
JOHNE'S DISEASE

Johne's disease is a chronic wasting disease and can affect cattle, sheep and goats; infection has also been reported in South American Camelids, deer and rabbits.

The disease is caused by a bacterium, *Mycobacterium avium* subspecies *paratuberculosis* (MAP) and is important due to losses from reduced production, culling of infected animals, costs of testing and control measures, and a possible link with Crohn's disease in humans.

Infected herds may find themselves culling 1 - 4% of cows per annum because of scour & wasting... however the news gets worse because these represent the tip of the iceberg, as in the year before they break with scour infected cows typically have their production and fertility reduced by around 25%. For every clinical case there are likely to be 7 - 12 pre-clinical cases & these cows may be culled for other reasons e.g. barren but with the underlying cause being their Johne's infection...

Clinical Signs

Signs are seen in adults and develop over a period of weeks or months. Often they are associated with stressors such as calving. In cattle, the disease is characterised by chronic scour and weight loss despite a healthy appetite & generally appearing bright. In sheep and goats diarrhoea is only seen in 10 - 20 % of cases and the main clinical sign is wasting.

Spread of Infection

Most infection is acquired by ingestion (eating) of the causal organism at a young age. Resistance to infection progressively increases as animals' age with adults relatively resistant to infection.

The MAP bacterium is found in large amounts in the dung of infected animals and is also present in their milk and colostrum. Infection also occurs occasionally in the womb. This is why calves born to infected dams are at the highest risk.

In dairy herds the practice of pooling colostrum and feeding waste milk to replacement calves plays an important role in the spread of the disease. In both beef & dairy herds the contamination of calving areas plays a very important role - calves attempting to stand for the first time often fall nose first - a prime opportunity to get a mouthful of MAP. One scouring cow contaminating a calving area could result in infection of all the calves born in that area, whether it's inside or out.

The problem is that clinical signs take several years to develop and during this period infected animals shed the organism into the environment, exposing many other animals to infection. The organism is very robust and can survive for up to 270 days in pond water, 11 months in faeces (slurry/FYM) and up to 47 months when dried!

Animals that are scouring are the largest contributors to infection, and some have been dubbed "super shedders". Having a super-shedder around is the same as having several thousand "low shedders", or pre-clinical cases. This means that one of the most critical control points is locating and removing high shedding (usually this means scouring) animals.

Diagnosis

There are several tests available, on blood and on faeces which either identify the causal organism or measure the animal's response to it. These tests work best (are more sensitive) as the animal's disease advances and unfortunately aren't as good if it is in earlier stages of infection. This does make control very difficult as a negative test on an individual does not mean the animal is clean. However if a whole HERD or flock has repeated negative test results this

is much more meaningful and this forms the basis of managing risk in accreditation programs.

Control

There is no treatment for Johne's disease.

Control is going to depend upon whether you have the disease present on your farm.

If you are free from disease:

- Keep a closed herd / flock.
- Source replacements from a farm which has had no history of disease or that is certified negative by an accreditation scheme e.g. CheCs. These schemes are compulsory in some parts of Europe, but voluntary here (for now).
- Consider becoming accredited yourself if you sell breeding animals, your vet can provide details of the schemes!

If the disease has been identified on your farm:-

- You may choose to live with the disease, culling cases early in the disease process and not retaining offspring of confirmed cases for breeding to limit the spread of infection.
- Another option is to test and cull. Whilst you will get some false negatives a proportion of infected animals which aren't showing signs of disease will be picked up by testing. This needs to be carried out in conjunction with other management changes (see below). Importantly, by removing test positive animals you will be removing the highest shedders and reducing the environmental contamination of your farm with MAP.
- A vaccine is also available with young animals being vaccinated early in life. But sadly not in Cornwall as it cross reacts with the tb test

Management practices for herds trying to control Johne's disease:

- Calve outside in clean conditions, moving cows daily or inside in individual clean dry pens, disinfect regularly with a phenol disinfectant.
- Dairy farmers - remove calves as soon as possible after birth, preferably not allowing them to suckle. Feed these calves colostrum collected cleanly from their own dam or from a Johne's-negative donor cow. Dairy farmers - Do not pool milk or colostrum, feed replacement calves on milk replacer.
- Ensure water and food supplies are kept free from faecal contamination
- Fence off ponds and streams
- Do not rear replacement heifers from cows which have symptoms of Johne's or breakdown soon after giving birth
- Turn young animals out onto new or clean pastures not used by adults for at least a year
- Use farmyard manure on arable land only to reduce the exposure to faeces from adults coming into contact with the young stock.
- Avoid grazing cattle on land grazed by sheep and vice versa if possible