

## Risk assessment-based control program leads to slightly lower prevalence of Johne's disease in dairy cows

### What is this research about?

Johne's disease (JD) is a chronic disease of cattle, sheep, and other ruminant animals caused by the bacteria *Mycobacterium avium* ssp. *paratuberculosis* (MAP). While most infected cows do not display outward signs of infection or disease, MAP infections can result in decreased milk production. MAP is generally transmitted between animals through the fecal-oral route, but it can also be transmitted through milk. Calves are thought to be at highest risk of infection by MAP. Current tests for MAP infection are not perfect, which means that many infected cows may be going undetected. Risk assessment (RA) programs for the control of JD look at the current management practices on dairy and cattle farms and evaluate their potential to spread MAP within and between farms. A score is calculated for each management practice to indicate the risk of MAP transmission through this practice; a higher score indicates a higher risk. Some of the management practices that are evaluated include: cleanliness of facilities and equipment, feeding practices, isolation of infected animals, contamination of calf areas with cow manure, and cow cleanliness.

### What did the researchers do?

226 herds of dairy cows in Ontario and western Canada were subjects in a multi-year RA program designed to control JD. In 2005-2007, each farm underwent a pre-visit survey and an RA carried out by a trained veterinarian. The entire milking herd at each farm was tested for antibodies against the MAP bacteria (indicating infection). In early 2008, the researchers conducted a phone survey with the farmers to see how well they had followed the recommended changes in management practices. In 2008-2009, a second RA was carried out, and the entire herd was again tested for MAP infection.

### What you need to know:

Most Canadian dairy farms made changes to management practices following a risk assessment-based control program for Johne's disease, and the within-herd prevalence of the MAP bacteria decreased slightly. Only a concurrent herd test that includes the entire mature herd is useful to estimate the MAP infection status of a herd.

## What did the researchers find?

The percentage of herds with at least one cow with a positive MAP antibody test was approximately 35% for both test dates, although 65 herds (29%) had a different status on the second test date. While the percent of herds with infected cows did not change, the average within-herd prevalence of MAP infection decreased from 5.4 to 4.2% over the two and a half year study period. Average RA scores were also lower at the second test date, especially for practices related to the calving area and care of pre-weaned calves. Many risky management practices remained common, however, including feeding calves colostrum (first milk) from cows of unknown MAP status.

## How can you use this research?

**Dairy producers** can use this research to better understand how different management practices can encourage or prevent the spread of the MAP bacteria.

**Veterinary public health organizations** can use this research to make more informed recommendations about best practices for controlling the spread of the MAP bacteria and managing Johne's disease in the farming industry.

**Researchers** can further investigate why farmers are unable or reluctant to implement recommended management practices.

## Keywords:

Cows, dairy, risk assessment, Johne's disease, management practices, herd health

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