Johne’s disease in sheep

Johne’s disease (JD) is a chronic, infectious and incurable wasting disease of ruminants. It is caused by the bacterium *Mycobacterium avium* subspecies *paratuberculosis*. It most commonly occurs in sheep and cattle but can also affect goats, alpacas and deer. The bacterium can be passed from cattle to sheep and other species and also in the other direction.

The economic impact from a sheep flock infected with JD in South Australia may well be low, as the state’s dry Mediterranean climate makes it less favourable to the bacterium. Mortality rates are often low (5-7%), and even lower (1% or less) in low rainfall areas, and where low stocking rates and/or grazing management practices are undertaken. Higher stocking rates in higher rainfall areas can experience decreased meat and wool production and mortality (15%).

In South Australia, JD in sheep is notifiable, and is managed through an industry endorsed and funded program. On farms it is a manageable disease and once detected, property disease management plans can be developed for individual farming enterprises.

**Routes of spread**

At the initial infection stage JD in sheep is silent. It is also 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 also prolong the survival of the bacterium.

**Transmission on farm**

Johne’s disease is shed in faeces from infected sheep and other susceptible species with the bacterium contaminating the environment; soil, water, and pasture. Ingestion by susceptible sheep occurs and is followed by a long incubation period.

While 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 also be affected. Generally sheep start shedding the bacteria after two years of age.

Johne’s can also be transmitted in milk and across the placenta, this route however is more likely to occur when the ewe is showing advanced clinical presentation.
Although not commonly detected, cross-infection of JD 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.

Co-grazing with other infected species can also impact on the ability for properties to be eligible for international live animal trade.

Transmission between farms

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

- Purchased sheep that are already infected with JD.
- Straying sheep or cattle infected with JD.
- Grazing of contaminated pasture and/or drinking contaminated water. Johne’s bacteria can live for extended periods in the environment. Shade and moisture can prolong the survival of the bacteria.

Clinical signs and effect of Johne’s disease in sheep

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

What is seen in the paddock

- Distinct ‘poor’ tail end of a mob
- ‘Poor’ sheep within this tail start dying
- Weight loss & ill thrift due to thickening of the intestine
- While scouring is not a classical clinical sign of JD it may however occur.

Detection of clinical Johne’s disease in sheep

- Once animals are clinically affected by JD they will lose condition quickly and death occurs generally 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.

It is important to contact PIRSA or your local veterinary practitioner to perform a disease investigation to assess for all of the above. Such investigations can be subsidised through PIRSA.