Cattle Chat: Using genomics in the beef herd

K-State experts explain how producers can use the information gathered through DNA collection

By Lisa Moser, K-State Research and Extension news service

MANHATTAN, Kan. — When looking at a sibling, have you ever wondered how in the world could they have come from the same parents?

Whether it is the eye color, hair color or general personality, each person inherits a different mix of genes from their parents with the exception being people who are born as identical twins or triplets. Just as with people, the same is true for beef cattle, say the experts at the Kansas State University Beef Cattle Institute speaking on a recent Cattle Chat podcast.

“Anyone who has multiple siblings knows that you are not all the same,” K-State veterinarian Bob Larson said.

He explained how by collecting DNA samples from individual animals, producers have specific predictors of that particular animal’s performance.

“When I mate a dam to a sire, there is going to be some diversity in the offspring, and within that mating, I know there are going to be some individuals that are genetically superior to others,” Larson said. “With genomic testing, we know which of the animals in the herd have the best combination of traits at a younger age than with other measures of genetic prediction.”

Prior to the introduction of genomic testing, the best objective tool producers had was computer-generated Expected Projency Differences, known as EPDs, added Larson.

“With genomic testing, we can improve the accuracy of the information of that animal at a very young age thereby allowing producers to predict the best replacement animals even before they have any offspring resulting in faster genetic change,” said K-State nutritionist Phillip Lancaster.
But the animal’s genetics are just one part of the total performance predictor, said K-State veterinarian Brian Lubbers.

“The challenge with genomics is that few of these traits are 100% predictable. Instead, it is often an interaction between a particular set of genes and the environment that gives producers the optimal outcome,” Lubbers said.

The veterinarians said when collecting embryos for transfer, samples can be collected before the embryo is even placed into a recipient; but more commonly, calves from any mating type (natural, AI, ET) are genetically tested using a tissue sample collected at any point after birth.

As genomic testing technology has been adopted, they’ve seen a higher percentage of purebred beef producers collect those samples soon after birth, giving them the most accurate predictor of that animal’s performance as soon as possible.

“As soon as they are born, some producers are using genomic testing to select which ones they will want to retain in the herd and use as breeding animals for future generations,” said K-State veterinarian Brad White. “These tests come at an expense, so each producer will need to determine the cost per success rate that makes sense for their operation.”

To hear the full discussion, listen to the Cattle Chat podcast online or through your preferred streaming platform.

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FOR PRINT PUBLICATIONS: Links used in this story BCI Cattle Chat podcast, https://content.blubrry.com/bci_cattle_chat/Male_fertility_value_proposition_of_reproduction_technology_and_genomic_selection_mp3.mp4

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