AHA Hosts Educational Forum

The American Hereford Association (AHA) educational forum provides details on new traits.

by ***Julie White***

Hereford breeders gathered Oct. 30 in Kansas City, Mo., for an educational forum to learn about new traits that will be made available for producers to utilize when making genetic selection decisions.

Heifer Calving Rate (HCR) and Sustained Cow Fertility (SCF) are the latest traits to be released as a research analysis on the AHA website *Hereford.org*. These two traits will become part of the full evaluation in the near future and will be added to the $ Indexes. However, currently they are solely reported as research with no correlation to any other traits and have no genomic component.

Sally Northcutt, Method Genetics LLC, explains the background behind new Hereford traits.

Sally Northcutt and Bill Bowman of Method Genetics LLC, who presented on the traits, commended the Association for investing in research to help bring new traits to fruition as tools for seedstock producers to use and even more importantly, for their customers' benefit.

"The exciting thing is that you, as breeders, had the foresight to begin the Whole Herd Total Performance Record (TPR™) program," Northcutt says. "Participation in that has allowed the creation of a data set that makes these tools possible. You all are to be commended for the participation in that program and how that data has become a valuable resource of your Association and resource of genetics represented by the Hereford breed in the industry today."

Heifer Calving Rate

The Heifer Calving Rate trait was developed from the TPR database, looking at records for heifers on whether they have calved or have not calved based on recorded birth weight.

"Heifer Calving Rate is a categorical trait," Northcutt explains. "Either they calved or they didn't calve. The challenge with these types of traits is that they tend to be lowly heritable. But the heritability estimate is very workable."

Northcutt says a feature of this trait is that it extends beyond the classic heifer pregnancy expected progeny difference (EPD) and, therefore, is a better representation of the reproductive component.

"The exciting thing is that it's more reflective of heifers actually having a calf each year," Bowman adds.

As with other EPDs, Northcutt reminds, this tool should be used to compare two sires. "One thing I like to know about EPDs is to know which direction we want to go," she says. "Are we looking for a high or low number?"

Heifer Calving Rate EPDs are reported in percentage units and, therefore, for this EPD, higher is favorable to lower (See *Performance Matters* on Page 10 for an example).

"This Heifer Calving Rate trait has a nice heritability from which to work so you are capitalizing on some of the more difficult traits to measure in our industry," Northcutt says. "This is a real good one to address and put some selection pressure to improve heifer calving rate."

She adds that a key element to this trait is that it can be directly incorporated into $ Indexes.

Bowman says, "As we move forward with these individual tools, rather than relying on some of the basic correlations for some of the traits, you've actually got fertility measures that can directly go into those $ Indexes. So, it can really take them up a notch and create a next level on enhancement that will be valuable."

Two new fertility traits, Heifer Calving Rate and Sustained Cow Fertility, will become part of the full genetic evaluation in the near future.

Sustained Cow Fertility

Heifer Calving Rate analyses provided the dataset foundation from which to work to address longevity with Sustained Cow Fertility.

Northcutt explains, "Taking that reproductive complex of longevity and time in the herd that we want a female to produce a calf every year, we asked is there a way to do the math and work through that to develop a selection tool?"

The Sustained Cow Fertility trait is different from traditional selection tools in terms of longevity. "It's called a survival analysis," she says. "The take-home point is how we can better utilize the whole herd data you have on a cow producing a calf every year and how that relates to a genetic value predicted on sires on the Hereford database."

She adds that what makes this trait unique is that the contemporary groups become dynamic after the first calf.

"The key point here, again, is that your participation in TPR gets you in the ball game," Bowman says. "It's pulled out of that system that creates this genetic evaluation. Like Sally said, traditionally a lot of the stayability type measures have always been based or relied on a cows ability to remain in the herd when she's six years of age, for example. This is a lot more dynamic and a lot more fluid and it allows you to get some genetic predictions on these cattle at a much younger age."

Northcutt says this trait is calculated as a risk ratio — is there more risk or less risk? "Think about it in terms of definition," she says. "Is the cow successful? We keep track of each cow with elementary records. When she fails, that's it, but that's not all of the story."

Some cows receive a pass, which is termed as being "censored," in order to not penalize a sire's genetic prediction for "incomplete records" if a female is transferred or becomes a donor dam. "We are aware of that in the analysis too and we make that adjustment," she says.

The SCF EPD looks like a ratio and is set up so that a higher value is more favorable. For example, a higher number assumes a cow is at less risk, or is more successful over time, and a lower number assumes a cow is at more risk, or less successful over time (See *Performance Matters* on Page 10 for an example).

Hereford breeders took advantage of the opportunity to ask questions and interact with the speakers.

Dry Matter Intake

"The AHA has also invested in research and has done a lot in terms of feed intake data collection," Bowman says. The Dry Matter Intake (DMI) trait has been developed by using the individual feed intake collected at young sire test programs and research projects and by AHA members testing groups of females, bulls and steers. This trait is also in the research release stage and has no genomic component or correlation to other traits. However, this one will be used in the $ Index update.

"It's exciting to see this data able to be used and to help characterize the cattle you all are producing," he says.

Dry Matter Intake is a multi-trait analysis, which started with 5,000 individual feed intake records but other traits are included as well, incorporating weaning weight and yearling weight information.

"Weaning is included to account for selection bias and we also incorporate not only direct effects of weaning but also that maternal genetic component is accounted for as well," Northcutt says.

For this EPD, a lower value is more favorable. "This makes sense if it's an intake EPD and pounds per day," Northcutt says. "If the number is less you would think the calf eats less and consumes less. One could initially view it if one would want to decrease intake, in that selection piece then negative is the way to go. But, we have a lot of cautions with this one in terms of application." (See *Performance Matters* on Page 10 for an example).

Once again, the selection strategy for DMI would be to compare sires. "One of the important things when you look at intake EPDs alone, we know there are good correlations that we've known for a long time," Bowman says.

"Cattle that gain well typically are a little more efficient, but they also eat a lot of feed if they are high gainers," he adds. "What we're attempting to do with this is to refine and find those real outliers. So, if you can identify the cattle whose progeny still gain like you want them to but eat less feed then you're making some progress and can make some real improvement in terms of efficiency."

Northcutt says to keep in mind the Dry Matter Intake trait is applicable to a post-weaning gain scenario. This trait is not applicable to cows in production cycles.

"The exciting thing is you've gotten access to and created selection tools for really hard-to-measure traits," Bowman says. "Some of them are going to be new genetic values that have not really been available in the industry anywhere and that's a real positive approach. HW

Bill Bowman, Method Genetics LLC, commended the AHA for investing in research.