

# Prevalence of Antibodies to *Mycoplasma avium subsp. paratuberculosis* (Johne's Disease) in Saskatchewan Beef Cows on Community Pasture

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## Introduction

Most of what we know about Johne's disease comes from dairy herds. Relatively little information is available on either the prevalence of this infection or risk factors for Johne's disease in commercial cow-calf operations.

## Materials and Methods

In fall 1999, blood samples were collected from cows on community pastures in Saskatchewan during pregnancy testing. Sera from these cows were analyzed using a commercial enzyme-linked immunosorbent assay (ELISA) (IDEXX Inc., Westbrook, ME) for antibodies to *Mycoplasma avium subsp. paratuberculosis*. All cows from each herd examined at the community pastures were sampled.

## Results and Conclusions

Of the 2106 samples tested, 73 had S/P ratios in the suspect range between 0.10 and 0.25. Sixteen had S/P ratios greater than 0.25 and were considered positive (apparent sample prevalence, 0.8%; 95% CI, 0.2% to 2.3%). ELISA S/P results for the antibody test-positive animals ranged from 0.27 to 2.5. Only three of the results would be considered strong positives (S/P >1.0).

Assuming test sensitivity of 45% and specificity of 97%, the true sample prevalence approached 0% (95% CI 0.0 to 0.26%).

Of the 70 herds examined, 11 contained at least one positive cow and two contained two or more positive animals. If we recognize the substantial potential for false positive results at this relatively low prevalence and require two or more positives for a true-positive herd, then herd prevalence would be 2.9% (95% CI, 0.2% to 16.6%).

All animals testing positive were greater than two years of age. No associations were identified between serological status and feed storage or feeding management practices in this initial survey. There were also no apparent links to use of a Holstein nurse cow in calf management. None of the 17 herds reporting a Holstein cow had an ELISA-positive result in this sample. All cows with antibodies to *Mycoplasma avium subsp. paratuberculosis* were pregnant in fall 1999.

The data suggests that Johne's disease may be relatively uncommon on community pastures in Saskatchewan. As prevalence of infection was so low in this study, we had very little power to examine association between management factors and disease. Future research to examine risk factors for Johne's disease in commercial beef herds should focus on high-risk populations, perhaps using a case-control strategy rather than a cross-sectional survey approach.