



Thinking Global

What role does genetic evaluation technology play in enhancing global competitiveness? Speakers share their views.

by *Katie Gazda, Troy Smith & Carrie Stadheim*

The 2011 Beef Improvement Federation (BIF) Research Symposium and Annual Meeting kicked off June 2 with an opening general session discussing “The Role of Genetic Evaluation Technology in Enhancing Global Competitiveness.” Jeff Jacobsen, dean of agriculture at Montana State University, chaired the session, which included presentations from three industry professionals.

Nucleus schemes

According to Scott Newman, a geneticist with Tennessee-based Genus PLC, genetic evaluation is all about choosing above-average animals to produce next-generation animals with superior performance. It's about making money in the process by reducing input costs or increasing output through the use of available technology. If we can do this more effectively than our competitors, we have the potential to produce a product that's competitive locally, nationally and even globally.

“Genetic evaluation becomes the engine to drive this process,” said Newman, speaking during the first general session of the 43rd annual Beef Improvement Federation (BIF) annual research symposium in Bozeman, Mont.

“Genetic evaluation makes genetic improvement possible,” Newman explained. “It provides the capability to benchmark individuals within a breed, or possibly different breeds. It is a means whereby the joint investment in recording and selection can be converted to market advantage.”

Newman said recording the right traits and making sensible use of indexing, selection and mating could enhance returns. Maximizing the quantity and quality of data recorded allows genetic evaluation to be used most efficiently.

“The more data we have, the better decisions we can make,” stated Newman, noting that the challenge facing beef breeds is obtaining the most useful data possible. He advocated the implementation of information nucleus schemes, which he

defined as well-structured progeny tests. This allows a breed to collect data on traits that are expensive to measure, such as feed intake; traits that cannot be measured in the seedstock herd, like eating quality; or traits that take a long time to record, such as fertility and longevity.

Newman said it is imperative that beef breeds define their breeding structures and implement an information nucleus scheme to increase opportunities for collection of data on hard-to-measure traits. It will also add clarity, he said, to the application of genomic information as part of genetic evaluation. Genomic information will alter the landscape of genetic improvement, Newman predicted, but its utilization will

depend on having relevant phenotypic data for calibrating marker tools.

Newman urged breeds to turn their attention to prioritize traits to be measured and to move toward a unified database to make across-breed information more accessible and useful.

— by *Troy Smith*

Call for merging efforts

Robert Williams, director of breed improvement and foreign marketing for the American-International Charolais Association (AICA), addressed concerns with a growing world population and the effect that will have on an already shrinking beef cattle population.

The United Nations (UN) projects that the world's population will reach 9 billion people by the year 2050. In turn, food production is expected to double in the same amount of time.

In order to meet the increasing demand for food, the cattle industry needs to continue its focus on performance and genetics, which have been significant to the increase of beef production in the past, Williams explained. Many of the successes in these areas can be traced to the work done within BIF.

However, despite past successes, beef breed associations face challenges in the future, Williams said, noting both the U.S. beef cow inventory and U.S. breed registries reached their peak in the 1970s.

Today, the industry needs approximately 400,000 fewer bulls than it did in 1975. The decrease in commercial beef cow numbers has led to a loss of approximately 430,000 registrations for beef breed associations, which correlates to a loss of nearly \$11 million annually.

While past research and development within the industry has taken place on the campuses of the country's most viable land-grant universities, budget cuts on these campuses have begun to restrict the amount of research that can be done. In turn, many beef breed associations, such as the American Angus Association and the American



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Simmental Association, are forming in-house genetic evaluation services.

Today, Williams said, the biggest question that faces the beef industry isn't whether we should use genomic information; it's how we should use it efficiently. The current system in place, which utilizes many separate "islands of data," i.e., from breed to breed, is not the best use of resources, Williams said. Each breed and industry organization researching these genetic improvements is searching for the same thing. Why not share these resources, he asked.

Williams said the best solution to the question at hand is to create an information infrastructure that can support the formation of research, technology development and partnerships within the segregated breeds and organizations. With the use of the best technology and resources, we can spend less time focusing on our individual breeds and more time successfully enveloping the theme of BIF, which is to improve the beef industry as a whole.

— by Katie Gazda

A global standard

"If you want to develop a market, you have to visit your customer, get to know them," said Willie Altenburg, associate vice president-beef marketing, Genex Cooperative Inc., Shawano, Wis.

A former Beef Improvement Federation (BIF) president, Altenburg has traveled the globe to become acquainted with prospective customers worldwide. He shared knowledge gained from visits to the world's largest beef-producing countries outside the United States: Brazil, Australia, Argentina and Canada. Each country's unique industry and resources give way to different needs regarding artificial insemination (AI).

With 54 million beef cows, Brazil is the world's biggest player. It is home to nearly twice as many beef cows as the United States.

"Because of good synchronization programs and low labor costs, Brazil is able to artificially inseminate a lot of cattle," Altenburg said. Brazilian cattle producers AI a greater percentage of their cows than U.S. producers do.

Although many producers raise Angus, Red Angus and other breeds familiar to U.S. producers, Nelore is the most popular breed. White in color and similar in appearance to a Brahman, the Nelore is "part Brahman, part wild animal," Altenburg joked. The cattle are extremely hardy, especially in the Amazon region, where British breeds don't fare well.

"There is a lot of AIing to British bulls, because those bulls can't handle the living conditions," Altenburg explained. The Brazilians use Angus genetics as a terminal cross to add meat-eating quality.

Argentina, with more than 13 million beef cows is not an export-focused country, Altenburg said. "They are a huge 'in country' beef-consuming country." They also focus more on visual appearance than expected progeny differences (EPDs) when choosing semen. "Their cattle herd hasn't suffered; they've done a lot with the eye. They've got some great-looking cattle."

Australia is now competing with the United States for the world genetics market. Altenburg said the Australians have seen challenges in the transfer of data when exporting semen and bulls to the United States. They are now developing markets in South America for their genetics, most of which originated in the United States.

Canada's commercial breeders are well-educated; some are even more knowledgeable about EPDs than the purebred breeders, Altenburg said. They raise big, stout cattle, so their focus is less on birth weight and more on growth EPDs.

While cow numbers in the United States continue to decline, use of AI has not, Altenburg said. The cattle states in the upper



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Midwest are the biggest users of beef cattle semen, and, as a percentage, first-calf heifers are far more likely to be Aled than cows.

"Cow numbers have gone down, but custom collection is up and semen selection is up. Our technicians are sure more busy. We are improving our synchronization programs, so we're seeing more and more cows being Aled," he said.

Altenburg suggested that a global standard for EPD data might be useful in assisting with the transfer of information from country to country. While one country will accept and incorporate proven EPDs from a particular animal into their home data system, other countries are not reciprocating, which means that a bull will have to "earn his stripes" a second time around, with another series of progeny testing. This is an inefficient use of a cattle producer's most precious commodity: time, he said.

— by Carrie Stadheim

To listen to these presentations and view the accompanying proceedings papers and PowerPoint, visit the Newsroom at www.BIFconference.com.

BIF's 43rd Annual Research Symposium and Annual Meeting was hosted June 1-4 on campus at Montana State University, Bozeman, Mont.

