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provide drought, heat and insect tolerance and are less susceptible to eye, foot and other health issues that arise in British breeds when exposed to hot environments. On the other side of the spectrum, the Hereford breed contributes feed efficiency, docility and maternal traits to the cross, as well as bone, muscle and carcass merit traits that add market value.

DCJ has established itself as a well-known source of F1 tigerstripe females in the Southeast. Because of the added “colder” Hereford genetics, the ranch can sell females farther north and west, increasing its selling area to more than half of the U.S.

“It makes the best cross I think of anything we’ve ever seen in the South,” Whatley says. “Send them anywhere — to a certain extent — and they’ll perform for you. It takes the Hereford genetics to get them to that point.”

Dominant performance

Whatley is not alone in his belief in the Hereford and Brahman cross. Tom Johnson of Johnson Cattle Marketing in Wortham, Texas, has been sourcing and selling tigerstripe females and other replacement females since 1991. He knows firsthand the longevity and fertility advantages the F1 tigerstripe offers.

The Tiger Striped TRUTH

The maternal advantage of Hereford and Brahman cross females.

by Kendra Davis

The gates of DCJ Ranch in Opelika, Ala., just outside Auburn, open to 1,600 acres of rolling lush-green pastures full of Brahmans, Brangus and F1— the first generation cross

between two breeds — tigerstripe cattle. Founded by owners and brothers Dick and Jimmy Starr and managed by Cal Whatley, the ranch began with only 25 Brahman and 35 tigerstripe

cows on 200 acres of land. The extremely well-kept ranch now boasts an equally impressive herd of approximately 1,100 head.

Since its start 12 years ago, DCJ Ranch has taken advantage of the Hereford and Brahman cross. Purebred Hereford bulls are bred to purebred Brahman cows to produce F1 tigerstripe females. “Tiger-stripe” refers to the resulting progeny’s tiger-like striped, brindle hair coat.

“In the last 30 years or so, both the Hereford cow and the Brahman cow have [improved] dramatically, both genotypically and phenotypically,” Whatley says. “There’s nothing more divergent than purebred Hereford bulls and purebred Brahman cows. It creates maximum heterosis.”

Bos indicus breeds are well suited for the hot and humid climates of the Southern states. Brahman-influenced cattle



The Hereford and Brahman cross creates a calf suitable to thrive in almost any climate, particularly in harsh environments.

“Longevity is huge with this cross,” Johnson says. “A normal cow will last about eight to 10 years on average. These tigerstripe females will perform for 15, 16, sometimes even 18 years. That is a great big factor.”

Johnson credits the Hereford breed for the cross’ unrivaled fertility. “It sticks in so much hybrid vigor, and to do that you have to have the Hereford.”

Heat tolerance is also a major factor in the cross’ popularity in East Texas. “She has made her spot down here,” Johnson says. “They’re dependable and they stand their own in the heat. The cross is a perfect niche between the hot and the cold.”

Drawing from his own 300-head tigerstripe herd and those of his customers, Johnson sells between 6,000 and 7,000 head of F1 tigerstripe females each year through his marketing business. He believes demand for tigerstripe replacement females is as strong, if not stronger, than when he started his herd.

Johnson Cattle Marketing currently holds two large sales in both the spring and fall, in addition to smaller bull and private sales throughout the year. Tigerstripes are predominately sold in the four large sales.

Imparting some words of wisdom, Johnson notes cattle producers need to take advantage of any edge they can. “In the cattle business, we have a lot of things to fight. [But] we can’t fight Mother Nature,” he imparts. “Mother Nature is the one that’s decided this cross works and she’s right.”

Best of both worlds

DCJ and Johnson Cattle Marketing have first-hand experienced the merit scientists and breed improvement specialists reference in regard to crossbreeding. At its core, crossbreeding combines the strengths of different breeds to produce offspring that will perform above the average of their parents. Hybrid vigor, also known as heterosis, describes the superior genetics of the progeny of purebred parents with diverse genetics.

Maximum heterosis is seen in the first generation of crosses. Heterosis is important for reproductive success in all species and in beef cattle contributes significant improvements to calf performance and growth. The largest advantages are seen in fertility and reproductive performance.

Studies conducted at the U.S. Meat Animal Research Center in Clay Center, Neb., have proven crossbred females tend to stay in breeding herds longer than their purebred counterparts and tend to have a 20% higher cumulative



Crossbreeding Hereford bulls with Brahman cows combines the strengths of both breeds to produce offspring that will perform above the average of their parents.

weaning weight over their lifetime. Those numbers can increase up to 50% in *Bos taurus* and *B. indicus* hybrids.

Matt Spangler, associate professor and beef cattle Extension specialist at the University of Nebraska, Lincoln, researches ways to improve cattle operations. One specific area of his studies is implementing well-structured crossbreeding systems.

“We know the real advantage

of crossbreeding for commercial producers is in having a crossbred female,” Spangler says. “The benefits of maternal heterosis are substantial, especially in terms of reproductive longevity.

“In terms of economics, having crossbred females when you are a commercial cattleman is simply a must,” he adds.

Spangler notes an efficient crossbreeding system is essential for operations based in regions

where a limited number of breeds can adapt to the environment. He points to a crossbreeding system comprised of Brahman- and British-influenced cattle as a logical solution for hot climates — like DCJ and Johnson Cattle Marketing have employed with success.

Knowing the value Hereford genetics play in the Gulf Coast and Southern regions of the U.S., the American Hereford Association

continued on page 56...

Take advantage of the Maternal Advantage

Cattlemen who take advantage of the American Hereford Association’s (AHA) Maternal Advantage program will reap the benefits of added hybrid vigor in their herd.

To qualify, eligible females require verification they were sired by a registered Hereford bull. Participating bull batteries must rank in the top 50% of the breed for the Baldy Maternal Index (BMI\$) if used on British-based females or in the top 50% of the breed for the Brahman Influence Index (BII\$) if used on Brahman-based females.

These two maternally focused indexes are geared to identify Hereford bulls that will be profitable when used in a rotational cross with mature commercial Angus-influenced or Brahman-influenced females. BMI\$ and BII\$ both place significant weight on the AHA’s sustained cow fertility (SCF) expected progeny difference (EPD), which predicts female fertility and longevity. The indexes also emphasize growth, efficiency and end-product merit for nonretained females.

“The Maternal Advantage program is a great tool for progressive producers to utilize for adding value to replacement females and aiding in promoting the industry’s most sought-after females,” says Trey Befort, director of commercial programs at the AHA. “We are excited to provide yet another tool to continue leveraging Hereford’s influence in commercial programs.”

Producers who partake in the program will have access to a sire EPD summary, additional market exposure, replacement selection tools, genetic improvement tools, and AHA resources, marketing and staff.

For more information about the Maternal Advantage program, contact Trey Befort at tbefort@herefordbeef.org or visit Hereford.org/maternal-advantage. **HW**



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developed a new, genetically verified program that identifies premium replacement females.

Introduced in April, the Maternal Advantage program generates females with added longevity, more docility, increased fertility and more profit per year. Research shows Hereford genetics maximize the value of a herd by leveraging its fertility, feed efficiency, profitability and docility to the producer's advantage. Producers using Hereford bulls on British-based or Brahman-based females in their breeding system can use this program to take advantage of hybrid vigor.

From producers like DCJ to marketers like Tom Johnson and the research to back the claims, the advantage of a Hereford bull on Brahman cows is undeniable. The future is bright for Hereford genetics in the commercial market. **HW**

Calculating heterosis

According to Scott P. Greiner, Extension animal scientist, Virginia Tech, “The goal of a well-designed, systematic crossbreeding program is to simultaneously optimize these advantages of heterosis and breed complementarity. Heterosis or hybrid vigor refers to the superiority in performance of the crossbred animal compared to the average of the straightbred parents. Heterosis may be calculated using the formula:

$$\% \text{ Heterosis} = [(\text{crossbred average} - \text{straightbred average}) \div \text{straightbred average}] \times 100$$

For example, if the average weaning weight of the straightbred calves was 470 lb. for Breed A and 530 lb. for Breed B, the average of the straightbred parents would be 500 lb. If Breed A and Breed B were crossed and the resulting calves had an average weaning weight of 520 lb., heterosis would be calculated as:

$$[(520 - 500) \div 500] \times 100 = 4 \%$$

This 4% increase, or 20 lb. in this example, is defined as heterosis or hybrid vigor.” **HW**

Formula and example provided by Virginia Cooperative Extension. For more information visit <https://pubs.ext.vt.edu/400/400-805/400-805.html>

