

Johne's Disease

Information for NT livestock owners

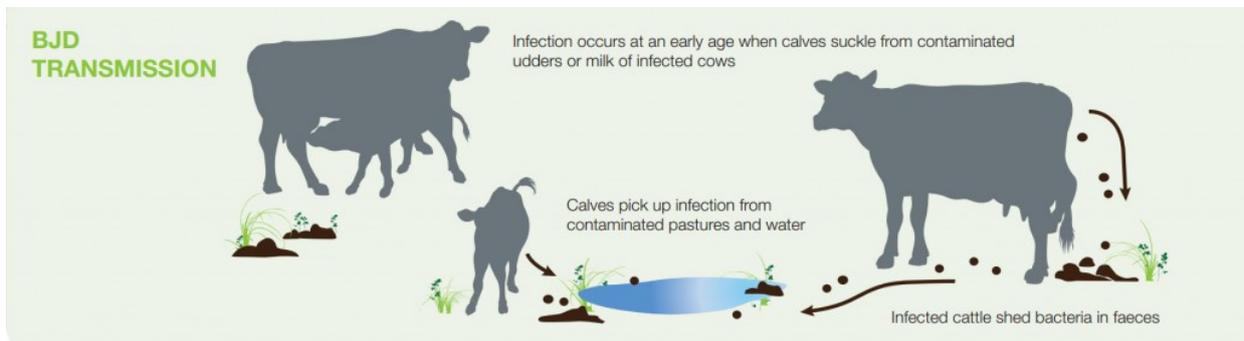
Johne's disease (JD) is a serious wasting disease that affects various species of animals. In Australia, JD has been found in cattle, sheep, goats, deer and camelids. Australia has relatively little JD compared with most developed agricultural countries. JD is more commonly found in southern states of Australia, and particularly in dairy cattle herds and sheep flocks in high rainfall areas.

Cause of JD

JD in cattle is caused by a bacterium *Mycobacterium avium* sp. *paratuberculosis*, which lives mainly in animal intestines. Infection with the JD bacteria causes the intestinal wall to thicken and reduces the normal absorption of nutrients from grazing. An infected animal can eventually starve to death. Although multiple strains of *M. paratuberculosis* exist (cattle, sheep and bison strains), it is now recognised that these are able to infect a variety of ruminant species.

Cattle infected with JD excrete the bacteria in their manure. The bacteria contaminate pasture and watercourses, spreading infection to other cattle sharing the same paddocks or yards. The bacteria are resilient and can live up to 12 months in moist, shaded conditions.

Johne's disease enters a herd through the introduction of infected animals, either by purchasing or agisting infected stock. Animals usually become infected at a very early age. They pick up the infection as they eat or drink from contaminated pastures, water and udders, or drink contaminated milk from infected cows. When pasture contamination levels are high, older animals may become infected.



Clinical signs

Most cattle are infected as calves but often do not show any symptoms of JD for many years. They are likely to excrete the JD bacteria before developing clinical signs. The most common signs of JD in cattle are:

- chronic diarrhoea (scouring)
- wasting
- eventual death

The first likely sign of JD in beef cattle is weight loss, with or without concurrent scouring.

The numbers of infected cattle in a herd may start out low, but the rate of infection can increase significantly if it is not controlled. In addition to the risk of spreading the disease, visibly sick and dying animals can cause animal welfare issues and reduce enterprise production. **There is no treatment for JD.**

JD is a notifiable disease under the *Livestock Act* and must be reported to the Chief Veterinary Officer.

To report unusual signs of disease or death in livestock, call the **Emergency Animal Disease hotline 1800 675 888**

For more information contact your regional Animal Biosecurity Office

Darwin 8999 2035

Katherine 8973 9716

Tennant Creek 8962 4458

Alice Springs 8951 8181

Diagnosis

The challenge of diagnosing JD is detecting animals that are **sub-clinically** infected before they infect other animals. Subclinical infection means that an animal doesn't look sick, but it could be shedding bacteria which can infect other animals.

Tests on blood, faeces and tissues are available for JD in cattle, and test for the presence of the actual bacteria or the animal's response to bacteria in their system. Most tests have very poor sensitivity (ability to correctly identify infected animals) early in the onset of the disease or in young animals. To improve the accuracy of diagnosis, tests are often used in combination. **Screening tests** to test for JD in live animals include:

1. **Antibody tests** (serological or blood tests). In cattle, the ELISA blood test detects antibodies to the JD bacteria, and results are reported relatively quickly (1–2 weeks).
2. **Individual faecal culture test**. Faecal samples collected from individual animals are cultured (or grown) for the JD bacteria. This can be more expensive and slower than antibody tests (2–5 months). Faecal culture can confirm (or exclude) infection in cattle that react to the ELISA blood test.
3. **Pooled faecal culture (PFC) test**. Faecal samples from up to five cattle may be pooled (grouped together) and cultured as a herd-screening test. While the PFC test still takes 2–5 months, it is a cheaper herd test option than individual faecal cultures. If a positive pool is identified, then the faeces from individual animals need to be cultured to identify the source of infection.
4. **High Throughput-Johne's (HT-J) PCR test**. Faecal samples from up to five animals may be tested in one pool as a herd-screening test. A much quicker test than the PFC with similar accuracy.

Any animals or groups of animals that test positive to an antibody test are tested again with a definitive test to confidently exclude or confirm the result. ELISA reactors are tested by individual faecal culture or by a post-mortem examination, microscopic examination of the gut tissue and possibly culture of gut tissue. These tests detect the actual bacteria or the characteristic microscopic lesions that they cause. **Producers should note that false positive results can occur in the blood test due to cross-reactions with other bacteria that cattle have picked up from their environment. This may occur more commonly in northern Australia.**

Prevention

Introduction of JD into a cattle herd can severely impact a business. A property's reputation could be damaged if animals sold are found with JD infection, and JD in cattle can be difficult to eradicate from an infected herd.

Effective farm and industry biosecurity are extremely important in mitigating the risk of introducing or spreading animal diseases. Basic steps producers can take to protect their beef herd from JD include:

1. Implement a **property biosecurity plan** that identifies the most likely sources of disease risk and strategies to minimise the risk of disease coming onto your property.
2. Only buy, sell or agist high assurance cattle accompanied by a National Cattle Health Declaration.
3. Avoid introducing adult dairy-cross or dairy cattle unless they come from high assurance herds.
4. Only use livestock agents who understand and comply with the National Cattle Health Declaration.
5. Assure your herd disease resistance through good nutrition and parasite control. Identify animals that are failing to grow or fatten.
6. Isolate and investigate any suspect animals, and report anything suspicious to a local veterinarian for investigation.

A vaccine (Silirum) is also available to assist with managing JD in cattle. In the NT, cattle vaccinated with Silirum must be identified with a three-hole punch applied to the centre of one ear, and may not be eligible for live export to some countries.

Resources

- The **Johne's Beef Assurance Score (J-BAS)** is a tool to guide cattle producers on the risk of JD occurring on a beef cattle property. See www.animalhealthaustralia.com.au/jd-cattle-tools/
- For **property biosecurity plan templates** see www.animalhealthaustralia.com.au/jd-cattle-tools/

Australia's low prevalence of JD in beef herds is recognised internationally. Large parts of Australia and the majority of Australian beef cattle herds are free of JD, so it is worth continuing to protect this desirable animal health status and reduces the risk of disease spread. Taking no action to manage and maintain the very low levels of infection in Australian beef herds could undermine Australia's reputation as an exporter of premium beef products. Several of Australia's major markets and competitor countries require certification for JD status for live animal exports, so infected herds could be excluded from specific markets that require certification of JD freedom.