Last month, we explored the relatively new practice of dairy herds testing every heifer calf for genomic merit. This month, we look at three herds that have adopted the practice, how they do it, and what they hope to glean from the results.

**Steady numbers, steady progress**

When Larson Acres of Evansville, Wis., doubled the size of its Holstein herd to 2,400 cows in 2010, the owners and managers didn’t have a lot of genetic information for the first-calf heifers they purchased for much of the expansion. They utilized genomics testing on the heifer calves born to those animals to determine how the future replacements fit into the herd’s genetic plans.

Based on that experience, partner Mike Larson grew comfortable with the process and trusted the data the genomics testing provided. Now that the dairy is at maximum capacity, the Larsons are using genomics as part of a more comprehensive herd strategy.

“We’re producing more heifers than we need for herd replacements,” he says. “In the past, we would have sold them as springers for extra income, but in today’s feed economy, it costs more to raise heifers than they’re worth when they’re grown.”

Now, Larson Acres tests every heifer calf at one to two months of age with the CLARIFIDE™ Dairy Genomics Test. They then designate the top 50 to 70 percent to be bred to sexed semen. The lowest 10 percent is sold to a private buyer for embryo transfer recipients. And the animals in the range in between are utilized as a “flex” group, depending on the herd’s future needs. Sometimes they are sold at approximately 400 pounds, but if projections indicate they will be needed as replacements in their anticipated month of freshening, they are bred with Angus semen. That way, they do not transmit their genetics into the herd, while some extra value can be captured from their calves.

“We think this approach really will help level out the peaks and valleys in our freshening rates,” says Larson. “It will allow us to keep steady numbers in the calf hutch, dry-cow area, fresh pen, parlor, free-stalls and at the feed bunk.”

Larson says he appreciates the flexibility the program provides not only for choosing the heifers they keep, but for maximizing the value of the animals they sell. “Right now, the beef market is good and it makes a lot of sense to create those crossbred calves,” he says. “But if feed costs and/or the dairy heifer market improve, we can easily switch gears and start producing more dairy heifers again.”

While Larson believes the financial investment in genomics will more than pay for itself in their herd, it is important to act on the information. “It doesn’t make sense to pay for information and then not use it,” he says. “You have to make sure you apply it to a long-term herd strategy to maximize the value of the investment.”

**Maximizing the value of Jersey genes**

At Yosemite Jerseys near Hilmar, Calif., genomic testing is now just as procedural as vaccinating and ear-tagging. And utilizing the information it provides has become a part of the herd’s management routine, too.

Manager Brett Barlass says he started using genomics in 2010, testing every heifer calf at one day of age. “Our original goal was to use genomic information primarily to determine which heifers to keep as replacements on the dairy, and which ones to sell,” says Barlass.

That strategy changed when the family that owns the herd decided to build a second dairy in Texas. Currently, all of the California herd’s heifers are retained to expand the Texas herd, but Barlass says the genomic results still provide value. Because they use a lot of young sires, “we’re getting a jump on genetic information well in advance of bull proofs,” he says.

They also are able to identify genetically superior animals in the 100-percent registered herd, which are sold for breeding or selected for advanced reproductive work. The identification of Jersey fertility haplotype 1 (JH1)-carrier females also allows Barlass to avoid breeding them to JH1-carrier bulls, since that particular haplotype can negatively affect fertility. And, correction of parentage errors helps him prevent inbreeding.

Barlass says the genomic sampling process has been greatly improved with their recent adoption of a new Allflex nextGen™ Tissue Sampling Unit. In three simple steps, a tissue sample is punched from the ear and collected in a vial with preservative; an electronic identification tag is installed; and a matching visual tag is placed in the ear. “It’s a very
slick process and reduces the chance of identification errors on the samples," says Barlass.

Batches of 96 samples are shipped to GeneSeek, a laboratory in Lincoln, Neb., that extracts the DNA information from each sample and applies it to the GeneSeek GGP 8K chip. GeneSeek enters the results into the USDA Animal Improvement Programs Laboratory (AIPL) database. From there, the American Jersey Cattle Association generates reports and returns the results to the owners within four to six weeks of initial sample submission.

As more Jersey herds sample their females for genomics, Barlass expects the technology to become more accurate and cost-efficient. He sees it as another tool for well-managed herds to maximize quality and efficiency. "Genomics will allow managers to sort, select and sell females according to their own personal strategies, and mate their retained heifers for more rapid genetic progress," he says. "I think the resulting benefits to the Jersey breed will be great."

**Intentional selection**

The Carlson family of Pennock, Minn., has arrived at a juncture of quality versus quantity. They have grown their dairy to the point that they no longer need to raise every heifer to maintain their 1,250-cow Holstein herd.

“Our farm is fully populated. In fact, we’re crowded everywhere,” says Chad Carlson, who owns and operates Carlson Dairy, LLP in partnership with his father, Curtney, and his brother, Carl. "We needed to find a way to select the very best animals to maximize our space and resources with the greatest possible efficiency."

The Carlsons began genomic-testing every heifer calf in August 2012. They pull hair samples from the ear once a month, which usually amounts to 40 to 50 samples. All heifers are sampled by 30 days of age while they are still readily accessible in individual calf pens.

Chad Carlson says the goal of the program is to identify the lower end of the herd’s genetics and either cull those heifers or use them as embryo transfer recipients. At the same time, they plan to merchandise elite animals from the mostly registered herd, or flush them and merchandise some of the offspring.

But, in this initial phase, Carlson says they are testing the waters a bit by retaining some heifers from across the genomic spectrum to evaluate and compare their performance. "We have been surprised by a few of the animals that came back with lower-than-expected genomic results," he shares. "Their test results don't match up with their parent averages. We plan to raise and freshen those heifers to find out which evaluation tool prevails – the pedigree or the genomic values."

Carlson says they are pleased that the genomic results from only a handful of heifers have come back as negative dollar values. “We view that as our reward for investing in top-end A.I. genetics for many years,” he states. Carlson Dairy’s 30,000-plus-pound rolling herd average regularly places them among the top herds in Minnesota, so even their lower-end cull heifers will likely make good-quality replacement heifers when sold.

The availability of genomics information fits the current dairy economic climate, says Carlson. “If feed prices were lower and/or full-grown heifers were worth more, we would look for ways to raise most or all of our heifers and sell them as springers,” he notes. "But today it makes sense to sell excess heifers as soon as possible. It’s a revenue source as well as a cost-containment measure."

In the short-term, Carlson says those factors will pay for the testing. Then, down the road, they believe the practice will add value and profit to the dairy via more robust genetics.

"It doesn't pay to do the testing if we don't do anything with the information," he says. "Then, it's just an expense. But, used proactively, I think genomics will become another niche tool that will help excellent herds to further advance their performance and enhance the value of every animal they keep."