

Innovation to Application

BIF's Research Symposium explored everything from genetic tools and technology to the consumers served by genetic progress

by Troy Smith

There was a time when relatively few cattle folk were familiar with the Beef Improvement Federation (BIF) or the organization's annual research symposium. In the early years, some long-time attendees admit that the event appealed mostly to scientists engaged in public and private research. The average event participant might have spent more time in dress clothes or a lab coat than in Carhartts and muddy boots; however, the demographic profile has changed.

Over time, the BIF audience broadened to include many seedstock breeders and growing numbers of commercial cow-calf producers interested in new and improved tools for genetic selection, management of beef cattle reproduction and other technologies. The BIF Symposium has become a premier beef industry event credited with changing not only the ways that producers breed cattle and manage their operations, but the way they think about their industry and its future.

More than 400 attended this year's BIF Symposium June 22-25, in Des Moines, Iowa. Another 250 registered to participate online. Participants from 14 countries participated virtually.

Consumer shifts

During the first general session, Michael Uetz of Midan Marketing,



Michael Uetz

talked about meat consumer purchase trends and expectations. He said the COVID-19 pandemic hasn't changed the fact that consumers generally fall into one of five groups with regard to meat-buying decisions:

- “*Aging Traditionalists*” won’t be swayed in their belief that animal protein belongs at the center of the plate.
- “*Protein Progressives*” are eager to try new protein products. They seek variety including meat alternatives.
- “*Family First Food Lovers*” have a passion for cooking, as well as meals shared with loved ones. Uetz said, members of this group are more likely to choose grass-fed beef.
- “*Convenience Chasers*” may be family-oriented, but they seek products that simplify and hasten meal preparation. They are not particularly interested in health claims, but they are very price conscious.
- “*Wellness Divas*” focus on health, often to the extreme. They often prefer plant-based

proteins and typically try to reduce red meat consumption. While members of this group may not be adamantly opposed to animal proteins, they do oppose antibiotic and hormone use in food production.

Protein Progressives were the largest group prior to the pandemic, according to Uetz. Now, Convenience Chasers have taken the top spot. As younger generations come of age and new buying options become available, consumer behaviors will continue to evolve. Research suggests: 57% of meat consumers have purchased meat online since the pandemic began; 59% of shoppers are experimenting with new ways to cook meat and chicken at home; 46% plan to order beef on their next foodservice trip.

Knowledge about these consumer groups and buying trends will help the beef industry create and market products that satisfy demand, according to Uetz.

Just tell our story

“Ultimately, we need their trust,” stated Uetz. “If consumers don’t trust us and feel confident in what we’re delivering and believe us, they’re not going to buy our products.”

Dan Thomson, DVM and head of the animal science department at Iowa State University, also emphasized the importance of consumer trust. He lamented that

animal rights activist groups are trying to erode the trust consumers have in the beef industry. He believes the industry is



Dan Thomson

equipped to defend itself against attacks related to animal welfare and sustainability issues.

“All we have to do is tell our story; tell about all the things we have done well,” said Thomson.

Thomson also predicted, “Global climate change will have more impact on agriculture than agriculture will have on global climate change.” When environmental factors change, population centers shift and consumer tastes change over time; where and how food production occurs changes, too.

“We can’t turn back. Mankind will have to produce as much food in the next 40 years as it has in the last 10,000 years,” Thomson said. “We have to keep getting better.” He added that safe, secure beef production is essential to progress.

Side-benefits of dairy on beef

Multiple BIF speakers discussed what they termed the beef-on-dairy phenomenon, the increased use of beef sires to breed dairy cows. Reportedly, 2020 saw nearly 5 million units of beef semen sold for use in U.S. dairy herds. That’s more units than were used in beef cows domestically.

Lynn Broadbent, a dairyman from Baltic, S.D., explained how adoption of advanced reproductive technologies, including sexed semen, allows replacement dairy females to be produced from only the best producing cows. Breeding all other cows to beef sires yields a more marketable calf with higher value. Use of beef sires also results in more pregnancies among hard-to-settle dairy females.

Increasing adoption of beef-on-dairy could also impact beef industry progress in genetic selection.

Bob Weaber, a geneticist from Kansas State University, explained beef-on-dairy represents an opportunity to dramatically increase the volume of carcass records collected from beef sire progeny. He described ongoing research that is evaluating the

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**Bob Weaber**

feasibility and impact of including beef-on-dairy progeny carcass data in national cattle evaluation systems.

Researchers want to know how including such data could affect heritability estimates and expected progeny difference (EPD) reliability.

Exploring new traits

Other reports on research with practical applications for beef cattle breeders included University of Missouri animal scientist Jared Decker's presentation on selection for the early shedding of

winter hair coat. According to Decker, results indicate that hair shedding is a moderately heritable trait and economic gains can be made by using breeding values based on hair shedding scores to select for heat tolerance. Selection for environmental adaptability is important to animal welfare but also to production economics, according to Decker. He explained research suggests early-shedding cows tend to wean heavier calves.

Isabella Kukor, a graduate student from Colorado State University, reported on the development of tools to select for animals resistant to pulmonary hypertension which manifests as high-mountain disease among cattle raised in high-altitude, low-oxygen environments. Increasingly pulmonary hypertension is also being found among cattle in feedlots located at much lower elevations, with no oxygen deprivation. Kukor explained how scoring systems for measuring heart physiology and the presence of heart fat are being applied to fed cattle at harvest.

"The purpose of my research is to further investigate the genetic component of heart and heart fat scores," said Kukor, explaining that scores collected from harvested progeny show if differences in one score or the other (or both) are related to sires.

"Sire differences suggest that a genetic component is present and selection can improve both of those traits," said Kukor, adding that next steps include collecting data from sufficient progeny to arrive at a heritability estimate.

Practical technology

Among producers making BIF presentations about practical application of emerging technologies was Reis Bruning, a Nebraska cattleman whose family uses an individual animal monitoring

system to track and record animal behavior. Utilizing electronic ear tags and associated computer programs, Bruning monitors such activities as animal movement, feed consumption and rumination. The system reveals trends and alerts management to behavioral changes. Bruning said the system also aids management of artificial insemination (AI) programs.

"We use it for heat detection, so we can simultaneously synchronize and breed multiple groups," Bruning explained, noting time-savings and reductions in false heat detection when using visual heat-detection patches alone.

"The system also allows us to monitor postpartum anestrous by showing us when cows return to cycle, and we can monitor the onset of puberty in replacement heifers," added Bruning.

Cody Jorgensen shared his experience with virtual fence

technology. His family runs a multi-faceted operation near Ideal, S.D. He explained individual animals wear collars

that contain global positioning system (GPS) sensors. These

are used in combination with wireless technologies to keep

animals within a specified area.

If an animal comes near a

predetermined boundary, its collar emits an audio signal. If the animal moves still closer to a boundary, the collar delivers an electrical pulse similar to the shock received by an electric fence.

Jorgensen told how individual animals were trained by placing them in an enclosure where virtual boundaries were set to match existing physical fences. Trained cattle were then grazed behind virtual fences established around fields planted to cover crops and in areas where building and maintaining traditional fences is difficult and costly. Virtual fences have also been used to divide pastures into smaller paddocks for rotational grazing.

As an evolving technology, Jorgensen noted there were problems with fit and retention of

first-generation collars but the next generation is providing improved performance. He also explained using collars on 2-year-old bulls has been most challenging. Some bulls ignore the warning and the shock. Response is always better when animals are trained at a young age.

Sustainability demands profitability

A young producers' forum, held in conjunction with the BIF symposium, included a presentation by John Locke, a Texas rancher and instructor for Ranching

For Profit Schools, conducted by Ranch Management Consultants (RMC). Locke explained ample data show that American agriculturalists are the most productive and most efficient in the world. However, believing that increased productivity and efficiency always results in increased profitability is a faulty paradigm. And while profit should not be the sole focus of a farming or ranching business, it is essential.

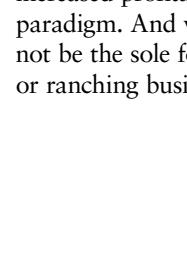
"Profit is to business as breathing is to life," stated Locke.

Citing RMC data, Locke said research suggests the industry average for ranch business return on investment in assets other than land is negative 1.5%. He believes the reason is too many ranchers treat ranching as a lifestyle instead of a business. They don't spend enough time thinking about things that make any business more profitable: reducing overhead costs, improving gross margin per unit of production and increasing inventory turnover.

"A lot of us spend our time making sure we do things right instead of thinking about doing the right things," according to Locke.

A common complaint is that working on the business and consistently crunching the numbers takes all the fun out of ranching, but Locke disagrees. "Profitability can add a lot of fun," he said, reminding young and new producers that profitability lends sustainability and makes an operation more attractive to a succeeding generation.

Editor's note: Presentations from these and other BIF speakers are available at <https://beefimprovement.org>. **HW**

**John Locke****Cody Jorgensen**