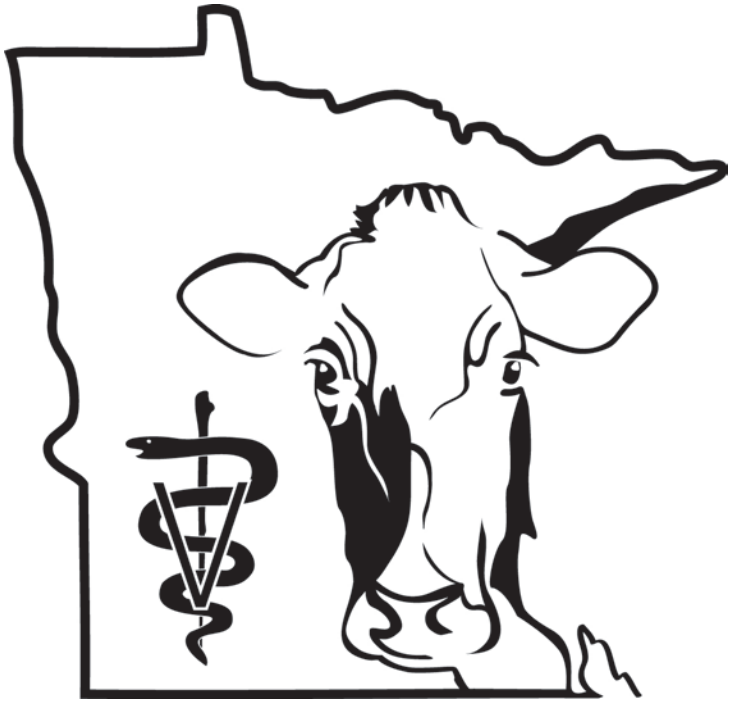
THIS ARTICLE IS SPONSORED BY THE
MINNESOTA DAIRY HEALTH CONFERENCE.

UNIVERSITY OF MINNESOTA

College of Veterinary Medicine

VETERINARY CONTINUING EDUCATION



ST. PAUL, MINNESOTA
UNITED STATES OF MINNESOTA

Efficacy of vaccination to control Johne's disease in dairy herds

Barbara Knust, DVM
Center for Animal Health and Food Safety
University of Minnesota

Johne's disease vaccination has been used as a part of Wisconsin's Johne's disease control program for almost 4 decades. However, controversy still exists among professionals as to the utility of vaccine in the control of Johne's disease. Although several studies have demonstrated reductions in infection prevalence, clinical cases and fecal bacterial shedding, there have been criticisms of the papers published on vaccine trials to date, because study design flaws limited the ability to measure the true effect of vaccination. The objective of our study is to evaluate the effectiveness of a Johne's vaccination program by comparing disease prevalence and clinical cull rates of vaccinated and non-vaccinated calves reared under the same management conditions on three dairy farms.

In this prospective cohort study, three commercial dairy herds vaccinated every other heifer calf against Johne's disease using a conditionally licensed commercial vaccine until two cohorts were obtained that comprised either 10% of the adult herd or 50 head per cohort. Each herd participated in an annual Johne's disease risk assessment and herd management plan and had made efforts to reduce the risk of Johne's disease transmission prior to initiating this project. Baseline prevalence estimates indicated that the three herds were moderately to heavily infected with Johne's disease. Fecal samples from heifers from the cohort groups were collected at first calving and at the 90 day pregnancy check at each subsequent lactation and tested using bacterial culture with liquid media. Fecal samples from the rest of the herd (adult cattle not participating in the cohort study) were also collected and cultured at the 90 day pregnancy check. After at least 2 tests per animal, heifers from the vaccinated cohort had significantly fewer positive fecal cultures than the non-vaccinated cohort (relative risk 0.32; p value < 0.01). The concentration of fecal shedding and clinical disease both showed a trend toward lower levels of fecal shedding in vaccinated cohorts as compared to the non-vaccinated cohorts. All herds showed a significant decrease in prevalence between study years 2004/05 and 2006/07 by X^2 ($p<0.05$). These preliminary data suggest a protective role for Johne's disease vaccine in combination with management changes in moderate to heavily infected herds.