New Frontiers

Incorporating DNA technology into genetic evaluation and other technologies took center stage at the the 2008 BIF Annual Meeting and Research Symposium.

Beef industry leaders from around the world gathered in Calgary June 30-July 3 for the 2008 Beef Improvement Federation (BIF) Annual Meeting and Research Symposium. The Canadian Beef Breeds Council (CBBC) hosted nearly 400 cattle producers, industry representatives and academia for the event, themed "Beef Beyond Borders."

Incorporating DNA technology into genetic evaluation took center stage during general sessions, committee breakouts and meetings hosted by industry affiliates in conjunction with the BIF conference.

Angus Productions Inc. (API) is providing online coverage of the event at *www.bifconference.com.* What follows is a small glimpse of the information available online. From the site you can access summaries of the sessions, as well as proceedings papers, PowerPoint presentations, audios, news releases about award winners and photo galleries.

Coverage is made possible through sponsorship by Biozyme Inc. and its continuing support of the Angus Foundation and by the generous producers listed on the Seedstock Directory page.

For more information about BIF, visit *www.beefimprovement.org.* For more information about the CBBC, visit *www.canadianbeefbreeds.com.*

Keeping the Genetic Doors Open

Cooperation needed to make DNA technology top genetic tool.

DNA technology will someday become the most import tool for genetic selection, asserts John Pollak, Cornell University animal scientist and director of the National Beef Cattle Evaluation Consortium (NBCEC).

In remarks made during the opening session of the 2008 BIF Symposium, Pollak suggests cooperation in the convergence of two existing technologies — expected progeny differences (EPDs) and DNA testing — is the logical first step.

However, Pollak says he sees the inability to consolidate all DNA test information being generated as the primary obstacle to combining DNA marker information with EPDs. Reluctance to consolidate disparate databases is the same constraint that hindered implementation of multiple-breed EPDs, he suggests.

"We should consider a universal DNA information database so the infrastructure does not have to be duplicated, even across breeds," Pollak adds.

Pollak acknowledges that the Canadian and U.S. beef industries have historical ties through the exchange of beef genetics. Such ties led to collaboration among the two countries' respective breed associations and to a cooperative effort toward related education and research. Pollak hopes the same collaboration can help deal with a troubling transition from EPDs based on performance and pedigree records, to DNA inferences of genetic merit.

"We're acting like we're paralyzed by the promise of 'someday.' We're just waiting for it to happen," Pollak states. "We really haven't tackled this problem appropriately. We should be thinking about how we are going to pursue the transition from today to 'someday.' "

Pollak encouraged symposium attendees to think about the steps needed to make the transition to "molecular breeding values" while listening to the remaining symposium presentations. He also suggested producers look for opportunities to collaborate, avoid duplication and share resources.

— by Troy Smith

PHOTOS BY CRYSTAL YOUNG, API CREATIVE MEDIA

►Cornell University's John Pollak urges attendees to consider opportunities for collaboration in order to avoid duplication of effort and use industry funds wisely as the industry moves forward in the transition to using DNA in genetic predictions.

Model for a Common Currency

Variety of tools for predicting genetic value begs for exchange to a common currency.

Accurate DNA-based selection tools will present cattlemen the opportunity to identify animals with superior breeding value as soon as a tissue sample can be collected, says Mike Tess, professor of animal and range sciences at Montana State University. "However, the current state of national cattle evaluation (NCE) in the beef industry provides no clear direction to breeders regarding how best to use these new DNA tests in their selection programs."

During the opening session of the 2008 BIF Symposium, Tess echoed John Pollak's comments calling for the need to marry DNA information with performance and pedigree information to provide a single estimate of breeding value for a particular trait.

A variety of DNA tests are currently available, including tests for parent verification, traceability, management and genetic selection, Tess explains, focusing the bulk of his comments on tests used in genetic evaluation. Accompanying those tests is a variety of confusing terminology — EPDs, GPDs, profiles, EBVs, MBVs, stars, MGVs, etc.

Also confusing is the variety of commercial tests available. Current DNA tests are based on a few to more than 100 genes, Tess says. And the number of genes measured is likely to increase rapidly during the next few years.

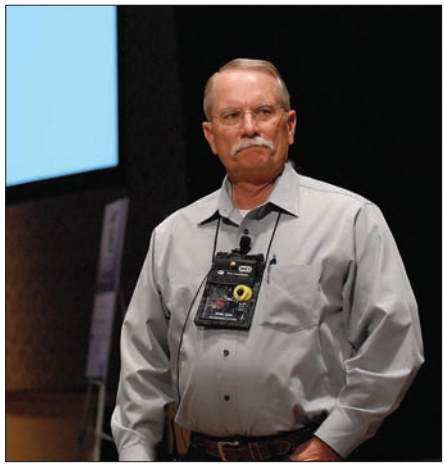
Though we know the tests are not independent of each other, Tess says it is not known how much they overlap. And not all tests are validated.

"We need a common currency for genetic evaluation," Tess says. That currency, he adds, is expected progeny differences (EPDs) and accuracies.

Tess presented a model for NCE that incorporates pedigree relationships, phenotypes (performance measures) and DNA test information to compute EPDs with accompanying accuracies based on the amount and type of information available.

For more information and a schematic of the model, see the proceedings accompanying this summary online at *www.bifconference.com.*

— by Shauna Rose Hermel



►As the industry moves forward in developing new trait predictions, those predictions need to be reported in terms of a common currency — EPDs, says Mike Tess, Montana State University.

Creating the Circumstance

Industry poised to capitalize on advanced information channels.

People laughed in 1987 when leaders in the hog industry predicted they could use indexing systems made possible with advancements in computer technology to achieve production goals such as raising 25 pigs per sow per year or marketing hogs by 160 days of age. They aren't laughing now, says Brad Wildeman, Poundmaker Feedlot, whose background in genetics originated in the hog industry. Every parameter has been exceeded.

Wildeman spoke to 2008 BIF Symposium attendees about "Information Channels: Access to and Benefits from Enhanced Data Protocols."

The cattle industry has lagged behind other industries in developing advanced information channels for several reasons, Wildeman says. For one, the industry is segmented — ownership changes often. Selection throughout the value chain has always been more art than science. And because of the varied environments in which cattle are raised, no one breed or type can fit every operation.

Lack of measurement criteria has made it difficult to see rapid improvement, Wildeman continues. Little feedback from sectors other than at the genetic level has occurred. "Without improvements in information flow," he says, "it takes a very long time to yield results."

Opportunities are presenting themselves, he asserts, and many of the tools are in place to take advantage of those opportunities. DNA genotyping offers huge potential, and the ability to transfer data electronically makes large amounts of data available to a wide number of stakeholders.

Wildeman shared how the Canadian Beef Advantage Pilot Project, sponsored by a host of beef industry participants, is positioning itself to take advantage of such opportunities. Participants of the project have identified objectives based on key attributes of the Canadian beef industry, and will depend on information sharing for continual improvement.

Potential results, he says, include:

- ►Movement of information up and down the value chain.
- ►More defined breeding, feeding and marketing strategies.
- ►Improving overall herd, which could result in eliminating poor performers and creating more superior performers.
- ►More coordinated and informed industry.

Wildeman concluded his presentation with a quote from George Bernard Shaw: "Those people that succeed in this world are those who look for the circumstances they want … and if they cannot find them, they create them."

— by Shauna Rose Hermel

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New Trait Development

Focus is on traits that help producers improve profitability.

Producers must be willing to adopt economically viable technologies that improve profitability. From a genetic perspective, such technologies must improve the accuracy of economically relevant traits (ERTs) in a cost-effective manner. That was the message Mark Enns, Colorado State University, delivered during Thursday's general session of the 2008 BIF Symposium.

"As an industry, we must identify the deficiencies in our current national cattle evaluations (NCE) and focus efforts on additional ERTs. We need to open up a whole new set of traits to evaluate and choose those traits that will be most profitable," Enns says. "As we move forward, we must develop tools that don't increase the confusion [any more than expected progeny differences (EPDs) do]. We must make it as easy as possible to help commercial customers become more profitable."

►Mark Enns, Colorado State University

Enns says the guiding principle for new trait development is to identify the right ERTs. The process requires breeders to outline current production levels, consider marketing methods and identify performance characteristics that determine animal value at marketing. Seedstock producers should center on meeting the needs of customers, while commercial producers should focus on their own operation's characteristics, he adds.

Traits that are economically relevant in specific production systems are traits for which a unit of genetic change directly influences either production costs or revenues. Once ERTs are identified, each breeder can focus selection decisions on EPDs for those traits.

"In the process of new trait development, we must address not only traits for which the current NCEs are deficient, but also look forward 20 years, identifying ERTs for the future," he says. "Development of EPDs for many new traits will require detailed collection of performance information from research populations. It is often expensive and/or difficult to collect. Genomic/marker information could be collected more widely from the industry, especially for traits such as tenderness or feed intake."

Enns identifies feed intake from the cow-calf, background and feedlot sectors as a key area within the new realm of traits. He also singles out health and survival traits, regionalized adaptability traits, consumer acceptance traits and male fertility traits.

"Currently, many cow-calf producers sell weaned calves and cull cows and retain female replacements," Enns says, noting ERTs for those producers include calving ease, sale weights, milk production, cow maintenance feed requirements, stayability, heifer pregnancy rate, bull fertility, and cow and calf health. "EPDs are available for all but bull fertility and health, yet both clearly influence costs and revenues and are ERTs. They should be a focus of genetic improvement research and yield selection tools."

Enns cautions that the ERT list introduces the issue of accuracy. Even though EPDs are available for several traits, the time required to achieve acceptable levels of accuracy for cow maintenance feed requirements, length of productive life and heifer pregnancy, for example, are much longer than for calving ease, sale weight and milk production. Selection accuracy influences how quickly genetic progress can be made, so genomic information could be especially useful in improving young animal selection accuracy.

"There is considerable need throughout the beef production system for the development of new ERTs and associated selection tools. Development and delivery of these tools will likely require better data tracking systems, facilities for intense phenotype collections and/or increased use of genomic tools in NCE systems," he says. "All of these technologies will likely be needed to deliver selection tools for these new traits, but the genetic improvement trends are long-term and the results can be sustainable."

— by Barb Baylor Anderson

Roy A. Wallace BIF Memorial Fund established

The Beef Improvement Federation (BIF) formally recognized the Roy Wallace BIF Memorial Fund, established in collaboration with Select Sires and the Ohio Cattlemen's Association, during the organization's 40th annual meeting.

The memorial fund was officially launched in April 2008 to honor Roy Wallace, who devoted his life to beef cattle improvement. Wallace worked for Select Sires for 40 years, serving as vice president of beef programs, until his passing in January 2008 at the age of 63.

Wallace became involved with BIF in its infancy. He was the only person to attend each of the first 40 BIF conventions. He loved what BIF stands for — an organization that brings together purebred and commercial cattle breeders, academia and breed associations, all committed to improving beef cattle. Wallace was honored with both the BIF Pioneer Award and BIF Continuing Service Award, and he co-authored the BIF 25-year history, *Ideas into Action*.

"Roy was one of those people that everyone could rally around," says Twig Marston, executive secretary for BIF.

"Let us rally around Roy, our friend who dedicated his life to improving beef cattle and the lives of people who raise them," says Brian House, Select Sires beef program manager. "He truly made a difference."

Monies will be used for college scholarships for young people who have a passion for beef cattle. Special emphasis will be placed in the areas of beef breeding, genetics and reproduction. Contributions may be sent to: Roy A. Wallace BIF Memorial Fund, c/o Union County Foundation, 126 N. Main St., P.O. Box 608, Marysville, OH 43040. Checks should be made payable to Union County Foundation with "Roy Wallace BIF Memorial" written in the memo line.

Industry Leaders Honored

BIF honors key members for innovation, years of service and industry dedication.

The Beef Improvement Federation (BIF) took time to honor some of its members during its 40th Annual Meeting and Research Symposium June 30-July 3 in Calgary, Alta., Canada. BIF awarded the Pioneer, Ambassador and Continuing Service awards to those who have made lasting contributions to the beef cattle industry. The Frank Baker Memorial Scholarship was also given to two deserving students. Following are summaries of each award winner.

Pioneering spirit

The Pioneer Award recognizes individuals who have made lasting contributions to the improvement of beef cattle, as well as having a major role in the acceptance of performance reporting and documentation as the primary means to make genetic change in beef cattle. BIF presented the following recipients with the honor July 3.

Don Vaniman, the first executive secretary of the American Simmental Association (ASA), was born and raised in California. Vaniman graduated from Montana State University and worked for two large ranches in Montana and Oregon before being drafted into the military. Following his military service in the mid-1960s, he was named executive secretary of the Montana Beef Performance Association before becoming the first executive secretary of ASA in 1968. Today, Vaniman operates a successful real estate business in Bozeman, Mont.

Louis Taylor Latimer, former Shorthorn breeder and current Hereford and Angus breeder, has a rich family history in the cattle business. Latimer's grandfather and father brought a herd of Shorthorns to Canada from Missouri in 1903. In 1946, the Latimers formed Remitall Cattle Co. In 1963, Louis and his brother established a Polled Hereford herd. After the partnership was dissolved in 1976, Louis formed a partnership with his two sons, adding Gelbvieh and Angus herds along the way. The Gelbvieh herd was dispersed in the mid-1990s. Today, the herds number more than 1,000 head each.

Harry Haney was instrumental in the development of the artificial insemination (AI) industry in Canada.

Haney joined the family-owned farming company, Haney Farms Ltd., in 1974, and after managing the farm's livestock operations, joined Peat Marwick and Partners as a consulting agrologist, returning later to the company as principal. He also served Canadian Agricultural Consultants Ltd. as general manager. Haney helped found Independent Breeders Service Ltd., later bought his partners out and managed the firm until 2007. Since 2003, he has served as vice president of ITWorks Inc., a company specializing in the development of software specific to the livestock (particularly AI) industry.

Robert "Bob" Church of Calgary, a lifetime geneticist, is internationally known as a leader and expert in transferring the technologies of genetics, biotechnology and molecular biology to the food and fiber industries.

Church was instrumental in developing the global cattle genetics industry and was one of the earliest scientists to analyze animal genomes. He is also a medical scientist at the University of Calgary and a rancher with experience in sustainable agricultural production.

Ambassadors to beef

Canadian Cattlemen magazine and principals Gren Winslow and Larry Thomas were honored July 3 with BIF's Ambassador Award, which recognizes media representatives who have made a significant contribution to beef improvement and/or BIF.

Canadian Cattlemen has been serving beef producers since 1938. The magazine began as the official publication of the Western Stock Growers' Association. Circulation expanded following its purchase by Public Press in 1950, and today it is the only national magazine serving Canada's beef industry.

Winslow became the editor of the publication in 1986, while Thomas, associate editor, joined the magazine in 1988.

Continuing service

BIF's Continuing Service Award honors those who have made a significant contribution to BIF. This year, the organization honored three of its members July 2.

Dale Kelly is currently vice president of the Agricultural, Biotechnology and Food Division of the Saskatchewan Research Council and has served in management roles in the Canadian Charolais, Limousin and Simmental breed associations. Kelly has more than 25 years of business experience in the agri-food industry, including six years as chief executive officer (CEO) of AgraPoint International Inc.

Doug Fee has been chief executive officer (CEO) of the Canadian Angus Association since 1994. Under his leadership, association membership has doubled and registrations have nearly tripled. During his tenure, Fee has successfully negotiated joint evaluation programs with U.S. counterparts and developed programs that have expanded the influence and use of Angus within the commercial cattle industry. He has worked with processors to develop and promote successful branded Angus beef programs.

Duncan Porteous has enjoyed an extensive career with the Canadian Hereford Association (CHA). Porteous served as assistant to the CHA secretary-manager from 1964 to 1966. After working for a custom farming operation, Porteous was appointed general manager of CHA in 1975. During his time as general manager, he helped foster the Total Herd Evaluation Program and initiated Canadian Hereford research programs in ultrasound technology, maternal productivity, Hereford carcass evaluations, global expected progeny difference (EPD) evaluations and net feed intake.

Porteous is currently project manager for the Canadian Beef Breeds Council Purebred Risk Assessment (PBRA) Project.

Scholarships

The Frank Baker Memorial Scholarship Award essay competition for graduate students provides an opportunity to recognize outstanding student research and competitive writing in honor of the man widely recognized as BIF's founding father.

Kasey DeAtley, New Mexico State University, was awarded a 2008 scholarship for the essay, "Marker-Assisted Selection in the Beef Industry: Developments and Research Needs."

Devori Beckman, Iowa State University, was also awarded a 2008 scholarship for "Docility EPD: A Tool for Temperament."