Johne's *can* be managed

Four years into an aggressive management, test and vaccination program, the Steins see tremendous progress

By Paula Mohr

Editor's Note: *It has been a long, costly journey with Johne's disease for Stein Farms, a 650-cow dairy in western New York.* DAIRY TODAY *readers first learned about the Steins' five-year Johne's eradication plan in the November/December 1997 issue. Each year, we've provided updates. This is our fourth feature on the farm.*

As family partners and employees of Stein Farms intently focus day in and day out on a stringent hygiene-management, test and vaccination protocol for Johne's disease eradication, they sometimes overlook the dairy's tremendous progress over the last four years.

Reckoning time in November of each year gives them pause, however. Cornell University Johne's disease specialist Christine Rossiter visits the herd and obtains fecal samples on all animals, now numbering 700 head. And four months later when the fecal test results come in, they see the payoff on paper and they celebrate.

This past year was particularly enlightening as the Stein crew saw hard numbers validate their efforts. They were able to compare groups of nonvaccinated and vaccinated cattle for the first time. Of 191 vaccinated 2- and 3-year-olds, only 8% tested positive for Johne's. A year earlier, 28% of 181 nonvaccinated 2- and 3-year-olds tested positive. Overall, 31% of the herd was positive for Johne's in 1998; in 1999, that figure hit 20%.

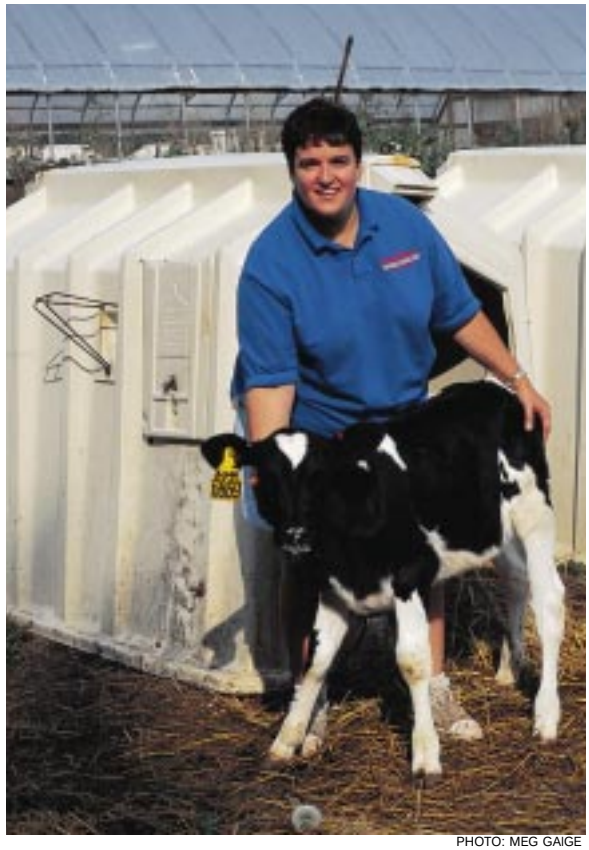

PHOTO: MEG GAIGE

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"The data show our protocol is working," Shelley Stein says. "When we got those results back, we celebrated! We're so buried and immersed in it that we often don't see the big picture."

When the Steins and their employees first committed themselves to eradicating Johne's in 1996, more than half of the 540-cow herd tested positive for Johne's. Today, 20% of the 650-cow herd tests positive. And 60% of the herd is vaccinated against Johne's. The odds of eventually managing a Johne's-free herd are in the Steins' favor.

The Steins first pinpointed the herd's exposure to Johne's disease in 1989 when two purchased cows suddenly came down with diarrhea and started losing weight. For several years, they tried to manage the disease with some changes in cattle hygiene. But the contagious disease spread throughout the herd.

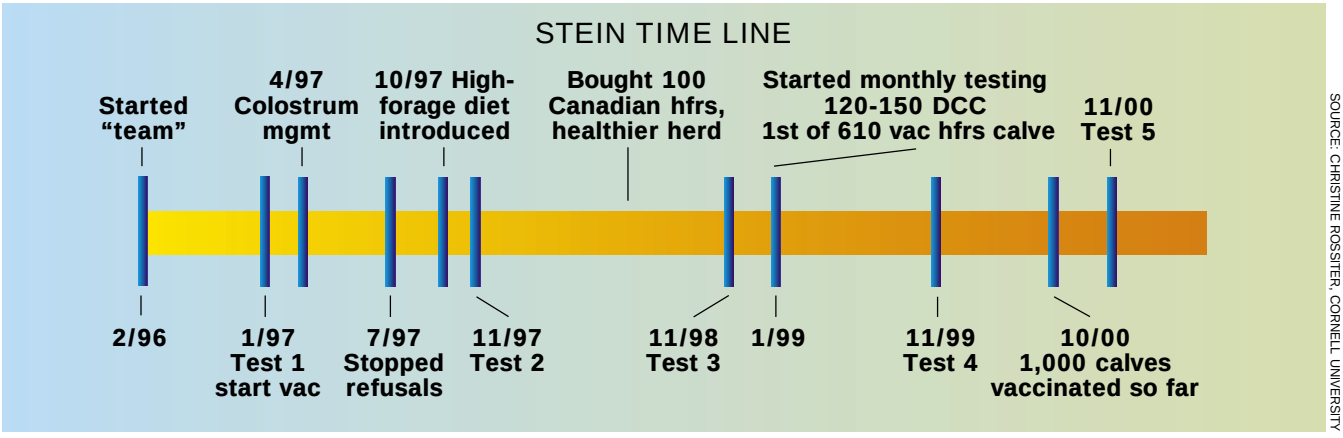
In 1996, the Steins linked up with Rossiter, who developed a pilot project for Johne's control and eradication that involved protecting youngstock from exposure, fecal testing, and vaccination. The state gave approval to the Steins in late 1996 to be the first herd in New York to use the hazardous Johne's vaccine. The state prohibits the vaccine's use for several reasons, including its cross-reaction with tuberculosis testing. Only a veterinarian can give the vaccine.

Stein Farms, which includes brothers Dale, Ken and Ray, and their families, as well as 13 employees, have instituted numerous changes in farm management to control Johne's.

They immediately separate newborns and dams and feed calves colostrum from Johne's fecal-negative cows. They keep youngstock and mature cows separated. Heifers do not consume refused cow feed. They use separate equipment for feeding and manure handling. They keep Johne's-positive cattle in a separate group that doesn't get bred back, and they milk them last.

As an extra precaution, state veterinarian Crickett Johnson-Seward visits every three weeks to vaccinate all animals less than 35 days old with the Mycopar Johne's vaccine.

But the biggest and least expected change of all happened among the people who live and work on the dairy. Teamwork and communication blossomed, despite the gloom cast by Johne's. Everyone, in his or her own



way, was determined to help lick the disease.

"We are so full of hope and knowledge now, that we couldn't have imagined this four years ago," says Shelley, Ray's wife. "We learned that sharing the 'why' and 'how' to battle Johne's empowered the staff. When we shared small accomplishments in the reports from Dr. Rossiter and Dr. Seward-Johnson, employees brainstormed with us for a better understanding and for ways to implement strategy." Shelley adds that the two veterinarians also helped foster that can-do attitude.

"The constant empowering spirit is infectious on the farm level," Shelley says. "We believe more in ourselves and in the work we're doing to refocus our farm and make it vital once again."

To this Rossiter adds: "It would be great if every producer could have the can-do, open attitude like the Steins have. By starting a Johne's disease plan, lots of things can happen when you work together."

With the last whole-herd fecal test results in hand, the Steins can compare and see what changes have helped and where. Most noticeable is the impact of hygiene improvements on vaccinated cattle. When they started vaccinating against Johne's in January 1997, the Steins didn't have all of their revised management practices in place. For several months, they still fed colostrum from all dams and they fed bunk refusals from the milking herd to youngstock. So animals vaccinated in the first eight months of 1997 didn't benefit from the full Johne's eradication protocol. After September 1997, the program covered all vaccinated animals.

Of all the animals vaccinated in 1997, about half of them did not benefit from management changes. Of 191 vaccinated cows tested, 8% (three cows) were fecal-culture positive. No vaccinated animals raised under the full Johne's control protocol have tested positive.

One of the Steins' goals was to have no first-calf heifers culled for Johne's in 1999. They succeeded in meeting that goal. Throughout the herd, Johne's cull numbers have been decreasing. In 1997, they culled 12% of the herd for clinical Johne's. Last year, they culled 7%.

While the Steins work to clean up Johne's, other positive changes have occurred in the herd. Two-year-olds perform better right after freshening and are ready to milk. They average 21,000 lb. milk and weigh 1,250 lb. to 1,300 lb. after calving. Before, they weighed about 150 lb. less and produced between 18,000 lb. and 19,000 lb.

Incidence of metabolic diseases is low. They freshen about 50 to 55 cows a month and, for the past three years, have maintained less than a 1% incidence of milk fever, ketosis and displaced abomasum, and a 3% incidence of retained placenta. They credit the high-forage ration with improving overall health of the cows. And they've stayed on top of hoof health by having the hoof trimmer visit every three weeks and maintaining foot baths daily.

"Our herd vet called to ask if we had changed to another vet clinic because we no longer called him for these problems," Shelley says. "With the protocol, we're getting a major bang."

Their whole herd cull rate for the year hovers around 23%, which includes voluntary and involuntary culls. "We lose very few cows to clinical Johne's now," Shelley says. "We've learned to move them out sooner so we get some value out of their carcass."

The Steins' next round of fecal testing was set for November. When they get results back four months later, they'll mark positive cows as "do not breed." To circumvent the problem with dated test results, the Steins spend extra time and money to have every cow fecal-tested again 120 to 150 days into her pregnancy.

"With the fresh test results, we can make timely decisions about the calf, colostrum and cow," Shelley says.

Even though the fecal test is the most reliable Johne's test available (with a 98% accuracy), the Steins have learned to interpret results specific to their own herd and feed management. They know that 75% of their tested cows with a colony-forming unit (CFU) of 1 will be negative on the next fecal test, and 25% will later exhibit clinical signs of Johne's. Cows with a CFU of 2 or greater will end up with clinical Johne's 75% of the time, and 25% will revert back to zero or negative.

Rossiter adds that other herds, on average, may see more than 50% of their animals with 1 CFU test negative subsequently, and 25% may progress onto higher CFU counts or become clinical. She defines fecal culture results as follows: few (1 to 30 CFU per 0.1 g feces), moderate (31 to 299 CFU), and many (more than 299 CFU).

"We firmly believe that nutritional stress plays a large role in the fecal test result in the same cow," Dale says. Three years ago, they switched from a high-grain diet to a high-forage diet, consisting of 57% to 60% forage. Of that, 75% is corn silage, and 25%, haylage.

"A high-forage diet allows cows' rumens to work by design," Dale says. It creates a mat of forage, allowing for maximum use of nutrients. Cows aren't at borderline acidosis constantly. The high-forage diet is less stressful on the cows, and less stress seems to lower clinical expression of Johne's."

The year 2001 is the last year for the Steins' Johne's disease control and eradication program. Come January 2002, the pilot program that Rossiter helped design will be over. Chances are good the Steins will continue to vaccinate the herd on their own.

"Until we completely vaccinate the herd, there will always be 1% or 2% that slip through the cracks," Dale says. "Even with vaccination, eradication is not 100%. But when you use it with management, it's pretty darn good."

"The Steins had a significant problem when they decided to investigate Johne's," points out Rossiter. "Johne's is all around. If we would pay attention to it early on, we could manage it like other familiar health problems, such as *Staph.* mastitis."