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 ≥ 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 ≥ 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 thereaf-

ter. Similarly, all cattle entering the sick pen were sampled, and all calves dying necropsied, with samples for histopathology and viral and bacterial isolation. The number of calves in each study ranged from 120-205.

Results and Conclusions

In the fall 2000 study, there were no BVDV persistently infected (PI) calves detected, as all calves were BVDV-negative when PBL was examined by cell-culture inoculation. Six calves died during the study. At least 32/120 calves were positive for BVDV in the PBL during the study, and one calf was positive in the nasal secretions. The BVDV-viremic calves were detected throughout the study beginning on Day 5 and through Day 26. There were seroconversions to BVDV in calves during this study, although some calves initially viremic in the last week failed to seroconvert. These BVDV isolates from the PBL, nasal secretions, and serums were all noncytopathic (NCP). The isolates are currently being typed by polymerase chain reaction and the 5'-UTR region sequenced. Subsequently, genetic stability of the BVDV occurring in this natural infection will be determined.

The calves were quite susceptible to viral infection, as the seropositive rate for several viruses was low at Day 0 collections: 86.7% seronegative to BRSV; 65.8% seronegative to BVDV; and 95% seronegative to BHV-1. For some calves, the antibody levels may have been due to maternal transfer. Other calves had increasing antibodies to some viruses, indicating they had been exposed just prior to commingling with resulting active infection.

Evaluation of Vaccinations of Calves and their Impact on Feedlot Performance: Assessment of a Retained Ownership Program of Postweaning Calves

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Introduction

The objective was to assess vaccination programs for calves in a Retained Ownership Program (ROP) and their effect on feedlot performance.

Materials and Methods

There were 24 cooperating ranchers with 417 calves from southern Oklahoma and north central Texas participating in the Noble Foundation (NF) ROP. Guidelines included vaccinations and anthelmintic administration to be completed prior to delivery. The calves were delivered to the NF on November 8-10, 2000 with processing including weight, identification, and sample collection. The calves were shipped to a panhandle Oklahoma feedlot. Sample collection included nasal swabs for viral and bacterial isolation, EDTA blood sample [peripheral blood leukocytes (PBL)] for bovine viral diarrhea virus (BVDV) isolation, and blood samples for serums to be tested for viral and bacterial antibodies.

Oners provided a herd health history including weaning date, vaccines used, vaccination dates for all calves as well as anthelmintic used, and annual cowherd vaccinations. Cattle entering the sick pens had the same samples collected as at delivery. Calves dying in the study were examined by necropsy and tissues were collected for histopathology and viral/bacterial isolation.