JOHNES DISEASE

MYCOBACTERIUM PARATUBERCULOSIS AKA MAP

A fatal infectious wasting condition of cattle and other ruminants, the causative bacterium '*MAP*' is closely related to that causing tuberculosis. The infection is picked up as a young calf however does not usually result in any clinical signs until the animal is over 2 years old, some animals will carry and shed the bacteria through to old age without ever being detected. When an infected animal succumbs to the disease (often after a stress event such as calving) the bacteria progressively damage the intestines which results in profuse persistent diarrhoea, loss of weight, production loss and infertility; affected animals inevitably die. The course of the disease is very variable; cattle may develop clinical disease over several weeks in some case and several years in others, all cases are eventually fatal. In dairy herds, **Johnes disease significantly reduces milk yields well before other signs of the disease are seen, which added to early culling has significant financial impact on the herd**.

Johnes positive animals can pass large amounts of *MAP* in their dung and so pose a high risk to susceptible animals. They also excrete a lot of *MAP* in milk/colostrum, which as calves are most vulnerable to infection in the first few months of life is a major route of spread. Whilst most animals are infected before 12 months old, cattle do remain susceptible to infection throughout life. The organism is extremely tough and may survive for over a year on pasture, in slurry and in water so environmental/water contamination is also an important route of spread, especially in young stock. As 85% of cases are infected within the first 4 weeks of life, snatch calving then feeding pasteurised colostrum and powdered milk is one proven method to greatly reduce spread.

Johnes disease is difficult to control as the tests currently available are not very sensitive. Whilst a blood test positive animal is always considered positive, infected animals will blood test negative until aged at least 2 years and often older, so they may be shedding *MAP* resulting in free spread through a herd before anyone realises it is present!

For this reason it is estimated that per 1 clinical case, between 10 to 25 further animals will be infected but not yet showing signs. If your herd is currently Johnes free it is worthwhile maintaining a closed herd. If sourcing new stock, acquire from an accredited Johnes free herd. Stock bulls should also be tested pre-purchase and yearly thereafter as they move widely within groups and can spread infection rapidly through a herd once they begin shedding *MAP*. Herds currently suffering from Johnes infection should contact practice for a control plan.

Current strategies for control involve regular blood testing (annually) with culling out of positive animals and avoiding using positive animals calves as replacement breeding stock. SAC run a Johnes Accreditation Scheme which greatly subsidises the cost of full herd testing and will give the most up to date advice on control. Where herds have a high percentage of Johnes positive animals a specific plan may have to be created for your situation as culling all positives may not be economically viable, however blood testing is still worth while in these herds for two reasons;

1. Identification of high risk animals to employ snatch calving principles, and ensure no colostrum sharing
2. Removal of high positive animals whilst they still have good body condition, are fit to walk off the farm and fetch a decent cull price

The Iceberg Effect

The iceberg effect, for every 1 clinical case expect between 10-25 further infected animals present in herd of which at least 30% will be shedding *MAP*.