

LABOR DAY WEEKEND

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Historic Dublin farm steps into the future with robotic dairy

Tonia Moxley

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A robot named Juno pushes feed towards a line of dairy cows, ensuring the animals have constant access to the feed.
Photos by MATT GENTRY | The Roanoke Times

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DUBLIN — A milk cow walks up to a robot.

That's not the beginning of a bad joke, but a way of producing milk that's common in Europe and in some large-production U.S. states and is slowly catching on in Virginia.

The trend has spread to Pulaski County, where Hillside Farm converted its operation a year ago from conventional to robotic, making it one of fewer than a dozen such farms in the commonwealth. Since then, the farm has doubled its herd size from 110 milk cows to about 220 without increasing its workforce, co-owner Laura Flory said.

The family hopes the change will help sustain the historic farm for another generation, as Laura Flory, 26, and her husband, Scott, 28, both dairy science graduates of Virginia Tech, say they plan to make their living farming the land that has been in Scott Flory's family for 220 years.

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All in the family

Established by the Guthrie family in the late 1795, in its different iterations, Hillside Farm has produced cash crops, beef and, since 1980, milk. Both the Guthries and the Florys have a history of bringing their spouses into the farming fold. Richard Guthrie brought his wife, Frances, to the farm, where they raised three children. They still live in the house Richard Guthrie was born in 85 years ago, and its front porch view includes the remnants of the original Guthrie family homestead.

Richard Guthrie said he ran beef cattle on the land with his late brother, William, until retiring about 20 years ago, and passing on his equity in part of the farm to his daughter, Janet, and her husband, Dale Flory — also Tech graduates. In 1980, the Florys started their milking operation on what had been a beef feedlot.

Last year, the couple dismantled their conventional milking parlor and built a new robotic dairy, and a new partnership with their son Scott and daughter-in-law Laura. They, along with a few other farms, are on the cutting edge of Virginia's dairy industry.

The elders say they don't give advice, but they look on with hope for the future.

"I've seen tremendous change in my lifetime," Richard Guthrie said. "We farmed with horses when I started out."

Guthrie said his first farm job as a little boy was riding a horse-drawn binder that tied together bundles of grain cut by another horse-drawn machine. Now, much of the farmwork his daughter and grandson do is computerized.

"I hope it pays off for them," Richard Guthrie said.

"I think it will. They work hard," Frances Guthrie said. "We're glad they're here, and

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With an annual milk production of 207 million gallons worth about \$481 million, Virginia is small as dairy states go, said Eric Paulson, executive director of the Virginia State Dairymen's Association. The association is headquartered in

On her way back to her bed, a cow can get a back scratch from one of the automatic brushes scattered around the barn, or have a drink of fresh water. Meanwhile, automatic fans and shades keep the space cool, and once an hour the barn literally flushes itself clean — turning the aisles into rushing creeks that sweep manure and debris away for filtering and recycling.

Several times a day, a special robot rides up and down the stalls, sweeping a precisely mixed feed of corn silage, alfalfa and soybeans grown on the farm into convenient piles for the animals.

“Our job is to make sure they have every comfort they need 24 hours a day,” Laura Flory said.

That attention to comfort allows higher producing cows to give more milk than would have been possible a year ago when the family followed the traditional twice daily roundup, she said.

The cows have shown their gratitude with an uptick in productivity. Under the old system, each cow gave about nine gallons of milk a day on average. After a year with the new system, average daily per cow production is about 10.5 gallons, Flory said.

The system is also built to monitor benchmarks for health, including the amount of food each cow eats, how much she moves in a day, her body temperature and her udder health. When the system flags possible symptoms of illness, it notifies the farmers, who can then address problems before they become serious, Flory said.

Calf feeding, which is done in a new, separate barn where the calves live together, is also automated. And their health and eating habits are similarly monitored. The

system allows the calves to choose when to eat — a more natural, less stressful way of feeding. Flory said. This website utilizes technologies such as cookies to enable essential site functionality, as well as for analytics, personalization, and targeted advertising. [Privacy Policy](#)

With the low stress and high comfort of the new barns, Flory said she thinks the family is just beginning to see the true production capabilities of their herd. And it has improved the quality of life for the family and their four additional employees, who used to milk at 2:30 a.m. and 2:30 p.m., every day, nonstop.

“It was a very rigid schedule,” Flory said. “Our schedule is more livable than before.”

The increase in overall farm efficiency has been significant, too.

“We can milk double the animals with the same number of employees, so we’ve pretty much cut our labor costs in half,” Flory said.

The Florys declined to say how much the new milking system and barn cost to build, but it’s not cheap to move to robotic systems, and it doesn’t work for every size farm.

One robot can milk up to 50 cows day at an upfront minimum cost of \$250,000 per unit, Virginia Tech dairy science professor Bob James said. Total cost to build a new dairy operation is at least \$7,000 per cow, and can go much higher, he said.

Robotic dairy operations also require farmers to develop technical and computer skills to maintain the equipment and troubleshoot problems. It used to be you could just work hard and make a living in dairy farming, James said. “But today you have to work hard, and you have to work smart.”

Because robots can milk only a set number of cows per day, they typically aren’t considered as useful for farms with more than 500 animals, James said.

“There are other ways to do it more efficiently” for larger numbers of cows, James said.

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But for farms the size of Hillside, robotic systems can make dairy more profitable and, consequently, sustainable.

And the Florys work to be sustainable in other ways. On all their cropland — about half of the 800 total acres they farm — they practice no-till agriculture, which preserves topsoil and minimizes fuel usage, Scott Flory said. They don't irrigate, either, and they use both the manure from the barns and leftover grey water to fertilize and build the soil.

Together these practices allow them to be good stewards of the environment, Scott Flory said.

“We want to take care of the land,” he said. “That’s what pays us.”

With her arm around her husband, Laura Flory said: “We’re in it for the long haul.”

By Tonia Moxley

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