

# Genetic Impact

Panelists address the impact of genomic technology on the cattle industry.

Story & photo by **Troy Smith**, field editor

It's been said that competition is fierce among and within land-grant universities for increasingly elusive funding for agricultural research. However, according to Ronnie Green, vice chancellor of the Institute of Agriculture and Natural Resources (IANR) at the University of Nebraska–Lincoln, a new level of discussion is evolving. The animal science researcher-turned-college-administrator credits a broadening realization that research is important to addressing the need for increased food production. To feed a rapidly growing global population, Green believes expanded research of technologies like genomics is essential.

During the 2015 National Angus Convention & Trade Show hosted Nov. 3-5 in Overland Park, Kan., Green moderated a discussion of how use of genomic technology to discover and manage variations in DNA is and likely will impact the cattle industry. Contributing to the panel discussion were Michael Bishop, animal agriculture specialist for the genetic technology company Illumina; Dan Moser, president of Angus Genetics Inc.; and registered-Angus producers Brian McCulloh of Viroqua, Wis., and Bill Rishel of North Platte, Neb.

"I believe we're on the brink of making a wonderful management tool (for genetic selection), not only at the seedstock level, but the commercial level as well," stated Bishop. "Genomics is improving accuracy of selection and increasing predictability across a growing array of important production traits."

Dan Moser agreed, noting the American Angus Association's incorporation of genomic information in its genetic evaluations for the calculation of genomic-enhanced expected progeny difference (EPD) values. Moser said genomics provide for increased EPD accuracies for young animals having little or no progeny



► UNL's Ronnie Green moderated a panel consisting of Michael Bishop, Illumina; Dan Moser, AGI; Brian McCulloh, Woodhill Farms, Wisconsin; and Bill Rishel, Rishel Angus, Nebraska, to discuss the impact of genomics on the cattle industry now and in the future.

information. Genomics also characterize genetic traits difficult to measure, such as carcass traits in breeding animals and maternal traits in bulls.

"Coming, through genomics, are predictions for traits we don't currently measure and may not be able to measure on individual operations, such as resistance to diseases like BRD (bovine respiratory disease)," added Moser. "It's not just about improving traits related to production efficiency, but improving animal welfare, too. Genomics will help us reduce animal pain and suffering, and finding out how to select for beef taste profile improvement will be beneficial to consumers."

Breeder Bill Rishel said genomic technology has allowed cattle breeders to address genetic defects without eliminating entire cattle bloodlines, as was done to correct past problems with cattle dwarfism. Instead, animal matings can be managed with the aid of DNA testing to identify defect carriers and still utilize the positive genetic attributes of those animals.

All panelists agreed with Brian McCulloh's

warning that genomics is "no silver bullet," its present power comes through incorporation in EPDs, and the predictive power of EPDs is still dependent on phenotypic information. Panelists agreed that this is an era of "phenomics," where both types of information are most useful when used in combination.

"We've got to keep submitting phenotypic data," emphasized McCulloh.

Rishel allowed that it takes time for new technologies to gain acceptance, citing examples including artificial insemination, boxed beef, EPDs and branded-beef programs like Certified Angus Beef LLC (CAB).

"All of these concepts required us to shift our paradigms," said Rishel. "The same is true for genomics."

Predicting accelerated use and more varied applications of genomic technology in the future, Bishop said, "The only thing limiting us is our own imagination and willingness to 'go there.' In three to five years, the discussion will be dramatically different than today."



The International Angus Genomics Symposium was sponsored by Neogen GeneSeek Operations.



**Editor's Note:** *Troy Smith is a field editor and cattleman from Sargent, Neb. This article is part of the online coverage of the Angus Means Business National Convention & Trade Show provided by Angus Media. Visit the convention Newsroom available at <http://angusjournal.com/NCnTS/2015/index.html> to access additional summaries, PowerPoint presentations and the audio of the sessions.*

▶ Michael Bishop, senior market development specialist for Illumina, talks about the current state and the future of genomics in the beef community. Digital subscribers can click the photo at right to access the video clip. It is available online at <https://www.youtube.com/watch?v=vnggSdKL34>.



PHOTO BY JENA MCRELL