policy and trade negotiations, which includes an identification system and process/practice verification. Opportunities within the domestic market lie in product quality, product consistency, and social acceptance of handling practices, cattle well-being and environmental impact. All of these funnel into consumer trust.

"Our license to manage land, livestock, water, wildlife and to sell food products will be valid only if we maintain consumer and social trust. This is where our greatest leverage lies," Mathis said.

The whole system works if beef production is economically viable and profitable, yet there are operations that don't respond to financial signals for improvement. Sustained profitability at the beef enterprise level results from implementing efficient production systems designed to withstand the effects of drought and other external challenges.

He concluded: "Continuous improvement cannot and will not occur unless there is an incentive and desire to produce beef in a sustainable method. Otherwise all virtuous cycles become vicious." **A**



# Maybe Enough is Enough

*Range specialist questions profitability of selecting for heavier-milking cows.*

*by Troy Smith, field editor*

If a little is good, then more must be better, right?

Most and perhaps all of us succumb to that flawed axiom while attempting to manage work, leisure, diet and other aspects of our lives. It seems to be human nature. The truth, of course, is that sometimes more is better and sometimes it isn't. Even in those situations where more of something is good, there generally is a point at which the benefits of "more" cease to exist. Too often we overlook the point of diminishing return. Usually, there are consequences.

"We do tend to overdo," affirmed Travis Mulliniks in a presentation delivered as part of the Beef Improvement Federation (BIF) Symposium Online, hosted June 8-12, 2020. The University of Nebraska range production systems specialist said that common tendency has yielded unintended consequences for cow-calf producers too narrowly focused on genetic selection for increased output from their breeding herds.

As a presenter during the symposium's efficiency and adaptability session, Mulliniks said a common producer goal is to enhance output through heavier calf weaning

weight. Toward that end, many producers focus on genetic selection for growth traits and increased cow milk production.

"But selection for increased milk production impacts more than calf growth," stated Mulliniks.

And here is where the unintended consequences rear their ugly heads. Mulliniks cited evidence that increased milk production

comes with increased nutritional requirements and increased risk of reproductive failure.

"Remember that reproduction is still most important," Mulliniks stressed. "Reproduction is five times more economically important than growth traits or milk production."

So heavier-milking cows are at greater risk of decreased pregnancy rates, which then affects cow longevity in the breeding herd. The cow that breeds back a little bit late this year is apt to breed back even later next year, and she is likely to wean a light calf. The year after that, she may fall even farther behind and is more likely to be culled at a relatively young age.

Mulliniks said another potential consequence of selection for heavier-

milking cows having increased nutritional demands is the need to reduce stocking rates. Ultimately, this reduces the carrying capacity of the ranch. He cautioned the audience to consider how selection for increased milk yield will affect production costs, particularly feed costs, noting that feed costs typically account for more than 50% of the variation in profitability of cow-calf operations.

"Typically, the most profitable producers have lower costs of production," stated Mulliniks, emphasizing that they are profitable even though they don't post boast-worthy weaning weights.

Mulliniks also cited regional data showing that average calf weaning weights have increased little or not at all during the last 20 years. So are producers chasing increased milk production getting anything in return? Have they reached the point of diminishing returns, where the production environment will not support increased production beyond a certain level? Another possibility is that calves can't consume or utilize the level of milk yield achieved.

In either case, another age-old axiom might apply: enough is enough. **A**

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— Travis Mulliniks**

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# Relationship Between PAP and Performance

*Research discovers relationship between PAP scores and feedyard performance.*

*by Kasey Brown, Angus Beef Bulletin associate editor*

Cattle mysteriously dying once they moved from higher elevations to lower elevations used to be a regional issue. However, as more cattle from the mountains move to lower-elevation feedyards, it becomes a Central Plains issue, too. Emma Briggs, a graduate student at Colorado State University, shared her research regarding the relationship between pulmonary arterial pressure (PAP) scores and feedyard performance at the virtual 2020 Beef Improvement Federation Symposium and Convention.

The American Angus Association and others have started releasing PAP expected progeny differences (EPDs) to evaluate an animal's likelihood of genetically propagating high PAP scores, but Briggs noted phenotypic selection is still most definitive in predicting an individual animal's likelihood of problems. Phenotypic scores are performed chuteside by a licensed veterinarian by threading a needle through the jugular to the heart and pulmonary artery. Cattle with pulmonary hypertension, simply put, have overworked hearts with physically changed musculature and shape. It occurs most often in cattle at elevations of 5,000 feet (ft.) or higher, and shows up in most cattle by 10-12 months of age. Symptoms include brisket edema, jugular vein distention, lethargy and decreased appetites.

Because feed costs range from 50%-70% of production costs, Briggs wanted to evaluate the relationship between PAP and feedyard performance. She noted a 10% increase in gain results in 18% more profit.

PAP scores are measured in millimeters of mercury (mm

Hg) with a range of 34 to more than 50. As numbers increase, so does the risk. In her research, she compared PAP scores with well-known carcass traits — ribeye area, marbling, backfat, hot carcass weight, and yield grade.

She found that there is a low genetic correlation between PAP score and average daily gain (ADG) and between PAP score and average dry-matter intake. Cattle with higher PAP scores were less efficient in ADG and average DMI.

Briggs concluded that high- to moderately high-elevation cattle in a moderate-elevation feedyard with high PAP scores had lower feed efficiency and poorer carcass quality because they use excess energy toward their cardiopulmonary system. Cattle with lower PAP scores had lower intake values, but more heavily muscled carcasses.

Thus, genetic selection pressure against high-PAP animals shouldn't negatively affect feedyard and carcass performance. Cattle culled from herds for high PAP scores have the potential to be less feed efficient. However, feedyard buyers can rest assured if they are buying calves from higher elevations that selection against high PAP scores will result in higher performance. **AJ**





# What Consumers Want

*Research shows areas of concern for consumers regarding beef production.*

*by Madi Baughman, editorial intern*

When it comes to beef, consumers are growing more concerned with animal welfare issues in beef cattle production along with the product's taste and nutritional value than ever before, said Shawn Darcy, director of consumer market research for the National Cattlemen's Beef Association (NCBA). Darcy presented "Consumer Market Research — What They Say They Need, and What They Want" June 9 at the virtual Beef Improvement Federation (BIF) Symposium.

Based on the Beef Checkoff Program's consumer beef tracker of 1,500 consumers balanced to census each quarter, Darcy said 67% of consumers say they are eating beef on at least a weekly basis. Along with tracking their consumption habits, they also ask consumers what factors they consider when choosing the meat products they consume, he added.

While consumers' main decision factors are still taste, affordability, and ease to prepare, Darcy noted that factors regarding production aspects of raising animals are growing in importance. Examples include raising animals responsibly, using environmentally friendly practices, and trusting the people who raise the animals.

"We do need to have some communications out there

addressing these things (production processes), because there are more people, more than ever, that are starting to think of these items along with things like taste and things like health," Darcy explained.

## Low level of knowledge

"Consumers are further away from food than they have ever been," said Darcy. "So, when they are thinking about production and they hear a negative story or a positive story, they don't necessarily associate it with one direct area in agriculture; it's kind of spread across multiple areas."

Though 67% of consumers are concerned about cattle production, they admit to being unfamiliar with the process, Darcy said. Of the consumers surveyed, only 27% claimed to understand the operations involved with raising cattle.

About a year and a half ago, Darcy said, he hosted nine focus groups in cities in different regions and did a quantitative study to understand how consumers felt about food.

- 43% of consumers believed cattle are raised in confinement their entire lives.
- They felt a large part of the industry consisted of corporate farms focused on money.
- They saw family farms as a "dying breed" and associated

them with organic, grass-fed operations.

- They saw family farms as higher-quality and providing better conditions for the cattle.

## BQA message

Knowing all of this information, Darcy said they wanted to see if the Beef Quality Assurance (BQA) program could be a platform to educate consumers on industry practices.

It revealed a large knowledge gap, which offers opportunity, Darcy explained.

"A lot of things they were associating with these smaller family farms within niche markets, those were things we know were true for the entire industry."

Seeing a brief explanation of what BQA is and five to six facts about the program, many consumers said, increased their confidence in beef production. In light of this information, Darcy and the Beef Checkoff Program created a video to inform consumers about BQA. Consumer Beef Tracker data indicated a positive response, with an increasing percentage of consumers feeling positive about beef and how it is raised. 