

Johne's disease test on LIC herd test milk samples

Johne's disease - What is it?

Johne's disease (JD), also known as paratuberculosis, is a chronic infection caused by a bacterium called *Mycobacterium avium subspecies paratuberculosis* (MAP). This bacterium infects the gut of cattle and other ruminant animals, causing the intestinal wall to gradually thicken and become inflamed. This results in leakage from the gut wall and prevents the animal from absorbing vital nutrients.

Johne's disease is widespread amongst New Zealand dairy herds. Most infected herds harbour low levels of JD with occasional clinical disease.

What are the symptoms?

Calves and young stock are particularly susceptible to infection; however, infected animals may not show clinical symptoms of the disease until later in life. Clinical symptoms may include ill thrift, weight loss with profuse diarrhoea and some animals will show "bottle jaw" (swelling under the jaw) due to severe protein loss. There is no cure for Johne's disease.

How is it spread?

MAP bacteria are primarily spread through faeces and ingested with contaminated pasture, colostrum/milk, feed, and water. Infected cows start shedding bacteria some time before clinical signs of disease appear. As the infection progresses, increasing amounts of bacteria are excreted in the faeces of heavy shedder cows. Calves may pick up the infection in the calving paddock and remain at risk if they are exposed to faeces or effluent from the adult herd.

Cows with advanced infection (both clinical JD cows and subclinical) can also transmit the bacteria to the unborn calf in utero and via colostrum or milk.

How can Johne's disease be managed / controlled?

During the early stages of Johne's disease infection diagnostic tests are unreliable, so JD control can be a challenge. It is possible to minimise the impact of JD by reducing the exposure of young stock to the disease. The severity of Johne's disease in an individual (i.e., time until clinical signs develop and the amount of faecal shedding) depends on several factors including the age when infection occurred, the number of bacteria ingested and the number of times the animal has been exposed to JD bacteria. Therefore, any management measures that reduce exposure (e.g., avoiding effluent paddocks and paddocks grazed by the adult herd) will help limit the spread of Johne's disease.

Risks and control measures can vary from farm to farm, and good veterinary advice is critical to control JD. Keys to a successful risk management plan are:

- Eliminating the source of bacteria by early removal of clinical JD cows and other high-risk shedders.
- Removing susceptible calves and young stock from possible sources of infection as soon as practicable.

Convenient testing

LIC offer whole herd Johne's testing for dairy cows on herd test milk samples to identify high-risk cows with advanced Johne's disease. These cows shed high numbers of bacteria and are a major cause of the spread of the disease to other animals, especially young stock. This testing may detect "super-shedders" that are not showing signs of the disease at the time of testing, but they are likely to develop clinical JD in future.

Test Limitations and timing

The Antibody ELISA test detects the immune response of the animal to MAP infection. While it generally does not identify cows during early stages of subclinical infection (i.e., low-risk non-shedders or intermittent/low shedding), the test performs very well in advanced stages of JD.

The test will identify 8-9 out of 10 cows with clinical disease or those that are excreting large amounts of bacteria (heavy and super shedders).

You can test at any time of the year, but we recommend focusing on the second or third herd test (November-March). Although you can test at the first or fourth herd test, please note false positives may occur if:

- Cows have recently calved (within 7 days of herd test)
- SCC is >1 million
- Low milk volumes - avoid testing too close to dry off or when part of the herd has dried off.

Most farmers tend to test for Johne's disease on the third herd test (around February/March) to maximise the benefits and identify as many high-risk cows as possible so they can be culled before dry-off and calving. The more regularly you test, the more affected animals you will detect due to the slow, progressive nature of Johne's disease. While it is not possible to detect early-stage disease, testing annually will allow you to identify and cull animals that pose the greatest risk to your herd.

Risks

Testing for Bovine Tuberculosis (TB) before the herd test may increase the number of uninfected animals being given a suspect result in your Johne's disease ELISA. The risk for false positive or false high positive results may also be increased. TB tests can affect blood serum Johne's disease ELISA, therefore any confirmation testing completed after the herd test may be impacted.

Our advice aligns with UK recommendations to leave the following gaps between your TB test date and JD ELISA test:

- 43 days before milk JD ELISA
- 71 days before blood JD ELISA

Where possible, TB testing should be done after JD ELISA to avoid any possible issues.

Pricing and how to book

Test type	Sample type	Result turnaround time (from receipt at lab)	Price (per sample) excl GST*
Johne's disease ELISA (all animals in herd test will be included)	Herd test sample	5-7 working days	\$5.99

*Plus the cost of herd testing. Samples and veterinary consultation fees are not included. Pricing effective 1st June 2023.

All animals at the herd test will be tested. Johne's disease testing must be booked in by your veterinarian to ensure follow up interpretation of results and implementation of a farm-specific disease management plan.

For further information, please contact the LIC Animal Health Advisor team on 0800 436 362 or testyourcows@lic.co.nz