



Vet Call

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Johne's remains a concern

Johne's disease is gaining greater attention among beef cattle producers and veterinarians who work with beef cattle.

Disease origins

Johne's was first described in Germany early in the 20th century and is caused by the bacteria *Mycobacterium paratuberculosis*, which is related to the bacteria that cause tuberculosis in humans. The disease is usually spread to young calves through contact with infected manure or milk, but infected cattle don't show signs of the disease until several years after infection. The 1997 National Animal Health Monitoring System (NAHMS) survey found that 7.9% of beef herds had at least one animal diagnosed with Johne's. The disease is more common among dairy herds (22% of U.S. herds in a 1996 survey) compared to beef herds, primarily because dairy production is more confined, with greater potential calf exposure to the manure of adult cattle.

Johne's is primarily a disease of cattle, but it can affect other ruminants such as sheep, goats and even deer. The organism invades the small intestine and grows very slowly. Over time, the organism spreads and infects more of the small intestine until enough of the intestine is thickened to cause diarrhea and weight loss, even though the animal is eating well and behaves normally.

Early in the course of the disease, very few of the organisms are shed in the feces; but, as the infection involves more of the intestine, the animal sheds increasingly more of the bacteria in the manure. Older animals are fairly resistant to infection with the organism, but young calves are susceptible.

Calves most commonly become infected during suckling by contact with their dam's

feces or the feces of other cows on their dam's udder. The organism is also present in the colostrum and milk of heavily shedding dams. The younger the animal and the higher the dose of bacteria that the animal swallows, the greater the likelihood that the calf will become infected.

In addition to swallowing the organism from contaminated teats or from colostrum or milk, the organism can pass from the dam to the fetus during pregnancy. Between 20% and 40% of cows that are in late stages of the disease (obviously losing weight and having diarrhea) will pass the organism to their calves during pregnancy, and about 8% of calves from cows in early stages of the disease will be born with the infection.

The bacteria that cause Johne's can live in the environment for up to a year. Manure contamination of clothes, boots and equipment

could also move the agent from one farm or ranch to another, or from one part of a farm or ranch to a distant part.

Johne's link to Crohn's

The primary reason Johne's disease has received more attention in recent years is because some evidence links the organism that causes Johne's with Crohn's disease, which affects humans. Crohn's disease is an inflammatory disease of the intestine that primarily affects fairly young people in their teens to early 20s. Most Crohn's patients require significant surgery and/or medical therapy for the lifelong problem.

At this time, it is not known if Johne's disease in cattle is a risk factor for Crohn's disease in humans. If the bacterium that

causes Johne's is found to be a significant risk factor for people developing Crohn's disease, beef producers will need to work to eliminate this agent from their herds.

The economic loss of Johne's in beef herds is currently fairly low. A few animals will die or be so emaciated that they are condemned if presented for harvest. Of greater potential economic effect is buyer perception of the importance of Johne's disease. In the future, cattlemen may place great importance on purchasing cattle only from herds at low risk for Johne's. Producers with infected herds would find the value of their bulls or heifers offered for sale to be discounted, and producers with low-risk herds would find the value of their animals increased.

The difficulty in controlling Johne's disease is that our current tests are only accurate fairly late in the disease process, when the slow-growing bacteria have reached a high enough population level to be readily detected. We don't have accurate tests for young cattle, so infected cattle could stay in the herd, shedding the organism at low levels into the environment, before they can be detected.

Treatment measures

No treatment is available to cure Johne's in cattle. The only way to rid a herd of the organism is to identify infected cattle and remove them as soon as possible and to institute control methods to prevent infection of new young replacement stock.

Voluntary control programs to minimize the risk of Johne's have been implemented in some U.S. dairy herds. Those control programs focus on finding cows that shed a lot of Johne's-causing organisms (current tests are pretty good for this task) and removing them and their offspring from the herd.

Also, efforts are focused on sanitation for the young calf — minimizing contact between young cattle (less than 6-12 months of age) with manure from adult animals and the milk and colostrum of cows other than a calf's own dam. Efforts are also focused on preventing the introduction of possibly infected cattle into a herd by eliminating the introduction of replacement cattle from unknown sources (such as leasing bulls or purchasing nurse cows) and eliminating

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practices such as fertilizing pastures with manure from another farm.

In general, beef herds should not obtain calves or colostrum from dairy herds unless the dairy herd is involved in a Johne's control program or is at low risk for the disease. Beef producers should also cull any animal with chronic diarrhea and any of that animal's offspring in the herd — even if the cow is pregnant. A strategy to improve sanitation and place constraints on animals entering the herd will help prevent many other diseases besides Johne's.

Testing guidelines

In addition to these baseline controls, some purebred herds follow testing guidelines approved by the National Johne's Working Group (NJWG) and national U.S. Animal Health Association (AHA). In part, these guidelines recommend initially testing 30 females (3 years and older), utilizing an ELISA blood test. Statistically, if all of those cows test negative, you can be 85% sure that the herd does not have any Johne's-infected cows. The NJWG guidelines recommend follow-up procedures to further document a herd's low-risk status across time. (Visit

www.crohns.org/governments/njwg.htm for more information.)

I expect Johne's disease to be increasingly discussed by both cattlemen and consumers. Seedstock producers who assume their cattle are at low risk for Johne's infections should consider a testing strategy to confirm that assumption and institute control measures to keep the risk low, or to discover their herds are currently exposed and institute plans to remove the threat.



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