

# Hedging Your Bets

**Educational forum provides overview of how producers can utilize DNA testing, selection tools to help rebuild the cow herd.**

by  
**KINDRA GORDON & TROY SMITH,**  
*field editors*

On the eve of the 2013 Range Beef Cow Symposium, which was hosted Dec. 3-5 in Rapid City, S.D., Zoetis and Certified Angus Beef LLC (CAB) hosted a meeting for cow-calf producers interested in using DNA-testing technology during the process of rebuilding the cow herd. The program featured an overview of selection tools offered by the Angus breed; details on the GeneMax™ DNA test developed by Zoetis and CAB specifically for commercial producers; and commercial cattleman Joe Mayer, who detailed his experience with the test.

Richard Linhart, Zoetis technical services veterinarian, also described why producers vaccinate their herds, as well as the differences between modified-live virus (MLV) vaccines and killed-virus vaccines (see sidebar).

## Angus Selection Tools

Livestock performance measurements to assist with genetic selection have evolved greatly over the decades — from average daily gains and weaning weight ratios to expected progeny differences (EPDs) and dollar-value (\$Value) selection indexes to the genomic enhanced EPDs and indexes of today. Tonya Amen, genetic services director for Angus Genetics Inc. (AGI), provided a brief history of these selection tools.

“We’ve come a long way,” Amen shared, “but I want to emphasize,



PHOTOS BY TROY SMITH  
Tonya Amen, genetic services director for AGI, provided an overview of the selection tools provided by the American Angus Association.

we haven’t kicked anything out of our toolbox. For cattle selection, producers are still using much of this information.”

Amen noted that Angus breeders have been particularly relentless in collecting and reporting performance data to improve the breed. The American Angus Association is currently the only breed that calculates and releases new EPDs every week. Its database currently includes:

- 17.3 million pedigrees;
- 22 million records;
- 62 million EPDs; and
- 50,000 DNA genotypes — a milestone reached at the end of November 2013.

To share an example that EPDs — and other selection tools — do work, Amen shared data comparing calving ease from the past with data since heifer calving ease EPD information has been made available to producers. The result? Calving difficulty has decreased, meaning fewer calves must be pulled. Amen said this is an indication that EPDs are being utilized and that they do work.

Amen noted that while EPDs focus on outputs, \$Values were created to encompass the economic cost and the revenue generated by achieving a certain level of output. While the formulas for the multiple-trait indexes are complicated, their use isn’t, providing cattlemen a simple way to consider multiple traits at once. Amen suggested \$Values are fairly easy for producers to use as a selection tool because they are expressed in dollars and cents.

For commercial producers selling calves at weaning, Amen says the weaned calf value index (\$W) might be worth focusing on when selecting herd sires because it looks at the economic factors of getting a calf weaned.

The beef value index (\$B) looks at postweaning traits. Both feedlot (\$F) and grid (\$G) values contribute to \$B. Amen said if a breeder retains ownership in the feedyard, \$B is certainly a useful index for selection. For more detailed descriptions of EPDs and \$Values, visit [www.angus.org/Performance/Default.aspx](http://www.angus.org/Performance/Default.aspx).

Today, the newest selection tool available is genomically enhanced EPDs (GE-EPDs). These utilize DNA to provide a higher level of

accuracy of an animal’s expected performance.

Amen announced that on Dec. 6, a third recalibration to further increase accuracy of the HD 50K test would be released, including 38,989 animals in the database. Additionally, a heifer pregnancy (HP) EPD is being added to the suite of GE-EPDs. For a description of how genomic information is incorporated into Angus EPDs, visit [www.angus.org/AGI/GenomicEnhancedEPDsMay2013.pdf](http://www.angus.org/AGI/GenomicEnhancedEPDsMay2013.pdf).

— by Kindra Gordon

## Scaled-Down DNA Test

“Genomics provides a way for producers to hedge their bets,” said Kent Andersen, technical

services specialist for Zoetis, noting that producers using EPD values to buy registered-Angus bulls are making a calculated bet that progeny will perform according to predictions based on pedigree, individual performance and progeny performance information.

“Having genomic information (from DNA testing) is like turning over another card,” added Andersen, noting the incorporation of DNA information in genomic-enhanced EPDs for a growing list of traits that now includes heifer pregnancy. “As a commercial producer, you can also hedge your bets during herd rebuilding.”

Andersen said use of DNA testing continues to increase among seedstock and commercial producers.

## Cow herd vaccination choices

“Why do we vaccinate cattle?” asked Richard Linhart as he addressed producers gathered for an evening seminar Dec. 2 in Rapid City, S.D. The event, sponsored by Zoetis and Certified Angus Beef LLC (CAB), was a precursor to the three-day Range Beef Cow Symposium that kicked off in Rapid City Dec. 3.

Linhart, a technical services veterinarian with the Zoetis Beef Veterinary Operations team, noted that the primary reasons producers vaccinate are to prevent abortion in cows and to prevent pneumonia in calves. He acknowledged there are some other reasons that producers vaccinate, but those would be the two primary reasons.

What differentiates vaccines? Linhart noted that vaccines do differ based on antigens, adjuvants, duration of immunity, label claims, safety and even the reputation of the company.

Overall, Linhart told producers, “Vaccines are insurance policies, and you have to pick the right vaccine for the risk your herd is at.”

A big question that producers often must consider is the difference between modified-live virus (MLV) vaccines and killed-



Richard Linhart, technical services veterinarian for Zoetis, explained the difference between modified-live virus (MLV) vaccines and killed-virus vaccines.

virus vaccines. He noted that killed vaccines are often “assumed” to be safer, but, he said, “Most of the reactions in cattle that we see are with killed vaccines.”

He added, “Killed vaccines don’t mimic the disease; immunity doesn’t typically last as long, and they are not as robust as a MLV.”

Linhart also explained that killed vaccines must be boosted, whereas MLV vaccines have less need for a booster.

He granted that MLV vaccines are often perceived as less convenient because they have to be mixed/activated before being administered.



Producers using EPD values to buy registered-Angus bulls are making a calculated bet that progeny will perform according to predictions based on pedigree, individual performance and progeny performance information, said Kent Andersen, technical services specialist for Zoetis.

Some commercial producers use the full HD 50K test on replacement heifers, but a more typical approach is to purchase tested bulls and test replacement heifer candidates with the \$17 GeneMax test. GeneMax, developed in partnership with CAB, is a scaled-down test providing genomic ratings for gain and grade (marbling), along with sire identity.

Suggesting that producers use GeneMax to aid keep-or-cull decisions,

Linhart shared that if administered at the wrong time MLV vaccines can negatively affect pregnancy rates. However, he emphasized that if cattle receive the proper prebreeding vaccination protocol, there is no effect on pregnancy rates.

“These vaccines (MLVs, like Bovi-Shield) are extremely safe and effective when used according to label directions. They are extremely risky when you don’t,” Linhart stated.

Linhart emphasized that his company’s MLV label directions instruct: To help ensure safety in pregnant cattle, heifers must receive at least two doses of any Bovi-Shield Gold FP® or PregGuard® Gold FP product, with the second dose administered approximately 30 days prebreeding.”

Linhart underscored that reading and following label directions is imperative when it comes to using vaccines effectively. He also stressed the importance of involving a veterinarian in developing herd health and vaccination protocols for individual herds.

— by **Kindra Gordon**

Andersen said knowledge of retained heifers’ potential for gain and grade can then be used to plan matings with complementary DNA-tested Angus sires.

In the feedlot, GeneMax testing of steers can be used to benchmark herd performance. Andersen said that GeneMax test results can also be used to help capture grid-marketing premiums by identifying

cattle with superior marbling potential.

For more information on GeneMax, visit [www.cabpartners.com/genemax/](http://www.cabpartners.com/genemax/).

— by *Troy Smith*

### **Commercial Rancher Applies GeneMax**

Rancher Joe Mayer believes in using all available tools for improving his commercial

Angus herd. He shared how, following drought-induced herd reduction, he is using DNA testing to rebuild numbers.

According to Mayer, four years of intensifying drought forced major destocking of his Oklahoma Panhandle operation. Somewhat improved conditions

*(Continued on page 46)*

**Hedging Your Bets** *(from page 45)*

in 2012 prompted the decision to start rebuilding through the purchase of heifer calves. Relief from drought proved short-lived, however, prompting Mayer to rethink his plan for rebuilding the herd.

“We had to decide which of the

purchased heifers we would keep for breeding and which we would sell,” said Mayer. “Our philosophy has been to run the best commercial cows possible. We had been feeding out all of our steers and selling them on a grid. We’ve had them go as high as 99% Choice, with 70% percent of [the] carcasses qualifying for CAB® (*Certified Angus Beef*®). We didn’t want to give that

up, so we wanted to make sure the heifers we kept had the best possible genetics.”

Mayer decided to implement a DNA-testing strategy, using GeneMax — a tool developed by CAB, AGI and Zoetis Animal Genetics for use on high-percentage (75% or greater) Angus cattle.

Mayer chose to make keep-and-cull decisions based on GeneMax (GMX)

scores. The scores are based on genomic results for both marbling and gain, which are weighted based on historical averages and industry economic trends. Each individual’s GMX Score is then ranked against the GeneMax database and given a value between 1 and 100, with a higher value being more favorable. For example, an animal with a score of 75 would rank with the top 25% of cattle in the database.

“We kept the heifers with scores of 80 and above,” said Mayer, noting that some of the best-looking heifers didn’t



“We had to decide which of the purchased heifers we would keep for breeding and which we would sell,” said commercial cattleman Joe Mayer, who relayed how he is using GeneMax in his decision-making.

make the cut. He fed out some of those cull heifers and found they really didn’t measure up to his standards.

“It shows me that we need to use the best tools available to select breeding animals that will produce better-performing cattle with better carcass quality,” added Mayer. “Now, we’re using GeneMax information when choosing heifers to buy.”

For more details on how Mayer is utilizing GeneMax to rebuild his herd, see “New Ways on an Old Ranch,” which was the cover story to the October 2013 *Angus Beef Bulletin*. It is available online at [www.angusbeefbulletin.com/ArticlePDF/Cover%2010\\_13%20ABB.pdf](http://www.angusbeefbulletin.com/ArticlePDF/Cover%2010_13%20ABB.pdf).

— by Troy Smith

**More details available online**

*Angus Journal* included coverage of the “Hedging Your Bets” educational forum in its online coverage of the Range Beef Cows Symposium, which is available in the Newsroom at [www.rangebeefcow.com/2013](http://www.rangebeefcow.com/2013).

The RBCS is a biennial educational symposium offering practical production management information. It is sponsored by the Cooperative Extension Service and animal science departments of the University of Wyoming, South Dakota State University, Colorado State University and the University of Nebraska.

Comprehensive coverage of the symposium is available online at [www.rangebeefcow.com](http://www.rangebeefcow.com). Compiled by the *Angus Journal* editorial team, the site is made possible through sponsorship of *LiveAuctions.tv* and the cooperation of the host committee and speakers.