



Johne's Factsheet

Healthy Cows, Quality Milk!

FACTSHEET 05-001

Johne's Disease in Dairy Cattle

Dr. Ann Godkin, Veterinary Science, OMAF

What is Johne's Disease?

Johne's Disease (JD) is caused by the bacterium *Mycobacterium avium* subspecies *paratuberculosis* (MAP) a distant relative to the bacteria that causes tuberculosis. The disease is a contagious, progressive bacterial infection that causes abnormal thickening of the lining of the intestinal tract in infected animals restricting the absorption of nutrients. Clinical signs of animals infected with JD are long lasting diarrhea and extreme weight loss despite maintaining some appetite.

Animals usually become infected with MAP as calves. No signs of disease are seen for years. The average incubation period (time from infection to when signs are first seen) is 5 years but can range from 2 to more than 10 years. Animals who are infected may appear normal and spread the disease to other animals in the herd before showing signs themselves. During this time infected animals may be sold, culled, or die without owners being aware that these cows are infected.

How is it spread?

JD usually enters a herd through the purchase of an infected animal that sheds the bacteria in their manure. Manure that carries the bacteria can contaminate feed or water, spreading the disease to other animals. Calves are the most susceptible to new infection. However, if high levels of manure contamination of feed and water occur, adults are susceptible to infection. While MAP does not multiply in the environment it can

survive in manure, water, and pastures for up to one year depending on conditions.

Besides manure, other transmission routes for calves include colostrum and milk from infected cows. Occasionally calves can be born already infected. With increasing age, calves become resistant to infection and by about one year of age the resistance of calves equals that of an adult.

How can it affect my herd?

JD can have a significant financial impact in a dairy herd through reduced milk production, increased involuntary culling, loss of heifer sales, and reduced beef production. JD may also be associated with an increased incidence of other diseases and there may be an association with milk and meat safety.

Additionally, it's been speculated that JD may be linked with Crohn's disease an incurable, chronic, intestinal disorder in humans. If these diseases are proven to be associated, there is concern that consumption of food (milk and meat) could be a route of disease transmission to humans.

Why would I test for JD?

Research suggests that 15 - 30% of herds contain animals infected with JD. This fact raises many questions for the herds that have never been tested for Johne's: Should every herd owner test for Johne's? What about

closed herds? Should herd owners wait till they have a clinical case of JD in their herd before they test?

Cows infected with JD can appear normal but be spreading the disease to other animals in the herd before showing signs themselves. This makes finding Johne's as soon as possible key to controlling the disease. Once the disease is diagnosed in an animal showing clinical signs of the disease, a producer could expect to find:

- 1-2 clinically diseased cows (infected and starting to show signs of disease)
- 6-8 subclinically infected cows (infected but not showing signs of disease, may test positive on a JD test)
- 10-15 infected calves and young stock (infected but not showing signs of disease, will likely not test positive yet on a JD test)

What tests are available?

Testing programs to find Johne's in dairy herds depend on: the herd's health status; available financial resources; required timeliness of information; management strategies; and herd specific factors.

There are three types of tests available: Fecal Culture using a fresh manure sample; Serum ELISA using a blood sample; and Milk ELISA using a milk sample. A comparison of these tests is provided in Table 1.

Continued on Back

The milk and serum ELISA tests provide similar quality of results and are typically used as “screening” tests for the herd. A screening test provides herd owners with an overview of the JD situation in their herd. Individual animal results from a screening test should not be used for culling decisions. Further testing using a Fecal Culture is required to accurately confirm infection status in individual animals.

What will the tests tell me?

After any tests are done for JD herd owners should work with their veterinarian to discuss potential management changes and develop a plan for future testing.

If all cows test negative on the first screening test, herd owners should make a plan to test again as it is still possible that there are infected cows in the herd because infected cows may:

- Have been dry when samples were collected;
- Have low antibody levels that were not detected;
- Be too early in the stage of infection for antibodies to be present;

If only a few cows have tested positive then the risk of JD infection spreading may be low. However, herd owners should discuss potential changes to calf management and housing with their herd veterinarian.

If multiple cows tested positive and this is the first time the herd has been tested, owners need to confirm the results by submitting manure sample for testing from some of these cows for fecal culture. Your veterinarian can assist you with this process. If the fecal cultures of some of these cows are positive for JD it is highly likely that the disease is present in your herd.

When multiple infected cows are identified the risk of baby calves becoming infected is high and changes need to be made to the management of the Johne's positive cows, especially around calving.

Table 1: Comparison of Available JD Tests

Test	Test Provider	Advantages	Disadvantages	Time to Results	Cost
Fecal Culture	Animal Health Labs	<ul style="list-style-type: none"> • Detects fecal shedding 	<ul style="list-style-type: none"> • False negatives • Sample collection 	1-12 weeks	~\$30 per sample plus collection
Serum ELISA	Animal Health Labs	<ul style="list-style-type: none"> • Cost efficient 	<ul style="list-style-type: none"> • False negatives • Sample collection 	5-7 days	~\$8 per sample plus collection
Milk ELISA	CanWest DHI	<ul style="list-style-type: none"> • Cost efficient • Easy & convenient sample collection 	<ul style="list-style-type: none"> • False negatives 	2-3 days	\$9 per sample plus a small handling fee per submission



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Additional Johne's Disease Resources

- Your Herd Veterinarian
- Your Provincial Extension Veterinarian(s)
- Johne's information web site: www.johnes.org
- Dr. Jocelyn Jansen
OMAF Veterinary Science
(519) 846-3414
- Dr. Steve Hendrick
Western College of Veterinary Medicine
(306) 966-7062

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