eBEEF newsletter No. 3: June 2016 View this email in your browser

What's happening with eBEEF?

Since the launch of the eBEEF website in June, 2015 the eBEEF team has been actively developing and populating the site with the latest information on beef cattle genetics. We are starting to see increased traffic on the site and have the opportunity to answer individual questions from time to time. These inquiries are greatly welcomed and often result in a new factsheet or FAQ. As a reminder, all of the information on the website is meant for the public and we encourage its duplication and usage. We are continually trying to expand our library of videos that deal with frequently asked questions (FAQs), conference videos and tools; your ideas and suggestions are certainly welcome!

In this newsletter you will find:

- Factsheet update
- FAQ update
- Video update
- Upcoming conferences of interest
- Grant success

Here is a list, and a short description, of the factsheets that have been developed since the last newsletter:

Commercial Replacement Heifer Selection

Given the economic importance of reproduction, commercial cow-calf producers

raising their own replacement heifers should focus some of their selection emphasis on maternal traits. However, most commercial producers have no EPD information upon which to base their replacement heifer selection decisions. DNA testing offers an appealing approach to provide previously-absent selection criteria. The value of using DNA information in making replacement heifer selection decisions will depend upon the information available at the time of selection (e.g. phenotypic measurements, parentage data, EPDs), and the accuracy of the test for the breed composition of the selection candidates with regard to the selection objective.

The Genetics of Horned, Polled and Scurred Cattle

Completely avoiding both horns and scurs in your cowherd is near impossible for most commercial cattle producers. Understanding how we get polled and horned cattle is relatively simple and a genomics test can tell us if an animal is a carrier of the horn allele or not. Unfortunately, the presence or absence of scurs just barely scratches the surface of providing an understanding of what is happening genetically, and problematic in that there is not a genomics test to assist in developing a breeding strategy to eliminate scurs. When managing a breeding program to minimize these conditions it is critical not to complicate the situation more by introducing myths and misconceptions. Understanding the relationship between polled, scurred and horned cattle is the first step in developing a successful breeding program to eliminate horns and reduce scurs.

Recent Developments in Genetic Evaluations and Genomic Testing

The application of genomics to improve the accuracy of EPDs is a rapidly developing field. There are ongoing improvements in genotyping and sequencing technologies, statistical methods to increase the correlation between genomic predictions and true genetic merit, and the computing systems to handle the large datasets associated with animal breeding. One thing still remains true in the genomic age and that is the need to collect accurate phenotypic records. It is essential to ensure performance data, pedigree, and DNA information are recorded and reported accurately. Genomic predictions will only be as reliable as the data upon which they are based. Although it might seem like the genomics era could signal the end of performance recording, the opposite is true. Now more than ever, it is important that producers accurately report data, and ensure that animals which are genotyped are correctly identified so that their information can contribute towards improving the accuracy of the genomic predictions of the future.

How to Get Started with DNA Testing

This fact sheet goes through the fundamentals of how and when producers might use DNA testing in beef cattle production. It covers the different types of tests that are available, how to submit samples and to whom, and what to do with the results.

Economically Relevant Traits

Economically relevant traits (ERTs) are those that are directly associated with either a cost or a source of revenue. Not all Expected Progeny Differences (EPDs) represent traits that are ERTs, and instead represent indicator traits. It is important for producers to know the difference between ERTs and indicator traits when making selection decisions.

Go to the FAQ section to find answers to some common beef genetics questions. You have the option to click and read the text or watch a video with the answers. No new FAQs have been added since the last newsletter, but more are expected this summer. Go to: http://www.ebeef.org/.

We have developed 30 videos associated with FAQs and 37 videos from various conferences. These videos can be found at: https://www.youtube.com/channel/UCw8zZL_EaBRC6Pa-4V0OYrA/playlists

Upcoming Conferences of Interest

K-State to host BIF annual meeting and research symposium

Registration is now open for the 2016 Beef Improvement Federation Annual Meeting and Research Symposium. Themed "Progress on the Prairie," this year's event will be June 14-17 in Manhattan, Kansas, and headquartered at the Hilton Garden Inn and Conference Center.

This year's BIF symposium features two and a half days of educational programming and a full day of tours. The first morning's general session — "Opportunities for the Beef Value Chain: Can we become more coordinated and more profitable?" — will feature Ted Schroeder and Glynn Tonsor, Kansas State University; John Stika, Certified Angus Beef; Brad Morgan, Performance Food Group; and Keith Belk, Colorado State University. The second day's general session, "Protecting producer

profit for the future," will include David Lalman, Oklahoma State University; Chip Ramsay, Rex Ranch; Mark Enns, CSU; and Clay Mathis, King Ranch Institute for Ranch Management.

The afternoon breakout sessions will focus on a range of beef-production and genetic-improvement topics. The conference also features a Young Producer Symposium on Tuesday afternoon, designed to network and equip young cattle producers with essential knowledge as they grow their role in the business.

For more conference details, including registration information, the complete schedule and lodging information, visit 2016 Beef Improvement Federation Annual Meeting and Research Symposium: Progress on the Prairie or contact K-State hosts Bob Weaber, bweaber@ksu.edu, 785-532-1460; or Lois Schreiner, lschrein@ksu.edu, 785-532-1267.

Each year the BIF symposium draws a large group of leading seedstock and commercial beef producers, academics and allied industry partners. The attendance list is a "who's who" of the beef value chain and offers great networking opportunities and conversations about the issues of the day. Program topics focus on how the beef industry can enhance value through genetic improvement across a range of attributes that affect the value chain.

Applied Reproductive Strategies in Beef Cattle Workshop is Coming to Iowa

The premier national event in beef cattle reproductive management will be held for the first time ever in Iowa later this year, and Iowa State University cow-calf specialist Patrick Gunn invites people to make plans now to attend. Gunn, who also is one of the host site organizers, said the 2016 Applied Reproductive Strategies in Beef Cattle (ARSBC) Workshop will include information for cow-calf producers, bovine veterinarians, industry representatives, extension personnel and students.

The event will be held at the Embassy Suites in Des Moines on Sept. 7-8. It is provided through a cooperative effort by Iowa State, Iowa Beef Center and the Beef Reproduction Task Force, and will highlight the latest information on reproductive technologies in beef cattle.

“We are fortunate to bring a phenomenal group of speakers to Des Moines,” Gunn said. “Twenty scientists and veterinarians from thirteen states will help attendees hone their reproductive skills on best management practices in handling hormones and frozen genetics, nutrition, sexed semen, embryo transfer, in vitro fertilization, reproductive health, genetics, fetal programming, and pregnancy detection, among others.”

Registration is now open with an early registration fee of $200 per person when received by midnight, Aug. 8. It increases to $250 for late registration after that date, including onsite registrations. Students receive a $100 discount based on the fee in effect at the time of registration. Online registration and a link to print a form for mailing are on the conference website at http://www.aep.iastate.edu/arsbc/. Telephone registration is not accepted, and registration is not complete without payment.

Up to 15 continuing education units have been approved for veterinarians in Iowa and adjoining states, and for professional animal scientists. For more information on CEUs, see the ARSBC website http://www.aep.iastate.edu/arsbc/ or contact your professional association.

The website also provides the workshop schedule, including a printable version, as well as links to lodging options, sponsorship opportunities, and travel and direction details.

The Beef Reproduction Task Force is a multi-state extension activity in cooperation with the North Central Agricultural and Natural Resources Program Leaders Committee and the Cooperative State Research, Education and Extension Service. Key goals of the task force include promoting widespread adoption of reproductive technologies among cow-calf producers and educating the beef industry on management considerations to increase the likelihood of successful breeding of animals through artificial insemination.

SAVE THE DATE

A conference is being organized by the eBEEF.org team set for an Oct. 17th meeting in Clay Center, NE (US Meat Animal Research Center) focused on genetics of BRD, fertility, and feed efficiency as well as updates on inclusion of genomic information into EPDs. Look for further information on the eBEEF.org website.

Grant Success

Jared Decker, a member of the eBEEF.org team recently received a $2 million USDA-NIFA grant to study genetic influences on adaptability entitled “Identifying local adaptation and creating region-specific genomic predictions in beef cattle”. Cattle poorly adapted to their environment result in lost revenue and jeopardize the stability of the food supply. Large scale genetic data (i.e. genomic data) now allows us to rigorously analyze genetic adaptations and avoid the breeding of animals that will not thrive. We will use genomic methods to precisely identify DNA variants responsible for

local adaption to tolerate biotic and abiotic threats to production, enhance resilience of beef production, and enhance beef quality and quantity. The project will achieve three objectives: Identify DNA variants responsible for regional genetic adaptation; Create geographic region-specific genomic predictions, focusing on adaptation variants from Objective 1; Educate the next generation of beef producers to fully embrace and properly use animal breeding tools. Analyzing more than 170,000 cattle with ~15 million high-accuracy DNA variants, we will use selection mapping to identify detailed chromosome regions (e.g. genes) responsible for local adaptation. We will also identify gene-by-environment interactions using multiple statistical methods. When local genetic adaptations exist, ranking animals using a regional genetic evaluation will be different from national cattle evaluations. Focusing on loci under regional genetic adaptation selection or with gene-by-environment interactions, we will develop region-specific genomic predictions. These genomic predictions will allow rapid identification of cattle best suited to an environment. Beef producers have not embraced appropriate animal breeding practices and new technologies, limiting genetic improvement of efficient, high quality beef cattle. We will create engaging curriculum for youth and undergraduate education, including internships, to train the next generation of beef producers.

Additional information continues to be added to the website so please come back often and see what's new!

Yours sincerely,
The eBEEF team