

Should You Test for Johne's Disease? by T.S. Gatz

If skinny cows are being culled and hauled to the livestock auction facility, then think Johne's disease, a contagious slow progressing disease of the ruminant tract caused by a bacterium named *Mycobacterium paratuberculosis*. This silent bacterium usually infects an animal when it is extremely young but does not show itself until the animal is an adult. In the meantime, infected animals are shedding the bacterium and infecting herd mates as well as newborn and young calves.

A national study of US dairies found that approximately 22 percent of U.S. dairy farms have at least 10 percent of the herd infected with Johne's disease. The study determined that infected herds with a high Johne's disease clinical cull rate experience an average loss of \$227 per cow while herds with a low Johne's disease cull rate have an average loss of \$40 per cow. This loss was due to reduced milk production, early culling, and poor conditioning at culling.

Although the dollars lost per beef cow infected with Johne's disease have not been determined, Johne's experts know the negative drain occurs. This loss is due to lower calf weights, early culling and poor conditioning at culling.

"Research has brought many, many good Johne's tests to the table," states Dr. Mike Collins, School of Veterinary Medicine, University of Wisconsin-Madison. "Which test is best answered by research conducted by the 'Best Test Team'."

This "Best Test Team," Dr. Collins elaborates, consisted of researchers from five universities: Colorado State University, Texas A&M University, University of California-Davis, University of Minnesota and University of Wisconsin. The team's objective was "to clearly define the best course of action regarding testing for paratuberculosis in dairy and beef herds by business type—commercial or seedstock, paratuberculosis infection status and infection prevalence."

The team identified eight reasons why a dairy or beef herd should be tested for Johne's disease: 1) To classify a herd as infected; 2) To estimate within-herd prevalence; 3) To control the disease; 4) Surveillance; 5) Eradication; 6) To confirm a clinical diagnosis in a herd with no confirmed Johne's disease cases; 7) To confirm a clinical diagnosis in known infected herds; and 8) Bio-security—to test an animal before it enters the herd.

"It is important to understand why test," Dr. Collins states. "It also must be emphasized that cows are leaving herds way too fast—before diagnosis.

"Producers need to know if they have Johne's or another problem. They need to know why their cull rate is increasing. Testing will tell them the 'why'."

Testing Options

Several types of tests are available in the detection of paratuberculosis in cattle. These include bacterial culture, gene detection assays, antibody assays and histopathologic evaluation of tissues.

The "Best Test Team" found that, for commercial and seedstock dairy herds, bacterial culture of six fecal samples obtained from the environment is sensitive and the most cost-effective method for determining whether a dairy herd is infected.

"However, finding that all six samples yield negative results does not guarantee the herd is not infected," Dr. Collins states. "The second best testing option for this situation is PCR assay of fecal samples collected from the environment.

"Owners of herds with negative culture or PCR test results on all six samples should be encouraged to enroll their herds in the U.S. Test-Negative Program."

A test gaining popularity within the dairy industry is the milk ELISA. The milk ELISA is less costly than a standard serum ELISA and sample collection can be incorporated into routine DHIA sampling.

Beef cow-calf and seedstock herds can whole-herd test by either bacterial culture of fecal samples or by an ELISA (Enzyme-Linked Immunosorbent Assay) with positive results for individual cattle confirmed by bacterial culture of fecal samples. An alternative is a bacterial culture of fecal samples obtained from the environment that can be used for intensively managed herds.

"Testing recommendations should come from your veterinarian," Dr. Collins states. "But manage Johne's first and test second. Your veterinarian can help you determine which management practices work best for your situation and can help you control Johne's disease."

Collins shakes his head then states, "Owners discover Johne's disease in their herd or flock when a single animal looks sick. They then find out by testing that many animals they own actually are infected. Usually, they can trace the infection back to an animal they bought years ago. It is depressing, particularly when so many animals now must be sacrificed to control the infection."

Producers can learn more about Johne's disease by going to the Online Producer Education Course at <http://www.vetmedce.org/index.pl?id=110337>. Producer modules cover all species, with the dairy version also having a Spanish module.

"I think you'll be surprised at the online courses as they are extremely high quality, engaging and interactive," Dr. Collins states. "In the producer modules, U.S. demonstration herds share lessons they've learned regarding the economic impact/costs, control strategies and ethical dilemmas."

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