

1. Nutrition – body condition scores at critical times between dry-off and first service; serum non-esterified fatty acid (NEFA) pre- and post-calving; serum selenium and vitamin E at first service.
2. Infectious disease – serum collection and storage at all services, positive pregnancy checks, and pregnancy loss to permit serial infectious disease serology; complete diagnostic analysis of available aborted fetuses and placenta.
3. Management – milk progesterone at all services and 20 days post-service; a sampling of serum progesterones to evaluate milk results; feed and other significant changes.
4. Stress – weather related; observable health events such as periparturient problems, mastitis, and feed refusal.

An important aspect of the study was generation of visual displays of the results for use by veterinary practitioners to identify and solve reproductive problems with dairy producers.

Results and Conclusions

Individual cow records by lactation were developed in order to focus on individual reproductive problems. A visual display of a calendar or time line of reproductive events, along with other significant animal and herd events, was generated for this purpose. Herd data records were used to generate reproductive standards, using statistical procedures, for the two-year study period. This program demonstrates a procedure that permits the practitioner to evaluate suspected reproductive inefficiencies; determine if the problem exists and at what stage of the reproductive cycle; and maximize the opportunity to identify specific causes. It is impractical for the practitioner to use all aspects of the program at all times, but selection of specific portions based on experience and observations should provide an opportunity to improve success at bovine reproductive problem solving.

Relationship between *Neospora caninum* Seropositivity and Udder Health in Lactating Dairy Cows

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Introduction

Neospora caninum is the most common infectious cause of abortion in Ontario dairy cattle. Most studies to assess the economic impact of *N. caninum* have identified losses associated with reproduction, milk production or culling. Few studies have investigated any potential influence of *N. caninum* serological status on udder health parameters. One European study reported an association between cows having moderate (200,000 to 400,000 cells/ml) somatic cell counts and *N. caninum* infection. The objective of this study was to determine if *N. caninum* serological status was associated with linear score or risk of elevated linear score in Ontario Holstein dairy cows.

Materials and Methods

Sera collected in summer 1998 from the 59 herds that participated in the Sentinel Herd Project were analysed for *N. caninum* antibodies using a kinetic enzyme-linked immunosorbent assay (ELISA). Production data for each animal at the time of bleeding and time of removal was collected from Ontario Dairy Herd Improvement (DHI) records and merged with the serological data. A sample-to-positive ratio of 0.45 was used as the cut-off to classify animals as positive (≥ 0.45) or negative (< 0.45) to *N. caninum*. Impact of serological status on linear score was assessed both in linear and logistic regression models using the GENMOD procedure in SAS within herds having at least one *N.*

caninum-positive cow. Parity was included as a covariate in all models, and herd was included as a random-effect variable to account for herd clustering.

Results and Discussion

A total of 57 herds and 3449 cows had complete DHI production data at time of bleeding. The seroprevalence of *N. caninum* was 12.1% within seropositive herds (n=48). Mean linear score was 3.0 for *N. caninum* seropositive cows and 3.2 for seronegative cows. However, this numeric difference was not statistically significant ($p=0.30$) when evaluated using linear regression. *Neospora caninum* seropositive cows were 31% less likely to have a high linear score ($LS \geq 4.0$) at the

time of bleeding (OR 0.69, $p<0.01$). There were 1596 cows from 45 seropositive herds for which there were complete DHI data at the time of cow removal. Linear score tended to be lower in *N. caninum* seropositive cows at the time of removal ($p=0.06$). The risk of having a high linear score ($LS \geq 4.0$) was 23% less likely in *N. caninum* seropositive cows ($p=0.05$). These data are supportive of European work that indicates there is an association between *N. caninum* and some measures of udder health. Whether this effect is mediated through an improved or impaired immune system, or whether some other mechanism is involved, is unknown. Further assessment of *N. caninum* serological status on risk of clinical mastitis and on measures of immune function are needed.

Bovine Viral Diarrhea Virus Infections in Commingled and Transported Calves: Fall 2000 Study and Summary of a Three-year Study

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Introduction

Bovine viral diarrhea virus (BVDV) infections, in both persistently infected (PI) and/or acutely infected calves, were investigated in commingled and transported calves. Other viral infections such as bovine herpesvirus-1 (BHV), parainfluenza-3 virus (PI-3V), bovine respiratory syncytial virus (BRSV), and bovine adenoviruses (BAV) were monitored, as well as interactions with *Mannheimia haemolytica* and *Pasteurella multocida*.

Materials and Methods

Calves were purchased at auctions and held at an order buyer barn (OBB), processed, and shipped to experimental feedyards where they were held for four to five weeks. The only viral vaccine given was a modified-live (MLV) BHV-1 vaccine. Samples, including nasal swabs and EDTA tubes for peripheral blood leukocytes (PBL) for viral isolation, and serums for serology were collected at the OBB and weekly thereafter.