

Effect of Johne's Disease Vaccination on Reducing Contamination of the Dairy Farm Environment

A.E. Cumpton¹; S.J. Wells, DVM, PhD, DACVPM¹; E.A. Patton, DVM, PhD, DACVIM²

¹*College of Veterinary Medicine, University of Minnesota, St. Paul, MN*

²*Wisconsin Department of Agriculture, Trade, and Consumer Protection, Madison, WI*

Introduction

Johne's disease (JD), caused by the bacterium *Mycobacterium paratuberculosis* (MAP), is characterized clinically in cattle by chronic weight loss and diarrhea, leading to incurable wasting. Concern also exists regarding a potential, though undocumented, link between MAP and Crohn's disease in humans. A vaccine against JD is available in the US on a conditional-use basis, though is little used in most states and has certain side effects associated with administration. Limited published information supports the efficacy of JD vaccination in reducing clinical signs of JD, though the effect of vaccination on reducing fecal shedding has been less clearly documented.

Materials and Methods

The objective of this study was to examine the hypotheses that environmental concentration of MAP in dairy cattle herds vaccinating against JD for at least five years is lower than in herds working to control JD without vaccination. Thirty-six vaccinating and 39 nonvaccinating herds with at least 30 milk cows were randomly selected for sampling from lists of JD control program herds in Minnesota and Wisconsin. Herds selected for this study had a history of working to control

JD for at least five years through vaccination (vaccinating group) or herd management without vaccination (control group). Two environmental fecal samples (each a pool of four samples) were tested using bacterial culture at the Minnesota Veterinary Diagnostic Laboratory to detect MAP following collection from each of three areas on each farm: gutters/alleyways, sick pen and manure storage. Additional herd management and vaccine usage information was collected using an on-farm administered questionnaire by one of the study investigators and from a JD Risk Assessment performed by certified veterinarians.

Results

Preliminary results show no significant differences ($P>0.05$) in the prevalence of positive samples or mean shedding concentration between vaccinating and nonvaccinating herds.

Significance

These results can assist veterinarians and herd owners in decision-making regarding use of JD vaccine as an addition to other management practices to reduce transmission and improve control of JD.