Role of Vaccination in the Control of Johne's Disease in 3 Wisconsin Dairy Herds

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Introduction

Johne's disease (JD) is a chronic, debilitating disease of ruminants caused by the bacterium *Mycobacterium paratuberculosis* (MAP). Johne's disease vaccination has been used as a part of the State of Wisconsin's JD control program for almost four decades; however, controversy still exists among professionals as to the utility of vaccine in the control of JD. Although several studies have demonstrated reduced infection prevalence, clinical cases and amount of organism present, these studies have been criticized for lacking proper controls. As such, we set out to evaluate differences between vaccinated and non-vaccinated calves reared under the same conditions. Three larger Wisconsin dairy herds (300-800 head/herd) agreed to participate in the study. Every other heifer calf was vaccinated against JD until two cohorts, vaccinated and non-vaccinated, were established for each herd. Infection prevalence, clinical disease rate and longevity in the herd will be evaluated in the study.

Materials and Methods

In order to participate, herds had to be infected with JD, have at least 300 head, maintain individual animal identification and maintain detailed records on the herd. Three larger herds in the northwestern portion of the state were asked to participate in the study based on meeting these criteria. Each herd agreed to vaccinate every other heifer calf until the two cohorts were established for each farm. Each cohort consisted of the greater of 50 head or 10% of the adult herd. After the initial cohorts were established, every heifer calf is vaccinated against JD.

Fecal samples are collected from all heifers and cows and tested for JD at 160 days gestation using the Trek liquid fecal culture. Each herd has a risk assessment and herd management plan that are specific for their operation and renewed annually.

The DHIA records were obtained from each producer and used to track when an animal was removed from the herd and if there were signs of clinical disease at the time of culling. Clinical signs of disease were defined as unresponsive weight loss and diarrhea.

Results

The overall infection prevalence for the farms ranged from 10-29% in 2005. Unfortunately, we do not have results from most animals in the vaccination or non-vaccination cohorts yet as the project only began 2 1/2 years ago. We anticipate that we will have additional test results available prior to the AABP meeting and will present the data at the meeting.

Significance

As above, we are just now collecting data for the project. We anticipate we will have results for a large portion of the cohort by fall. We anticipate that there will be significant differences in infection prevalence, level of shedding, clinical disease and longevity in the herd as the cohorts enter their milking herds.