Johne's Disease

What is Johnes Disease?

Johne's disease is an infectious, wasting condition of ruminants, predominantly cattle, that is caused by the bacteria *Mycobacterium avium paratuberculosis* (referred to as Map).
The organism settles in the intestine and multiplies. This stimulates a hypersensitivity that causes the intestinal wall to thicken and the development of lesions. A prolonged process, it can take from 15 months to several years although evidence suggests that some animals are able to rid themselves of infection. The thickening of the intestine wall results in a decrease in surface area and therefore malabsorption as well as a loss of plasma protein due to the increase of lining permeability. Apparent weight loss is as a result of the animal's body attempting to replace the plasma proteins from less essential body tissue, especially muscle.

The bacteria are secreted in faeces throughout infection and can last up to a year on pasture or in dried faeces. The organism is picked up through ingestion of infected material and whilst mature animals seem to show resistance to the disease, young animals are susceptible and most animals are affected at or shortly after birth.

Introduction to the herd of a new infected though clinically normal animal is the usual method of introducing disease to a clean herd.

Diagnosis

Symptoms of Johne's disease are extremely rare in cattle under two years old. The most obvious sign of the possibility of infection is profuse diarrhoea resembling bubbly, dirty water. A gradual weight loss can be seen in most cases and if left, can lead to emaciation and death. A decrease in milk yield can often be seen in dairy cows prior to the observation of other symptoms.
Temperature and appetite often remain normal.

Samples of faeces can be tested for the disease (best if taken using a gloved hand from inside the cow to include mucosal lining) and a positive result is a sure indicator of infection. A negative result however can be unreliable as not all infected animals secrete Map.

A blood test for Map antibodies can also be used although this has the same drawback as the faeces test. Whilst a positive test is conclusive, a negative is not as around 10% of infected animals do not have antibodies.

Treatment

At present, there is no effective treatment for infected animals. Animals with Johne's disease should be culled immediately.

As the first few months of life are the most likely time of infection, control at this point is important. Removal of calves from the herd at the earliest point possible and the feeding of colostrums from an uninfected source rather than suckling a dirty teat can help reduce the rate of infection. Young animals should also not be allowed to graze pasture or have access to contaminated water sources.

Vaccination is not an available option as it can interfere with tests for TB.