

Hereford: Utilizing the Tools for Victory

American Hereford Association's Director of Breed Improvement provides overview on the breed's genetic progress.

by Kindra Gordon

In the challenging year that has been 2020, Shane Bedwell champions Hereford breeders, telling them: "You've stayed tough; you've been resilient; and you keep putting a good product out there and are being rewarded for it."

Bedwell, who is director of breed improvement for the American Hereford Association (AHA), spoke to the organization's membership via the virtual kickoff to the "Hereford Homecoming" educational sessions that were part of the AHA's 2020 Annual Membership Meeting and Conference.

Bedwell also encouraged Hereford breeders, "Keep sharing the success stories of this breed and the progress being made."

To that progress, Bedwell provided several updates to the genetic enhancements that the AHA has been investing in over the past few years to strengthen the tools available to producers.

Genetic evaluation

The AHA's current genetic evaluation calculates expected progeny differences (EPDs) for 17 traits and three profit (\$) indices utilizing the Marker Effects Model (MEM), a single-step version of genomics with the Biometric Open Language Tools (BOLT) software. This was implemented in December 2017. With this model in place over the last three years, Bedwell says, "We've been able to advance and move forward and better utilize the genomic component in our traits."

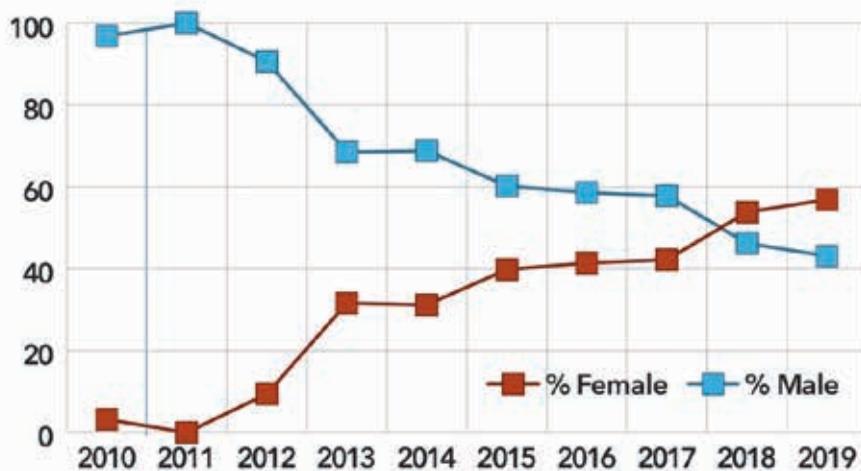
With implementation of MEM in 2017, an additional change the AHA made at that time was only including performance data from animals born after 2001, which coincides with the year the AHA began collecting data through Whole Herd Total Performance Records (TPR™).

Bedwell credits this change with allowing unbiased data to flow into the system – and he thanks the Association's Board of Directors for making the change at that time. He says, "It has allowed the Hereford breed to build a strong database – an unbiased database – that has clean data." He also says the updates have helped "elevate the breed's genetic evaluation system and provide the true phenotypes it takes to run a strong evaluation."

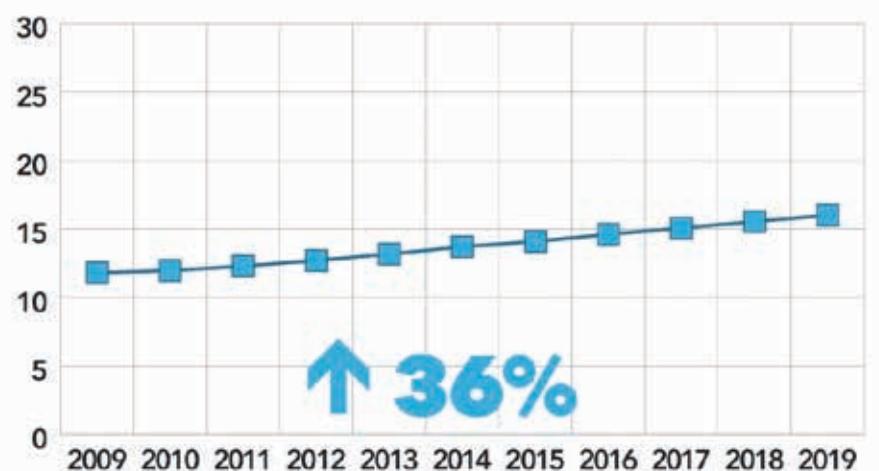
Maternal traits

More recently, the addition of more than 10,000 new female genotypes collected through the Cow Herd DNA project (launched by the AHA from late 2017 through 2018) has also strengthened the breed's database, Bedwell says. As a result, he reports that marker effects were able to be added to maternal traits beginning with EPDs generated in July 2020. Updates were implemented to sustained cow fertility (SCF), calving ease maternal (CEM) and maternal milk (MM) EPDs. (For more details about the specific maternal trait updates, see the sidebar.)

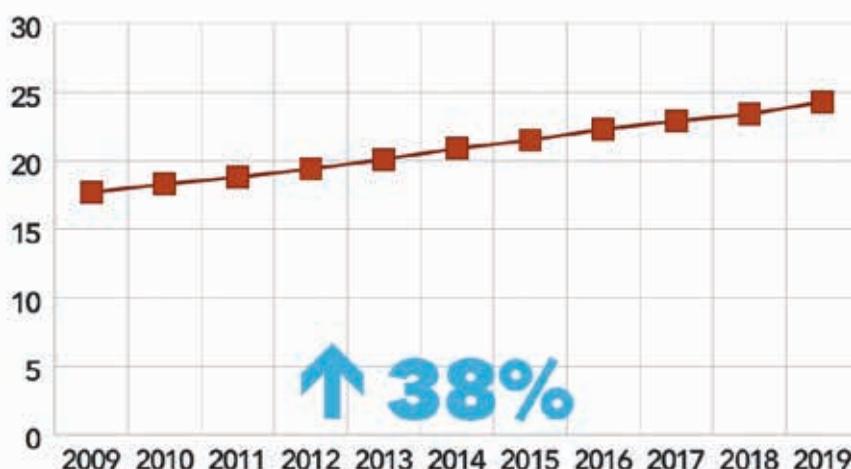
Genotype breakdown



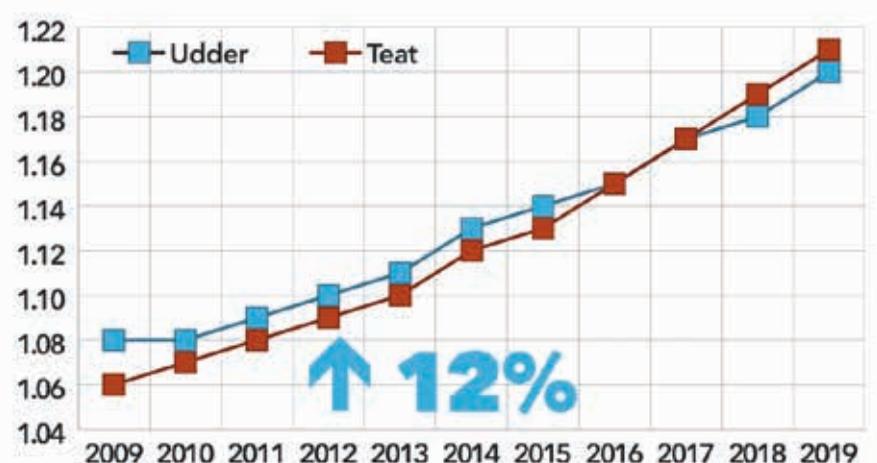
SCF trend 2009-2019



MM trend 2009-2019



Udder and Teat trend 2009-2019



Bedwell reports a silver lining is that AHA's genotype data continues to grow its genetic evaluations – with nearly 120,000 genotypes now in the database and female genotypes slightly higher than bulls. Bedwell says, "What's really encouraging is Hereford breeders have really embraced genotyping more of the females in the herd."

He attributes this trend to the Cow Herd DNA project helping show breeders the value of genotyping females. "I think our breeders saw the value in genotyping herd bulls and sale bulls for marketing and realized it may be just as valuable – or more valuable – in getting that early information on their females."

He adds, "To know more about a young female that you're putting back in the herd, you are building that information for your knowledge ... and particularly now as we've added maternal marker effects for a lot of those traits, it's going to give producers a data set that is stronger with more accuracy in that young female."

Cow efficiency

Regarding efficiency of the Hereford female, Bedwell told Hereford producers, "Testimony to the Hereford breed, and something we have known for a long time, is that Hereford cattle definitely have the ability to be efficient. They are great converters on the range and get the job done in the feedlot."

He cites previous Oklahoma State University research by Dave Lalman which showed, on average, baldy cows consumed 2 pounds less of voluntary forage intake per day and maintained a 0.5 higher body condition score than straightbred black cows.

"Dry matter intake is an important trait that we [the Hereford breed] need to continue to utilize within our genetic evaluation ... We need to continue to use that trait as we pursue and offer more growth and make stronger bulls and keep cow efficiency in balance."

Index update

The AHA introduced its first genetic index in 2005, and presently calculates three profit (\$) indices: Baldy Maternal Index (BMI\$), Brahman Influence Index (BII\$) and Certified Hereford Beef Index (CHB\$).

These current indexes were implemented in 2017, and since AHA policy set by the Board of Directors requires that all indexes be reviewed every three years, they were recently reviewed by AHA staff and the AHA Board of Directors along with Mike MacNeil, Ph.D. Bedwell reports that, based on the recent review process, the relative weighting of marbling will increase in the CHB\$. This adjustment went into effect in the calculations released Nov. 9, 2020.

Carcass traits

AHA continues to collect data for four carcass traits: marbling, carcass weight, ribeye area and backfat. Bedwell explains these traits have been developed with ultrasound data, actual carcass data from breeders, and National Reference Sire Program (NRSP) data, and he thanks breeders for helping provide that information.

As well, Bedwell credits the National Junior Hereford Association's Fed Steer Shootout contest for providing data on more than 500 head of registered Hereford cattle over the past four years. "This is a different data set that allows us to compare to the EPD itself," he says.

From those comparisons, Bedwell has found producers can make great progress. "If you need more of any of these carcass traits, use the EPDs. You just have to apply them. They are highly heritable traits as a whole."

He recommends Hereford breeders seek out opportunities to leverage data for their individual herds. Pointing to both the NRSP and the Fed Steer Shootout contests, Bedwell says, "These programs allow producers to gain knowledge and add value to your genetics, and the Association is able to build accuracy and prediction of these EPDs."

Rallying forward

Citing the Hereford breeds' historic strengths of docility and longevity along with its progress in maternal, efficiency and carcass traits, Bedwell notes the appropriateness of the AHA's current national campaign, "Come Home to Hereford." Looking to the future for the Hereford breed, Bedwell tells producers, "We've got to keep pushing forward into the marketplace with what our breed offers for different environments and different strengths for what customers want."

On behalf of the AHA, he concludes, "We'll continue to sharpen the tools we have to give you [Hereford breeders] the best information we possibly can." **HW**

Updates and trends among maternal Hereford traits

The July 2020 updates to the Marker Effects Model (MEM) utilized to calculate Hereford breed expected progeny differences (EPDs) brought notable changes to several of the maternal traits, including:

The **sustained cow fertility** (SCF) EPD will now include contemporary group comparison so daughters within a herd can be evaluated. Shane Bedwell, director of breed improvement for the American Hereford Association, says this change will allow environmental differences to be handled more correctly going forward.

He also reports the SCF EPD has seen a 36% increase within the breed over the past decade. He explains that because the breed has Whole Herd Total Performance Records (TPR™) data dating back to 2001, it is possible to calculate this trend even though the SCF EPD has only existed since 2017.

Of the SCF EPD, Bedwell says, "Longevity is strong to the Hereford breed, and we will continue to put emphasis on that. This [SCF] is a trait we have to keep an eye on as it is almost a longevity or stayability EPD in itself."

To producers he adds, "We hope breeders use this as a tool for selection when making keep-cull decisions by marrying this EPD up with phenotype and making population improvements across the breed."

The **calving ease maternal** (CEM) EPD and the **maternal milk** (MM) EPD also saw adjustments. Bedwell explains animals that were over a 0.10 accuracy experienced minimal changes. However, animals with non-parent animals with a low accuracy may see changes, but those should be minimal.

Additionally, Bedwell reports the MM EPD trend within the Hereford breed over the past decade has increased 38%. On the one hand, Bedwell notes this improvement is encouraging because it contributes to weaning a bigger calf, which he says, "...is great if your environment supports that and your commercial buyers want milking ability." But, he also noted, "If milk gets too high, it can be a concern."

He noted another trend line that shows merit and progress in the breed is a 12% increase in udder and teat improvement over the past decade. "I tip my hat to breeders for doing that. It's hard to do with milk production also increasing." **HW**