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HEREFORDS — THE EFFICIENCY EXPERTS

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Building the Baldie

Commercial cattlemen can find value utilizing crossbreeding and heterosis.

by **Angie Stump Denton**

As bull sale and breeding season approaches, it's a good time to remember the benefits of crossbreeding and the value of heterosis. For commercial producers with black cow herds, Hereford bulls are a great option to add value to the resulting calf crop.

According to Matt Spangler, University of Nebraska-Lincoln Extension beef genetics specialist, "Crossbreeding takes advantage of heterosis (hybrid vigor) and breed complementarity. Commercial cattlemen must realize that no one breed excels in all areas that affect profitability. Breed combinations can be engineered to accommodate environmental constraints and meet marketing objectives."

A crossbred animal is created by mating two straightbred animals of different breeds or a crossbred animal to an animal of a third breed or two crossbred animals of different mixes of breeds. Crossbreeding is the opposite of inbreeding.

Traditional crossbreeding systems have been shown to maximize heterosis but can be very cumbersome in practice. "Crossbreeding is yet another tool in the tool box of genetic improvement and like anything else can be very profitable



if understood and used correctly," Spangler explains.

Beginning in the 1960s, numerous studies documented crossbreeding effectiveness in improving lifetime productivity by more than 20%.

Crossbreeding can be fairly easy to implement and has the potential for significant benefits.

"There is a clear economic advantage to crossbreeding," Spangler says. "Crossbred cows can generate \$100 per year or more than their purebred contemporaries. Traits that are lowly heritable, like reproductive traits, benefit greatly from heterosis."

Spangler says the advantages of crossbreeding can be thought of as 1) taking advantage of breed complementarity, 2) taking advantage



of non-additive effects (dominance and epistatic) and 3) capturing heterosis (hybrid vigor).

Breed complementarity is the combination of strengths of the breeds in the cross. Spangler adds that the strengths of the Hereford breed can be utilized

to complement strengths and weaknesses of other breeds in a strategic crossbreeding system. "Heterosis can only be garnered by crossbreeding, and the use of Hereford genetics in a traditionally straightbred commercial herd can help capture profit for the commercial cattleman that straightbred cattle leave on the table," he explains.

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— Matt Spangler



As explained by Jim Gosey, retired University of Nebraska Extension beef specialist, heterosis is actually the recovery of accumulated inbreeding depression. In just one generation, the offspring exhibit the maximum of what was lost through generations of “pure” breeding within a closed gene pool.

By definition, the gene pool in any given breed is limited. A certain amount of production potential is always sacrificed in order to gain the uniformity desired in a breed, since the most dependable way to gain the uniformity was by using inbreeding and linebreeding in the early history of the breed. A breed is essentially a closed group of cattle, not allowing any infusion of other genetics. It thus accumulates some inbreeding over time, even if it's not done deliberately.

Heterosis

Spangler says a phenomenon as old and as recognized as heterosis still seems to spark debate and, unfortunately, confusion. A quick search of the scientific literature will provide

numerous studies quantifying heterosis for specific traits under specific crosses.

“We would expect that when mating two parental lines (breeds), the corresponding calf crop would represent the average of the two parents,” Spangler explains. “Heterosis is the unexpected, and often beneficial, deviation from the parental average. This deviation arises due to dominance and epistatic effects that within breed selection tools do not allow us to capture.”

Heterosis beneficially influences many traits that are important for increased beef production, including fertility and reproduction, calf survival — due to hardier calves — maternal ability, growth rate of young animals, efficiency and longevity.

Percent heterosis can be calculated as:

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

A simple example would be the percent heterosis realized in the average weaning weight from breeding a herd of Breed A cows to a group of Breed B bulls. Let 525 lb. be the average weaning

Crossbred cows provide the ultimate benefit

Commercial cattlemen can experience the greatest amount of benefit gained by crossbreeding when using crossbred cows. Even though many stockmen use crossbreeding of straightbred parents to produce exceptional market calves — calves that gain faster than straightbreds and do well in the feedlot — the crossbred cow is the key to maximum beef production and profitability in a cow-calf operation since hybrid vigor in the cow produces phenomenal maternal advantages.

Research has shown that a crossbred cow is 8% more efficient than a purebred cow, lives 38% longer and has 25% more lifetime production in pounds of calf weaned. These advantages are partly due to crossbreeding having the biggest effect on traits that are not highly heritable (and hence more difficult to improve through selective breeding within a breed), such as fertility, age at puberty and longevity.

Crossbred cows live longer and are also less apt to be culled for being late or open due to increased fertility. Any cow that can calve at 2 years of age, never miss a year of calving and stay in the herd another year or two beyond average culling age makes her owner money. When a producer considers all the benefits of a crossbred cow, he can see why animal scientists call this the “only free lunch” in the cattle business.

As pointed out by Larry Cundiff, retired from the U.S. Meat Animal Research Center (USMARC), Clay Center, Neb., data from its heterosis studies showed that the breakeven costs of production were reduced about 10% by using crossbred cows.

Another study at Montana State University compared the effects of breed and heterosis on heifer pregnancy using purebred and crossbred females of several breeds. Results showed that a higher

percent of crossbred heifers calved at 2 years of age, reaching puberty and becoming pregnant earlier than purebreds.

And if a cow is healthier, with a stronger immune system due to hybrid vigor, she develops better immunity when vaccinated and imparts better colostrum to her calf, which in turn keeps him healthier through the risky days of early calthood. Genetics plays a big role in an animal's immunity and immune response. The crossbred animal is hardier than a straightbred animal partly just because genes control the process of recognizing disease agents and inbreeding doubles up more of the undesirable immune-response genes. Crossbreeding ensures more genetic diversity and optimal immune response. Thus, a crossbred cow tends to have more optimum immune system function than a straightbred cow and, hence, not only stays healthier herself but may also produce more protective colostrum.

When all factors are weighed, the crossbred cow gives her owner the most benefit. By contrast, the stockman who is merely trying to take advantage of hybrid vigor in the calves using straightbred cows and bulls of another breed, gains less impact on profitability. Calf weaning weights for crossbred calves are 5% more (and yearling weights 4% more) than straightbred calves. The research study in the 1990s that came up with these figures showed that a straightbred cow with a crossbred calf earned an average of \$23.37 more than if she had a straightbred calf. But a crossbred cow with a crossbred calf netted \$116.88 more than a straightbred cow with a

weight of the F1 calves, 450 be the average weaning weight of the Breed A population and 550 be the average weaning weight of the sire's population.

The pounds of heterosis would be:

$$\text{pounds of heterosis} = 525 - [(450+550)/2] = 25 \text{ lb.}$$

The percent of heterosis would be:

$$\% \text{ heterosis} = 25/[(450+550)/2] = .05 \text{ or } 5\%$$

The amount of heterosis that is realized for a particular trait is inversely related to the heritability of the trait.

This result is logical since traits that are lowly heritable have a small additive component (proportionally speaking) and crossbreeding takes advantage of dominance and epistatic effects.

With that in mind, traits of low heritability (reproductive traits) generally benefit from heterosis the most (Table 1). They generally have a heritability of less than 10% and can be improved through the adequate use of crossbreeding systems. End-product traits that benefit from heritability in the moderate to high range, on the other hand, benefit less from heterosis.

Spangler says

there are three main types of heterosis:

- 1) individual,
- 2) maternal and
- 3) paternal. He says the offspring of a F1 female will benefit from maternal heterosis (Table 2). See "Crossbred cows provide the ultimate benefit," for more about the F1 female. 🐮

The Hereford

Role in Heterosis



Table 1:

Individual heterosis: Advantage of the crossbred calf¹

Trait Observed	Improvement	% Heterosis
Calving rate	3.2	4.4
Survival to weaning	1.4	1.9
Birth weight	1.7	2.4
Weaning weight	16.3	3.9
ADG	0.08	2.6
Yearling weight	29.1	3.8

¹Adapted from Cundiff and Gregory, 1999

Table 2:

Maternal heterosis: Advantage of the crossbred cow¹

Trait Observed	Improvement	% Heterosis
Calving rate	3.5	3.7
Survival to weaning	0.8	1.5
Birth weight	1.6	1.8
Weaning weight	18.0	3.9
Longevity	1.36	16.2
Cow lifetime production:		
No. calves	0.97	17.0
Cumulative wean wt., lb.	600	25.3

¹Adapted from Cundiff and Gregory 1999

straightbred calf. This potential increase in profit is one reason a number of producers went to crossbred cow herds.

During the past decade, however, with the increasing popularity of "black" cattle and the drive toward more uniformity and marbling, many of America's commercial cow herds have lost most of the heterosis they once had. Due to market pressures for beef calves, many stockmen have been using bulls of just one breed, and the replacement heifers then become more and more straightbred with each generation.

Jim Gosey, retired University of Nebraska beef Extension specialist, says the loss of heterosis in these herds shows up most quickly in the traits that are least heritable and most associated with inbreeding depression, namely reproduction (fertility), hardiness and longevity. The price paid for the loss of heterosis is cumulative — as a number of very small losses add up and amount to a substantial sacrifice in lifetime productivity.

As one cattle buyer observed a few years ago after a very cold and slow spring during which feed supplies were short, most of the cows in several herds he worked with were thin, and there was a high rate of open cows after the breeding season. Interesting to note, the cows that bred back the best and on time — in spite of the tough conditions — were the old crossbred cows that were still in the herds. The younger females that were a high percentage of straight breeding didn't do as well.

— Heather Smith Thomas





Believing in Heterosis

John and Mark Lacey are presented the AHA Hereford Industry Innovator Award for their years of service to the beef industry and their cooperation in the Harris Ranch heterosis project.

by **Angie Stump Denton**

Third and fourth generation cattlemen, John and Mark Lacey, are true leaders in the beef industry. The father-son team, based in Independence, Calif., raise cattle and horses.

"John and Mark Lacey have been faithful servants to the U.S. beef industry for decades," says Craig Huffhines, American

Hereford Association (AHA) executive vice president. "John has held the top level leadership role of our industry as president of the former National Cattlemen's Association back in the 1990s."

Since 2005 Lacey Livestock has been cooperating with AHA, Harris Feeding Co. and Harris Ranch Beef Co. in a research project studying the value of heterosis. The objective of the project is to conduct a controlled crossbreeding system comparing progeny sired by Hereford and Angus bulls under commercial conditions, emphasizing economic differences at the ranch, feedlot and packing plant.

John Lacey says he is happy with the research project results. "We reaffirmed the value of heterosis and saw an improvement in weaning weight, health and feed conversion," he says. "We believe the project was done in a real-world commercial setting and others should experience the same results."



In early December the Lacey calves were shipped from the backgrounding lot in Smith Valley, Nev., to the feedlot in Coalinga, Calif. Mark Lacey says their 2008 calf crop had one of their highest weaning weight averages in recent years. He attributes the increased pounds to crossbreeding as well as improved feed sources.

"When we asked John and Mark if they would be willing to work with us on the Harris Ranch study, they both jumped at the opportunity," Huffhines says. "They have always been loyal to the industry first. They have strived to protect our ranching rights, and they have never turned down an opportunity to evaluate those things that can make commercial cattlemen more profitable."

The AHA recognized the Lacey family in Denver by presenting them with the AHA Hereford Industry Innovator Award for their years of service to the beef industry and their commitment and cooperation with the Harris Ranch heterosis project.

Ranching tradition

The Lacey family has been ranching in California since 1870. After settling in the Owens Valley, Mark B. Lacey and his son expanded the operation to include 15,000 acres of city of Los Angeles lease land that increased their carrying capacity to 1,000 head. The ranch began with Hereford and Shorthorn cattle. In 1960 Angus cattle were introduced to replace the Shorthorns.

Mark B. Lacey passed away in 1964, leaving John and his wife, Dee, along with their children, Mark and Nicki, to continue to manage Lacey Livestock. John and son Mark still ranch most of the original Lacey outfit. They have divested themselves of all federal lands and have added 40,000 acres more to the Owens Valley Ranches. Altogether, Lacey Livestock is 60,000 acres with approximately 2,000 cows.

Today the Lacey family ranch is a cow-calf and stocker operation. They also raise Quarter Horses, and in 2003 Lacey Livestock earned the title of American Quarter Horse Association Remuda of the Year.

The Lacey family owned several ranches in San Luis Obispo County that they sold in 2000 to purchase the historic Dressler Ranch in Bridgeport, Calif. This ranch has 7,000 acres and annually is home to 8,000 steers. Lacey Livestock purchased this ranch with David Wood under the Centennial Livestock partnership. The partners completed an easement with the American Land Conservancy and the California Rangeland Trust. This ranch will be preserved for perpetuity. Centennial Livestock also leases 230,000

acres of the historic Tejon Ranch, south of Bakersfield, which is home to about 7,000 head.

Heterosis study

Huffhines says the Harris research project is becoming a landmark study defining what genetics can do for the industry when used properly in a real-world commercial setting.

Mark says, prior to participating in the project, his family had been part of the Harris Partnership for Quality (PQ) program since 1997. To participate in the PQ program, producers have to follow Harris' guidelines, which include specific genetic criteria and prescribed best management and animal health practices.

Mark says producers don't know the value of heterosis in a cow herd until they lose it. Then they are really caught because it takes too long to re-establish especially when you keep and develop your own replacement females.

"Heterosis is invaluable," he says. "From my observations at the ranch, as we lost heterosis, we were seeing more health issues and the weaning weights just held their own.

"It was our opinion that we couldn't continue to just breed to Angus indefinitely and continue to lose heterosis in our herd. Harris agreed to allow the trials of other breeds to see if they could meet the company's carcass requirements. The Hereford Association stepped up and was willing to participate. My dad has always been a Hereford fan, so it was a perfect fit for us."

To start the project, 400 mature Angus-based cows were sorted and identified with electronic ear tags in the Lacey Livestock program. Cows were randomly mated to 10 Hereford or 10 Angus bulls, selected based on rigorous genetic parameters (expected progeny differences [EPDs]) for overall merit. The project is being conducted for a three-year period, the typical lifespan of a bull under Western range conditions. To have more numbers for the project in year two and three, Lacey Livestock increased the number of cows to 600 and the number of Hereford bulls to 16.

Year one results showed a \$78 advantage for Hereford-sired calves compared to Angus-sired calves in a real-world commercial setting. The second calf crop has been harvested and the third crop is at the feedlot in Coalinga, Calif.



"The baldie females are the biggest pay off for us participating in the project. It is allowing us to get some heterosis back in our cow herd."

— Mark Lacey

"I was pleasantly surprised by the Hereford cattle's feedlot performance," Mark says. "They were very efficient and lived up to their billing. As far as grade, I expected them to be lower, but the first calf crop was a little lower than expected."

Data on the second group of calves are still being reviewed, but early results show that the Hereford-sired calves narrowed the quality-grade gap in 2008.

"It is evident they are efficient," Mark says about the Hereford-sired calves. "They do it in the feedlot, and in general I think the Hereford-sired females are showing the same efficiency on the range."

The study is also tracking the productivity of the females. Females from the first calf crop have weaned their first set of calves and are at the feedlot. The effect of maternal heterosis will be determined by tracking productivity of the replacement heifers that were retained and identified to a sire. The objective is to attempt to determine lifetime productivity and profitability differences between sire groups.

"The baldie females are the biggest pay off for us participating in the project," Mark says. "It is allowing us to get some heterosis back in our cow herd."

Mark says he and his father are anxious to see the improvements in fertility, longevity and health. "In the cattle business, fertility and longevity is what make us money," Mark says.

The female data showed that the baldie females had a 7% advantage in pregnancy rate in 2008. As more data are compiled and reviewed, the Laceys expect to see even more value with the Hereford-sired females and their calves. Mark says the heterosis is giving them increased calf survivability and a better weaning percentage.

"By and large the project has gone as expected," Mark says. "We're not breaking



Year one results of the heterosis project showed a \$78 advantage for Hereford-sired calves compared to Angus-sired calves. The second calf crop has been harvested and the third crop is at the feedlot in Coalinga, Calif.

new ground. What we were hoping is that Harris would find the beef to be a product that would fit the PQ program. Harris has been impressed with the dollar advantage, but trying to figure out how to market the beef is the issue."

The future

As the project comes to an end, Mark says the Laceys will continue to use the Hereford bulls that remain in their bull battery. This year he also artificially inseminated his black replacement heifers, nearly 250, to two calving-ease Hereford bulls.

"We want to continue to produce more baldie females," Mark says. "As range cows go, I think the Hereford female is a superior range cow and makes a great mother." 🐮

The Hereford Role in Heterosis



Hereford Longevity

Commercial cattlemen have been looking for a bull with stayability for years — the Hereford bull just may be the answer.

by **Tosha Powell**

Cattle producers know the best way to increase income is to reduce costs. Purchasing a high-quality bull with genetics that are complementary to your herd every year or two defeats the purpose. The good news is that Hereford bulls may have the longevity a producer needs to remain in the black.

“When people shop for a herd bull, you have to know what constraints your environment holds,” says Matt Spangler, University of Nebraska-Lincoln Extension beef genetics specialist. “You must have cattle that can survive in your environment.”

For commercial cattle producers with predominantly Angus cows, crossbreeding gives not only heterosis but combines the individual breeds into a calf crop that brings top dollar in the market place.

“You have to look for a bull that complements your cow herd,” Spangler says. “If mated to a different breed of cows, Hereford bulls can produce calves that benefit from heterosis. If producers are retaining their own replacements they should realize that crossbred females can generate up to \$100 more per year than their purebred contemporaries.

“Traditionally, Hereford cattle are known as a rugged, low-input breed,” he continues. Taking the strengths from each breed and combining them into one calf crop can give a herd the total package a buyer is looking for at the sale barn.

Ron Thomson and his brother, Don, manage a commercial herd near Tarkio, Mo.

“We backgrounded steers on our own grass until eight or nine years ago,” Thomson says. “But with source and genetic verification practices, we thought it would be a good idea to change our operation and manage our own cow herd.”

Although the Thomsons chose to manage Angus cows for their operation, it was Hereford bulls that they found to complete the whole package.

“Hereford bulls go out and do their job and that’s exactly what we were looking



for,” Ron says. “We don’t pamper our bulls a lot, so when they come in here already in good shape and ready to go out and work, we don’t complain.”

Crossbreeding is becoming a natural trend in the cattle industry. Thomson says he finds that calves from a Hereford-Angus cross have more natural growth and always give a few more pounds at the sale barn.

“Sure we want good genetics,” Thomson says. “But what we really want is the whole package that a horned Hereford bull can give to make a good crossbred calf.”

For any commercial cattleman, it’s important to find the right makeup in a bull to complete his herd. But of course, cost is on every cattleman’s mind.

Spangler says, “How often do you want to have to replace a sire? There is nothing wrong with spending more money on a bull if he meets your breeding objective and is able to stay in the herd for more years than the average bull.”

Thomson says he chose Hereford bulls not only because of the genetic component but because of the ability to save money with Herefords’ natural longevity traits.

“Our last set of bulls we worked for five breeding seasons,” he says. “We run about 19 cows per bull and was able to keep them around for five years. It’s nice to know that we can work them like that and

that the Hereford bulls were still in good enough shape to bring enough money to help replace them at the sale barn.”

Oftentimes when we talk about longevity, we talk about structural soundness, Spangler says. A bull that can’t stay in the herd because he’s not structurally sound can produce daughters with the same structural deficiencies.

Nebraska Sandhills cattleman Arlan Paxton says his commercial Angus operation uses Hereford bulls to take advantage of the hybrid vigor bred in the black baldie calves. Paxton uses Hereford bulls to take the edge off the Angus’ disposition and put longevity back in the cow herd.

“I like Angus-Hereford cross to maintain hybrid vigor,” Paxton says. “I also like that I can keep an English cow base.”

Before Paxton purchases a new bull for his herd, he says, he wants the bull to look and act the part.

“In order for me to buy a bull, he has to look the part: structurally sound, fertile and be able to demonstrate he’s efficient enough to get my herd where I want it.”

Like Thomson, Paxton sees longevity in the Hereford bulls he purchases.

“I can keep the Hereford bulls longer than the Angus bulls we run,” Paxton says. “We can keep the Herefords for at least six breeding seasons vs. four with Angus bulls.”

Some producers say that other bull breeds have the tendency to “fall in love” too easily with the cows in the pasture. Where the Angus bull breeds the same cow 10 times, a Hereford can breed 10 different cows, Paxton says.

Hereford cattle have proven to be more docile and not as aggressive as other breeds. Paxton finds that the Angus bulls in his operation fight with each other more than the Herefords do; therefore, the Herefords are able to stay in the herd longer.

Hereford bulls are the choice of commercial producers who are seeking an economic advantage. Herefords’ genetics provide soundness, fertility, efficiency and longevity — all things that help producers make and save money. 🐮



Dan Chase is sold on Hereford bulls and the baldie females they produce. He says R-Y's baldie females gain and grow so much better than its straightbred females.

An Obvious Advantage

California commercial ranch tops market with Hereford-sired calves that were sold 70 days earlier and 6 lb. heavier than previous year's straight black calf crop.

by **Angie Stump Denton**

It's hard to argue with data, and commercial cattlemen Richard Peters and Dan Chase of Grenada, Calif., have the numbers to prove the advantage their ranch has experienced from utilizing Hereford genetics. "We're enthusiastic about using Herefords," Dan says. "There is no way you can talk me out of using a Hereford bull. I'm convinced Herefords help add premiums on ship day."

R-Y Ranch is owned and managed by Richard and Yet Peters and their son-in-law and daughter, Dan and Becky Chase. Dan and Becky's children, Dillon and Ty, are the fifth generation to work on the ranch that is located in northern California in the beautiful Shasta Valley.

Dan explains that he was getting tired of decreasing weights and efficiency as the R-Y herd became more and more

straight black. "It was clear to us we needed to make changes," he says. "We needed to do something to add vigor back into our herd."

The family has been selling its calves on the Western Video Market for 12 years, so realizing the need for a change, Dan contacted Andy Peek, who was president of Western Video Market and manager of Shasta Livestock Auction at the time, to seek his advice.

Following that discussion, R-Y Ranch purchased Hereford bulls in 2007 and they plan to continue to buy Herefords for years to come.

The results

It was an obvious advantage, Dan says, pointing to sale receipts. The family's 2007 calves were shipped on Jan. 28, 2008, averaging 582 lb. In comparison, the 2008 spring-born calves, which were sired by Hereford bulls, were sold on Nov. 28, 2008, weighing 588 lb.

"We were able to sell the Hereford-sired calves 70 days earlier, and they still averaged 6 lb. heavier," Dan says. "And, if we would have kept them another 30 days, we would have seen an even bigger advantage."

Dan says using the Hereford bulls provided numerous benefits to the R-Y herd:

- 1) A calf that can go to market sooner.
- 2) Improved feed efficiency and conversion.
- 3) Improved conception rates.
- 4) Decreased use of the hay pile.
- 5) More time for cows to recondition before calving.

"The entire package is a major improvement for our program," he says. "Using Hereford bulls bought us six months in building our program."

Dan says he's seen advantages in managing Hereford bulls compared to bulls of other breeds. "They cover the country and get the job done," he says.

At calving time they also saw a difference in health and calf vigor. "There is more 'buck and kick' in those calves," Dan says. "You just get a little more snap

with Hereford influence."

Bottom line, what R-Y Ranch likes about Hereford bulls is the females they produce. "The baldie is the most

desirable package in the cattle business today," Dan says. "Our baldie females are gaining and growing so much better than our straightbred females."

R-Y herd

When the cow herd was started by Yet's family in 1956, it was predominately black baldies. Yet's father, Sandy Sanders, used Hereford bulls at one time and then other bulls were purchased following the trend in the cattle business. Through the years the ranch used "eared" or Bos indicus cattle before switching to mostly straight Angus about 20 years ago.

It's easy to describe the family as progressive and aggressive. They have diversified the family's businesses and continue to expand and grow the ranch. The family manages a custom farming and fencing services business as well as a growing cow herd. A new opportunity for the ranch has been to use part of the cow herd as recipient cows for seedstock producers wanting to place embryos.

Today the R-Y herd includes both a fall and spring calving herd numbering about 500 head. The embryo contracts, custom farming and the increased income and decreased expense from using Hereford bulls are allowing the ranch to expand in size and cow herd numbers.

"If we can continue to sell calves 70 days earlier, we can increase our carrying capacity and stretch feed without buying or renting more land," Dan says with confidence.

Becky, who has been involved with the R-Y herd since birth, is also sold on the benefits of Herefords. "We've got the numbers to prove it," Becky says. "Using Herefords allowed us to market our calves 70 days earlier, they weighed more, plus they topped the market. You can't argue with that." 🐄



"We needed to do something to add vigor back into our herd."

— Dan Chase





Pennsylvania Producers Add Value with Feeder Calf Pool

by **Sara Gugelmeyer**

More and more producers are pooling their efforts and their cattle to help increase profits. They are also using Hereford bulls to take advantage of the extra pounds heterosis provides. Pennsylvania cattlemen have been working to add value with the Pennsylvania Feeder Calf Pool since the program began in 1995, and they have reaped the rewards.

Penn State Extension Agent Dustin Heeter has compared the profits earned by those participating in the pool with other Pennsylvania cattlemen and discovered that in the past five years, participants earned between \$100 and \$145 more per head, even after program expenses were paid.

Hereford-sired calves brought more than purebred or other crossbred calves, also. “Data once again proves that crossbreeding and especially the use of Hereford bulls brings more dollars of return,” Heeter explains. At the 2008 sale, 472 calves sold with the Hereford-sired steers weighing an average of 29 lb. more than the others, increasing their

value \$28.21 per head. The Hereford-cross heifers also weighed on average 35 lb. more, resulting in a \$43.05 advantage.

“Using the above numbers, if a producer had 18 calves marketed in the program with half being steers and half being heifers, they received an additional \$641.34 of income by using a Hereford bull,” Heeter says.

Skip Dick, Smithfield, Pa., is one of the founding members of the Pennsylvania calf pool program, and he has chosen to use Hereford bulls on his Angus-Gelbvieh cross cows. He says he has been pleased with the added pounds the Hereford influence has put on his calves. Because he only has about 50 to 60 cows, the calf pool allows him to combine with others to make a full semi load and take advantage of the increased price.

Cattlemen do have to meet requirements in order for their calves to be eligible for the program. Dustin Heeter explains that the process is 10 easy steps:

- 1) Producer must make a commitment to work with others for the good of all.

- 2) Producer nominates calves for the program in mid- to late-summer.
- 3) Calves are given rounds of a set vaccination program on the farm. First round is given when calves are on the cows; second round, at weaning, about 14 days later.
- 4) Calves are weaned on the farm for at least 40 days prior to shipment. These calves are fed a quality ration, making them bunk broke and gaining about 2 lb. per day.
- 5) All calves are handled under Beef Quality Assurance (BQA) guidelines and are all tagged with BQA tags and electronic ID.
- 6) All calves are graded on the farm.
- 7) Weights are taken on each calf or a tape estimate is made.
- 8) Information on all calves is compiled to form load lots. Once the information has been compiled and calves assigned to lots, then the cattle must sell and be delivered.
- 9) The calves sell the last Friday of September via a tele-auction from Buckhannon Stockyards. Calves never leave home until shipment. Multiple shipping dates have been established to meet the needs of producers who calve later or have a longer calving season.
- 10) Calves are taken to shipping point on assigned day and weighed and sorted. This weight is the pay weight, including slides. Buckhannon Stockyards makes payment directly to the producer following shipment.

The program does also require some added expense, but Heeter says the added

2008 Pennsylvania Feeder Calf Pool data

	Straight bred	Crossbred	Hereford-sired
Steer	553 lb. – \$534.45	574 lb. – \$554.70	582 lb. – \$562.66
\$28.21 Hereford advantage			
Heifer	527 lb – \$471.76	518 lb. – \$463.68	562 lb. – \$514.81
\$43.05 Hereford advantage			

profit more than makes the difference.

Pool expenses include the following:

Sale commission \$10/head

Pool processing \$8/head

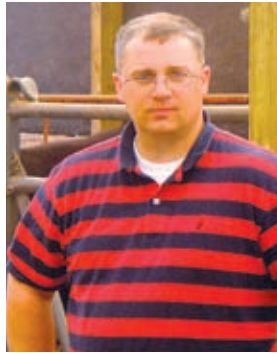
Insurance \$.44/head

Checkoff \$1/head

Vaccine \$5.35/head

Dewormer \$2.80/head

These expenses result in a cost of \$27.59 per head. 🐄



“Data once again proves that crossbreeding and especially the use of Hereford bulls brings more dollars of return.”

— Dustin Heeter

The Hereford Role in Heterosis



Producing quality

Pennsylvania commercial producer says using Herefords in his program is the perfect fit.



If you are a commercial producer with a black cow herd, the best way to get a big payback is to use Hereford bulls says commercial cattleman Rick Fabin, Indiana, Pa.

“Put a whiteface on your calves and see how good they do for you,” Rick explains. “The value of heterosis and the benefits of crossbreeding is real. Commercial producers can earn real value by using Hereford bulls on their black cow herds.”

Rick farms in partnership with his brother, Stanley. The Pennsylvania Cattlemen’s Association named Fabin Bros. Farms its 2007 commercial cow-calf producer award winner.

Fabin Bros. is a diversified livestock and crop farm with 3,000 acres of rotational pastures, hay, corn, soybeans and wheat. The Fabin family spent years in the dairy business before dispersing the herd in the ‘80s. The family then started feeding cattle (purchasing stockers) before deciding about three years ago to start building a beef herd with the hope of better utilizing its land assets.

Rick explains they started putting their herd together three years ago. “We continue to progress and build a herd we are striving to have,” he says. “At the time my son, Andy, was going to Penn State and his interest is in cattle. Our hope is some day that he can come back home and we can start feeding cattle again. Our goal with the cow herd is to produce the type of cattle we would want to feed in our own lot.”

Today the Fabins have grown their cow herd to include about 130 Hereford and Angus-based females. Rick says the 2009 calf crop will be 75% baldies, and his goal is to eventually be producing 100% baldies each year. “My goal is to produce a premier F1 – the Hereford-Angus baldie female,” he says.

He says they focus on producing baldies because of their disposition, how they fit the environment and their quality on the “table.”

Utilizing technology

The Fabin family is dedicated to improving efficiency and utilizing new technology to improve its operation.

“I want to be a progressive cattleman,” Rick explains. “I want to have a program: produce cattle that fit a specific marketing target, not just turn out a group of cows to utilize grass.”

For Rick this includes having a detailed health and management program as well as using artificial insemination and embryo transfer. He seeks out the best genetics available and tries to take advantage of those genetics.

“Right now we are in a data collection mode,” Rick adds.

“We want to try to collect data and make genetic choices based on the data.”

To track progress, Rick fed his 2007 calf crop in Kansas at Decatur County Feed Yard. He says the cattle performed adequately despite the fact that market conditions were not ideal. At press time he was considering sending his 2008 calf crop to Decatur. “We want to continue to see if we are moving in the right direction,” Rick adds.

Focusing on the female, the Fabins collect hip, pelvic and ultrasound measurements on all replacements to make sure they are retaining proper females. To continue to build a better herd, Rick culls the bottom 10-15% of his herd each year.

Rick says he tries to make intelligent, information-based decisions to achieve his breeding goals. To do this, he utilizes expected progeny differences (EPDs).

His sire selection focuses on maternal traits with the goal of producing an F1 baldie female with the best maternal characteristics possible. “I’m willing to give up some performance to get the maternal characteristics I’m striving for, but I’ve found I don’t have to give up much, if any.”

Rick strives to develop moderate-framed females that are functional with good udders and feet. “You don’t need tremendous growth numbers. Calves with 1,300-1,400 yearling weights do not give you a 1,200 lb. cow,” he says.

The producers’ role

“As commercial producers, our job is to produce quality beef for the consumers,” Rick says.

He adds that he believes seedstock producers exist to work with commercial producers to meet consumer needs. “Purebred breeders need to be producing genetics that work for commercial producers who are feeding and producing cattle for the consumer.”

As a leader in the beef industry, Fabin serves on the Pennsylvania Hereford Association board, is a member and director of the Pennsylvania Cattlemen’s Association, and is a member of the Pennsylvania Farm Bureau and the National Cattlemen’s Beef Association.

Producing quality beef is job No. 1 at Fabin Bros., and Rick Fabin says Herefords help him achieve that goal.

— Angie Stump Denton



Cashing in on the Black Market

Hereford-sired calves go head to head with Angus and prove profitable on the grid.

by **Patti Long**

When Jeff Palmer assumed management of a 1,800-head cow-calf operation six years ago, he wanted answers to some of the industry's most vexing questions.

First and foremost, he wanted to know which breed or breed combination would work best in — and generate the greatest economic returns for — his eastern Oregon environment.

In 2008 Palmer, who manages Ironside Associates of Ironside, Ore., got some of his questions answered when he fed out two groups of calves and compared the results.

The first set consisted of primarily straightbred Angus cattle. The second set

was a group of crossbred Hereford and Angus calves — “black baldies,” as they’re known in the industry.

Both pens of cattle were finished at Beef Northwest, a feeding company based in North Powder, Ore. All of the 300 head group were managed under identical conditions. Both pens entered the feedlot at the same time, received the same ration and were marketed on the same day.

When the closeout data came back, Palmer was surprised. He had odds on the black cattle, but when the results were tallied, the baldies had the best bottom line.

“It was a real eye opener,” says Palmer, who expected the straight blacks to bring more money. “The straight black calves performed a little better on the grid, but our profit per head was better on the white-faced calves. That was a pretty big one for me.”

While the solid black cattle produced higher-grading carcasses (90% Choice and Prime), the baldies (77% Choice and Prime) had lower input costs and, thus, made more money. There were marginal differences in most aspects of the comparison (including conversion and gain per day), but the bottom line — the one that counts the most — was in favor of the baldies by \$7.12/head.

The Certified Angus Beef (CAB) acceptance for the solid blacks was 30% and 20% for the crossbred calves, both better than the national average of 18%. The Hereford-sired calves made more money even though their acceptance rate was 10% lower. Both groups returned about \$4 per hundredweight (cwt.) over the commodity price.

These two groups of cattle were high-quality cattle (the top two pens at the packer that week), which made the comparison even more interesting.

The baldies’ increased profit margin was because of their crossbreeding, Palmer says. He credits the effects of heterosis, or hybrid vigor, for the increased profitability of the crossbred calves. Heterosis is a boost in productivity that takes place when a producer mates two unrelated breeds to produce more vigorous and economically efficient offspring. “I think heterosis goes clear through to the rail,” he says.

Crossbred cattle, for instance, are almost always more healthy and productive and perform better in ranch and feedlot settings than their purebred counterparts.

Other segments of agriculture have taken advantage of heterosis and reaped the benefits, or profits, for years. The

“With heterosis, you are getting more bang for your buck.”

— **Ron Rowan**



corn industry recognized this boost in productivity and began producing and marketing hybrid seed corn. Today, virtually all swine and poultry are hybrids. And, for more than 30 years now, cattle producers have also benefited from crossbred cattle and boosted the productivity of their livestock. Most people in production agriculture are trying to balance their books. And if they can cut expenses or reduce input costs, they can put more money in their pockets and be more profitable. Crossbreeding doesn't increase costs but can increase profits.

Simply put, "with heterosis, you are getting more bang for your buck," explains Ron Rowan of Beef Northwest.

Working together

One of the primary functions of Rowan's position is developing alliances and partnerships among seedstock producers, ranchers, the feedlot and the packer as a way of ensuring quality and adding value to beef.

During the last three years, Beef Northwest worked closely with Harrell Hereford Ranch and Thomas Angus Ranch, Baker City, Ore., to form Northwest Premium Genetic Partnership.

Underpinning this effort is the belief that breed complementarity and heterosis is the most efficient way to achieve profitability and quality end products.

"Our belief is that we need to work together to get a better, more efficient product," explains Rowan. "Heterosis — through disciplined and planned crossbreeding — is an example of how it can work."

As part of this alliance, both the Harrells and the Thomases host their annual spring bull sales during the same week. This arrangement (plan, schedule, collaboration) allows commercial customers to purchase genetics from both programs as a way of fostering heterosis in their own programs.

"We're not an island in this industry — in any segment of it — and if we are, I



"Health, feed conversion, rate of gain: those are three big advantages of heterosis in the feedlot."

— Bob Harrell

don't think business can be as successful as if we are working together," Rowan says. The feedlot has a good relationship with the packer and with the producers who supply the raw product.

"We have a vested interest in getting the best cattle we can for these feedlots," says Rowan. "We're dependent on the raw product, and our raw product is cattle."

The feedlot manager knows what the packer wants and has a responsibility to pass the information on to the cow-calf sector, where the process begins. The sharing of information and collaboration from each segment is crucial to quality end product. With data collected from the feedlot to the rail, producers can analyze their product and make adjustments accordingly.

Rowan agrees, and he works with producers to make sure the lines of communication are open. "We're trying to keep customers on the leading edge by giving them information so they can make changes in their operations"

Often times, a producer can make genetic adjustments that cost no more money but pay dividends in the form of premiums. And every bit helps.

Increasing ribeye through selection of the right bull can be a great benefit of heterosis too. "If you have calves that did well in the feedlot and had a high percentage Choice, but they didn't have that many 1s and 2s, producers could increase ribeye, use a ribeye bull and

increase their yield grade," he says. Beef Northwest takes part in Country Natural Beef, a program that pays premiums for ribeye area.

"Many people think you can't make it work with another breed," says Bob Harrell. "But what Jeff Palmer's comparison proves is that you can maintain quality while achieving greater economic returns by using a disciplined crossbreeding program. There was a 10% difference in the Certified Angus Beef acceptance rate, but the Hereford-influenced cattle still made money.

"If the people are buying your cattle because they know they will make more money, they'll pay you more money for those calves," Harrell says. "If you retain ownership, you have seen the added value in the form of premiums paid by the packer."

Perhaps the biggest advantage is in the increased health of crossbred calves — particularly when they enter the feedlot.

Data on more than 75,000 cattle harvested from Five Rivers Feeding Co. in 2006 show the importance of ensuring healthy calves in the feedlot.

The groups with no death loss were \$40/head more profitable.

Feedlots that focus on calf-feds are particularly sensitive to keeping cattle healthy. And that's why many feeders like Beef Northwest have begun pushing for cattle with heterosis as a way of decreasing sickness and death loss.

"Health, feed conversion, rate of gain: those are three big advantages of heterosis in the feedlot," Harrell says.

It all starts back at the ranch

Perhaps the biggest advantage of heterosis is back at the ranch, however.

"The most important thing for us is the production end and getting a live calf,"

continued on next page...

"With the F1 cross, our weaning weights having significantly increased compared to the straightbred cattle we have bred in the past."

— Justin Jacobs



says Palmer. "Our cattle are all outside, they calve on their own, and we expect a 95% calf crop without helping them. We don't think we could do that without crossbreeding and hybrid vigor."

"Heterosis will always give you a boost in fertility and calf survivability," explains Harrell. "Those are things you don't usually put a dollar value on because you don't get paid for it. An open cow or a sick calf costs money. You might not see any money changing hands because of it, but you can feel the loss in your wallet."

To keep on the plus side of the ledger, you have to equip yourself with the right tools. "People who aren't taking advantage of crossbreeding are just missing those pieces that can help them be profitable. You can't do the best job if you don't have the right tools and you are not prepared," Harrell says.

Riverside Ranch of Prairie City, Ore., has filled its toolbox with the right stuff. The family has taken advantage of the Hereford-Angus cross and has been producing F1 black baldies for years.

The ranch, which is owned by the Jacobs family, runs about 1,000 cow-calf pairs in the high country near the Malheur National Forest. "We run in big country," says Justin Jacobs. "We need cattle that have some go to them and can get to the top of the mountain. We need cattle that have some ruggedness to them."

With their baldie cow herd, they see a boost in productivity over the straightbred herds they've run before.

"With the F1 cross, our weaning weights have significantly increased compared to the straightbred cattle we have bred in the past. We don't have actual data to compare, but I would estimate 10-20 lb. at weaning," Jacobs says.

Jacobs says he also believes he's improved the feed efficiency of his cow herd because of the heterosis.

"If you feed each cow even 2-3 lb. less per day than what you would feed a 1,300-lb. straightbred cow over the course of the winter, that's

a significant amount of savings," says Jacobs. "We didn't have any idea the feed prices would get to where they are now. We've been doing the F1 deal for eight years. In hindsight, it looks like we made a pretty good move."

Jacobs adds that in addition to feed efficiency, the qualities they appreciate about the F1 baldie cow are their fertility, easy fleshing ability, temperament and reproductive health.

Perhaps most of all, what Jacobs and Palmer like best about their black baldie calves is that they're easy to sell; they know there's strong buyer interest in them because the industry now recognizes the value of quality cattle with hybrid vigor.

"There's a strong market for the calves. When you get to the feedlot, you've got a nice product," Jacobs says.

The cattle buyers know the advantages, and they understand heterosis can translate into profit.

"Anytime you get an extra person to raise their hand, and they go back and forth a couple of times, pretty soon that's a buck or two a hundred more on a six-weight animal; that's \$12 to \$15 a head more. That's sure a difference," he says.

Jacobs has seen the advantages with using heterosis and understands sometimes you have to adapt to change. "It doesn't matter how much you like your cattle. If the market doesn't like them, what are you doing it for?"

His adaptation has added value to his herd, and the demand is solid. "In the past, with the straightbred cows we would have about 5% of the calves that couldn't go with the rest. We would just have to take those to the local auction barn. Now it's really nice. When we ship, most everything goes," Jacobs says. "The uniformity with the F1 cattle is outstanding. We've had great success marketing the cattle. The people who have bought them in the past keep coming back." 🐾



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