

Meat and Wool New Zealand supports Johne's disease research

By Charlotte Stapleton

Significant research on Johne's disease (pronounced *yo-knees*) has been carried out both in New Zealand and internationally, but the disease remains difficult to control. It is also costly – each year its impact on animal health and production is estimated to cost up to \$88 million in New Zealand alone.

The Johne's Disease Research Consortium is a new approach that brings together the Johne's research community to speed up the development of efficient and effective tools that will help farmers control and reduce the prevalence of the disease.

Meat and Wool New Zealand is a participant in the consortium, which formed in July 2008, together with DairyNZ, DEEResearch, Massey University, Livestock Improvement Corporation, AgResearch and the University of Otago. The Meat Industry Association and Dairy Companies Association of New Zealand are associate participants.

What is Johne's disease?

Johne's disease is a chronic, contagious and sometimes fatal infection that affects the small intestine of ruminant animals such as cattle, sheep, goats and deer.

The disease is caused by a bacterium (*Mycobacterium paratuberculosis*) which is widespread throughout the environment in many countries, including New Zealand. The disease is spread when animals eat infected pastures and drink from infected waterways.

Animals are usually infected shortly after birth, but symptoms may not show until they are aged between two and six years old. Infected animals experience diarrhoea and wasting, which can lead to increasing emaciation and eventually death from dehydration and severe malnutrition.

Currently there are limited diagnostic tests available for Johne's disease, so generally veterinarians must carry out a post-mortem to verify that an animal was infected.

The research programme

The Consortium's research programme aims to cost-effectively reduce the number of herds, and animals within herds, that are infected with Johne's disease.

Because it is a complex disease, there are several areas of work. These include studying the pathobiology (fundamentals) of Johne's disease, developing better diagnostic tools that enable farmers and veterinarians to more easily identify infected animals, and examining the epidemiology of the disease (how it spreads) to develop more effective management systems so that farmers can control infected herds on farm.

Genetics, however, may be the key to reducing the prevalence of Johne's disease in New Zealand. Researchers are looking to identify a gene marker that does not compromise production but will allow farmers to select for stock that are resistant to this wasting disease.

The Consortium brings together researchers from Massey University, AgResearch, University of Otago and Livestock Improvement Corporation, who have expertise in immunology, molecular biology, epidemiology, cell biology, clinical veterinary science and microbiology. These groups also have links to overseas research groups with expertise in Johne's disease.

They will maximise collaboration and knowledge sharing to develop control options for different farming systems, including beef, dairy, sheep and deer.