

Comparison of Milk and Serum ELISA in the Determination of the Prevalence of Johne's Disease in Alberta Dairy Herds

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Johne's disease (JD), caused by *Mycobacterium avium* subspecies *paratuberculosis* (MAP), is present in many dairy herds across Canada. Milk and serum ELISA is often used in the determination of JD due to the low cost, ease of collection and rapid results. It is, however, often difficult to diagnose cows, within a herd, that are not showing clinical signs. The aim of this study was to compare milk and serum ELISAs and fecal culture on both an individual and herd-level basis from multiple dairy herds within Alberta.

Throughout the summer of 2009, 24 central and southern Alberta Holstein-Friesian dairy herds participated in this study. Serum, milk and fecal samples were obtained from all cows over 36 months of age. Per herd, 35 to 132 cows were sampled for a total of 1917 cows being sampled. Serum and milk were tested with a Pourquier ELISA test, while fecal samples were liquid cultured and confirmed with PCR. Currently, all participating herds are sampled for the second time, while environmental sampling is added to the sampling.

The herd level prevalence in Alberta was found to be high regardless of which test was implemented. With serum ELISA, 58% of herds were found to be positive while milk ELISA found 42% of herds to be positive. Fecal culture, which is considered the gold standard test found 50% of herds sampled to be positive for MAP. In addition, this study found that milk ELISA resulted in more false-negative herd diagnosis than serum ELISA when compared to fecal culture.

Implications: The prevalence of MAP infection in Alberta dairy herds is high, particularly considering that this is a one-time sampling. The sensitivity and specificity of the Pourquier ELISA was significantly higher than other ELISAs. Fecal culture remains the most sensitive test for detection of MAP infection.