

## **Practical Application of Genomic Tests in Beef Production**

Megan Rolf

Department of Animal Science and Industry, Kansas State University

Knowing which genetic tests should be applied to your operation can become a daunting task, especially since the quantity of genomic tests is in constant flux. This session will deliver practical applications for genomic testing for both seedstock and commercial producers, as well as directing you to resources where you can locate up-to-date information on applications of genomic tests in the beef industry.

### **What are genomic tests?**

Genomic test is a term that encompasses a wide variety of tools that can be used in the beef industry and ranges from parentage testing to SNP chips that provide information on a large number of markers in the genome. Essentially, a genomic test uses a DNA sample to determine what variation the animal inherited (usually a single base change in the DNA, called a SNP). The information you obtain can be useful, such as an animal's sire or dam (parentage testing), or to predict their performance for a quantitative trait (like growth, marbling, or milking potential, to name a few). To learn more about genomic tests, please read the fact sheet that follows entitled "How to get started with DNA testing" by Alison Van Eenennaam.

### **How can seedstock breeders use genomic tests?**

Seedstock producers may utilize genomic tests for a variety of purposes. For example, a parentage test might be utilized to verify the pedigree before registering an embryo transfer calf. Often, seedstock breeders will be contemplating the use of a genomic test to build EPD accuracy on young sires for quantitative traits. This is a useful tool for selection within their own herd, or as a service to their customers contemplating the purchase of young herd sires with higher accuracy EPDs. For more information on how genomic tests aid in increasing accuracy for young herd sire prospects, please read the fact sheet that follows titled "How DNA testing will affect the accuracy of EPD information", written by Bob Weaber and Matt Spangler.

### **How can commercial cattlemen use genomic tests?**

Commercial cattlemen may find that parentage testing can be incredibly useful to verify pedigree (whether in a multi-sire breeding pasture or not). For animals with ambiguous birth dates, parentage testing can help verify the correct sire so that performance of animals can be compared across various sire groups. In multi-sire breeding pastures, some sires produce a disproportionate number of calves. Knowing which sires are most productive can help make the correct management choices so bull batteries include those bulls which maximize profitability. You can learn more about parentage testing by reading the parentage testing fact sheet that follows. However, one of the chief benefits of genomic testing to commercial cattlemen is the ability to purchase bulls that have been genomically tested and who have that information incorporated into their EPDs. The increased accuracy of EPDs that genomic tests offer can be

immensely valuable for making selection decisions, particularly for traits that are critical to your operation because of labor or marketing, such as calving ease, weaning weight, or marbling score.

**Where can I go to find more information?**

There are a variety of beneficial online resources to learn more about genomic testing. Please consider visiting [eBEEF.org](http://eBEEF.org) to learn more about selection tools, genomics, and crossbreeding. In addition, there are videos available on these subjects on both [eBEEF.org](http://eBEEF.org) and [beefreproduction.org](http://beefreproduction.org).