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From Science, Plenty of Cows but Little Profit

By [WILLIAM NEUMAN](#)

HANFORD, Calif. — Three years ago, a technological breakthrough gave dairy farmers the chance to bend a basic rule of nature: no longer would their cows have to give birth to equal numbers of female and male offspring. Instead, using a high-technology method to sort the sperm of dairy bulls, they could produce mostly female calves to be raised into profitable milk producers.

Now the first cows bred with that technology, tens of thousands of them, are entering milking herds across the country — and the timing could hardly be worse.

The dairy industry is in crisis, with prices so low that farmers are selling their milk below production cost. The industry is struggling to cut output. And yet the wave of excess cows is about to start dumping milk into a market that does not need it.

“It’s real simple,” said Tony De Groot, an early adopter of the new breeding technology, who milks 4,200 cows on a farm here in the heart of this state’s struggling dairy region. “We’ve just got too many cattle on hand and too many heifers on hand, and the supply just keeps on coming and coming.”

The average price farmers received for their milk in July was \$11.30 for 100 pounds, down from \$19.30 in July 2008. The retail price of milk has not dropped as much, but it is down 24 percent in a year, to an average of \$2.91 a gallon for milk with 2 percent fat.

Desperate to drive up prices by stemming the gusher of unwanted milk, a dairy industry group, the National Milk Producers Federation, has been paying farmers to send herds to slaughter. Since January the program has culled about 230,000 cows nationwide.

But the sorting technique, known as sexed semen, is expected to put 63,000 extra heifers into milk production this year, compared with the number that would be available if only conventional semen had been used, researchers estimate.

That number will jump to 161,000 next year, and farmers fear it could double again in 2011. While that is a fraction of the 9.2 million milk cows nationwide, the extra cows this year and next could roughly equal those removed from production by the industry’s culling program.

Economists expect milk prices to recover only gradually, which has farmers worried about the impact of so many extra heifers and the milk they could produce.

“Just as the industry starts to recover from these difficult times, we’re going to see these heifers enter the marketplace,” said Ray Souza, president of Western United Dairywomen, which represents farmers who

produce about 60 percent of the milk in California. “At the very worst it could certainly stop the recovery altogether and send us into another price recession.”

The sorting technology relies on slight size differences between the Y chromosome, which produces male offspring, and the X chromosome, which produces female offspring and has a slightly larger amount of genetic material, or DNA.

After it is collected from a bull at a stud farm, semen is mixed with a dye that sticks to DNA. A machine detects the extra dye sticking to X chromosomes and sorts the sperm. The sorted semen is frozen and sold to farmers who use it to inseminate their livestock.

(A fertility institute outside Washington [is studying](#) whether the same technique can be used safely in people. If it won approval from the [Food and Drug Administration](#), the technology would let parents choose their baby’s sex.)

When the technology was first marketed widely to farmers in 2006, it represented a long-awaited breakthrough, and was embraced because global milk demand was outstripping supply.

A typical Holstein herd using conventional breeding methods will produce 48 percent female offspring and 52 percent male. The male calves are usually sold for little money to be raised as meat, and the females are raised as milk producers. But the sorted sperm produces 90 percent or more female offspring, allowing farmers to expand their herds more efficiently.

At Mr. De Groot’s farm on a recent afternoon, a worker removed a slender pink tube of sexed semen from a liquid nitrogen canister, where it was kept frozen. He passed it to a colleague who inserted it into a heifer’s body. The cow munched on feed, seemingly oblivious. If the insemination took, her calf would almost certainly be female.

The technology’s impact is being felt now, at the depths of the dairy industry’s hard times, because of the long lag time in raising cows born of sexed semen to the point that they have calves of their own and thus enter milk production.

Mr. De Groot, 74, first turned to sexed semen during the long economic boom because he wanted to expand his herd.

“When the world was short of milk we were all told, ‘We need more milk!’ Everybody was crying for more milk,” he said in his farm office, decorated with trophies for the high quality of his milk.

But his plans were interrupted by the economic crisis, which caused booming dairy exports to dry up and curbed demand at home, sending prices tumbling. At the same time, feed costs remained high, squeezing farmers from both sides.

Mr. De Groot, who has used the technology with only a portion of his livestock, estimated that he would get up to 350 additional heifers a year by using sexed semen. But he cannot expand his herd because dairy processors will not buy the extra milk.

So for the time being, as the sexed semen offspring come of age, he will put them into the herd in place of

lower-producing animals. That will drive up output too, though not as much as expanding the total number of cows.

Scott Bentley, dairy product manager at ABS Global, in DeForest, Wis., a major producer of sexed semen, said that in the long run, the technology should be a boon. But first, the industry has to get through its worst economic crisis in decades.

“This is a really exciting thing,” Mr. Bentley said of the technology. “And this is very difficult times. And you combine the two and realize it didn’t work as well as we hoped.”

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