

Ovine Johne's Disease in Sheep

Ovine Johne's disease (OJD) is a chronic, infectious and incurable wasting disease that most commonly occurs in sheep and cattle but can also affect goats, alpacas and deer.

OJD, also referred to as Johne's Disease, is caused by the bacterium *Mycobacterium avium*, subspecies paratuberculosis. The bacterium can be passed from cattle and sheep and other species or vice versa.

The economic impact from a sheep flock infected with unmanaged OJD can be significant in higher rainfall climates or on properties with high stocking rates, resulting in decreased meat and wool production and flock deaths.

The disease is manageable, and once detected, property disease management plans can be developed for individual farming enterprises to control the impact and spread of disease.

Routes of spread

OJD in sheep is insidious and silent at the initial infection. It is very stable in the environment and in favourable conditions can live outside the host animal for an extended period of time. Shade and moisture can prolong the survival of the bacterium.

Transmission on-farm

OJD bacterium is shed in faeces from infected sheep and other susceptible species. The environment; soil, water, and pasture is contaminated by the bacterium, which can then be ingested by uninfected sheep.

Due to a long incubation period, most infected sheep will not show clinical signs of the disease until later in life. When there is a high prevalence within a flock, younger sheep and lambs can be affected. Generally, sheep start shedding the bacteria after two years of age.

Johne's bacterium can also be transmitted in milk and across the placenta. However, this route is more likely to occur when the ewe is showing advanced clinical signs of disease.

Although not commonly detected, cross-infection of Johne's Disease can occur between cattle and sheep and other susceptible species. Cross-infection usually only happens when running high stocking rates in high rainfall areas and co-grazing the two species of animals. This is important to be aware of when trading to particular export markets, as OJD is not defined per species, rather per property. For example, if sheep identified as infected with OJD are on the same property as cattle for export, those cattle may not meet the criteria set by the importing market due to the presence of the disease on the property.

Transmission between farms

OJD transmission between farms can occur through a number of ways. The most common infection pathways include:

- purchased sheep that are already infected with Johne's Disease
- straying sheep or cattle infected with Johne's Disease
- grazing of contaminated pasture and/or drinking contaminated water.

Effect of Johne's Disease in sheep

Bacteria are ingested and establish in the intestines of the sheep which causes thickening of the intestines and the subsequent malabsorption of nutrients. Sheep will continue to eat and drink normally until the disease progresses and there are clinical signs of the disease.

There are several factors that influence the impact of the disease. High stocking rates and high rainfall areas favour the survival of the bacteria.

When young lambs are exposed to an environment with high levels of OJD contamination, they are more likely to clinically express the disease at a younger age. Mortality rates can be as high as 15%, however the average rate is 5-7%.

In drier environments, properties with low stocking rates or where strategic grazing occurs, mortality rates may be as low or lower than 1%.

Clinical signs of Johne's disease in sheep

What to look for

- distinct 'poor' tail end of a mob
- 'poor' sheep within the 'tail end' may start dying
- weight loss and ill thrift due to thickening of the intestine
- scouring - while not a classical clinical sign of OJD, it may occur.

Detection of clinical Johne's Disease in Sheep

- once animals are clinically affected by Johne's disease their condition will worsen quickly and death generally occurs within 3-8 months
- sheep waste away as they are unable to absorb nutrients
- affected sheep can be mistaken for being 'old', 'wormy' or 'mineral deficient' and do not improve despite high nutrition, changing drench or mineral supplementation.

If any of the above clinical signs are present, it must be reported to PIRSA or your local veterinary practitioner to perform a disease investigation. These investigations can be subsidised through PIRSA.