



**Issue Brief**

# Genomics – Game-Changer for the Dairy Industry

This emerging technology may be creating new opportunities, but it's not a perfect science yet.

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## ***New Tool in the Dairy Farmer's Tool Box***

By the time she's two months old, every calf on John Fiscalini's California dairy will have undergone a genomic test.

A tissue sample will be taken from the young heifer's ear and sent to a genomic testing lab. There, her DNA will be extracted and analyzed for important bovine traits. About three weeks later, Fiscalini will receive the results. From those, he'll determine whether that heifer will remain in his herd or be sold off.

"Based on the genomic results, we immediately cull the bottom 25 percent of the herd," says Fiscalini, whose dairy milks 1,500 cows near Modesto. "With the high cost of feed, housing and labor, we would lose money if we kept them."

Fiscalini is one of a small but growing number of dairy producers who are incorporating dairy genomics into their management decisions. Some say this new technology, with its ability to predict the genetic merits of a heifer, has revolutionized the dairy industry. Others have called genomics a game-changer by creating new opportunities for selecting and breeding better cows. Yet others maintain that genomics is not critical to the success of a dairy.

For Fiscalini, genomic testing is "a new tool in the tool box" for his family's dairy operation, which also includes a farmstead cheese plant and a methane digester. "Genomics has been a blessing as far as we're concerned," he says. "Before, we would do a lot of guessing on genetics. Genomics has taken the guesswork out. Now we have science, and it's getting better all the time."

## ***Faster, More Accurate Genetic Progress***

Better insights into breeding have been helping the dairy industry make impressive genetic progress for decades. Using pedigrees from both sire and dam, developed over years, has helped breeders select genetically superior cows. Artificial insemination (AI) using semen from superior bulls is now commonplace. In fact, 85 to 90 percent of the nation's dairies use AI on their cows today, according to Lyle Kruse, vice president of U.S. market development for Select Sires Inc.

Spurred by advances in genetics and herd management over the past half century, milk production has more than doubled, rising from an average of 10,000 pounds per cow per year to about 23,000 pounds today, USDA statistics show.