instructions had negative impacts on conception rates or calving distribution compared to a non-vaccinated control (saline) group.

Materials and Methods

Within herd, cows were blocked by parity and calving date and randomly assigned to receive 1 of the 2 treatments (MLV or Inactivated) or saline (Control). All females were synchronized with the 7-d CO-Synch + CIDR protocol and inseminated (AI) at the appropriate time after CIDR removal (cows 60 to 66 hrs; heifers 52 to 56 hrs). Cows remained separated from bulls for at least 10 d after AI. Pregnancy success and fetal age were determined on d 28 after AI, and > 30 after the breeding season. Data were analyzed using the GLIMMIX procedure in SAS with herd as a random variable.

Results

Days post-partum influenced conception rates with heifers and short-post-partum cows having decreased conception rates compared to cows that were further post-partum (P<0.05). There was no difference in conception rates to AI between MLV and Control groups (P=0.21; 40.0 ± 4% vs 43.3 ± 4%) or between Inactivated and Control groups (P=0.49; 46.5 ± 4% vs 43.3 ± 4%). Rates tended to differ between MLV and Inactivated groups (P=0.055). At 56 d after AI, MLV animals (88.9 ± 2%) had decreased pregnancy success compared to both the Inactivated (93.2 ± 2%) and Control groups (92.5 ± 2%, P ≤ 0.01). Breeding season pregnancy success was similar between MLV and Control groups (P=0.34; 95.2 ± 2% vs 96.4 ± 1%) as well as between the Inactivated and Control groups (P=0.14; 98.0 ± 1% vs 96.4 ± 1%). Inactivated and MLV vaccine groups were different (98.0 ± 1% vs 95.2 ± 2%; P=0.01). When cumulative calving distribution was evaluated, the proportion of females that calved by d 12 and 30 of the calving season were similar between MLV vaccine and Control groups (P>0.30) and between the Inactivated and Control groups (P>0.30). However, this proportion in the Inactivated group tended (P=0.09) to be greater compared to that of the MLV group.

Significance

Vaccination of well-vaccinated beef cows and heifers with a MLV or inactivated reproductive vaccine 30 d pre-breeding resulted in similar pregnancy rates and calving distributions as non-vaccinated controls.

A randomized, controlled, blinded trial assessing the association between infectious bovine keratoconjunctivitis incidence and a commercial *Moraxella bovis* vaccine in beef calves

J. Cullen, MS; **T. Engelken**, *DVM, MS*; **V. Cooper**, *DVM, MS, PhD*; **A.M. O'Connor**, *BVSc, MVSc, DVSc*
Department of Veterinary Diagnostic and Production Animal Medicine, College of Veterinary Medicine, Iowa State University, Ames, IA 50010

Introduction

The objectives were to assess the association between a commercially available *Moraxella bovis* vaccine and cumulative incidence of infectious bovine keratoconjunctivitis (primary objective) and weight at weaning (secondary objective).

Materials and Methods

A randomized, controlled, and blinded 2-arm trial was conducted in the summer of 2015. Eligible calves were born in the spring of 2015 at an Iowa State University cow-calf research unit, at least 2 months of age, and had no visible lesions or scars on either eye. Calves were randomly allocated to 1 of 2 treatment arms: the *M. bovis* vaccine or saline. Enrollment and outcome assessors were blinded to calf allocation status.

Results

IBK was observed in 65/110 (59.0%) of the vaccinated calves and 62/104 (59.6%) of the unvaccinated calves (Mantel-Haenszel unadjusted risk ratio = 0.99, 95% CI: 0.79 – 1.24). The difference between weaning weights was not statistically significant between the vaccinated and unvaccinated calves (unadjusted effect size 9.68 lb (4.40 kg), 95% CI: -3.50, 12.29).

Significance

The results suggest that the commercially available *M. bovis* vaccine used in the study was not effective in reducing the cumulative incidence of IBK or yielding calves with higher weaning weights in our study population.

Characterization of neonatal beef calf behavior and associations with weight gain and intake of colostral immunoglobulins

J.E. Bayne, *DVM, DACVIM*[1]; **T. Passler**, *DVM, PhD, DACVIM*[1]; **M.F. Chamorro**, *DVM, MS, PhD, DACVIM*[3];
D. M. Haines , *DVM, MPhil, PhD*[4]; **P. H. Walz**, *DVM, MS, PhD, DACVIM*[2]
[1]Department of Clinical Sciences, Auburn University, Auburn, AL 36849
[2]Department of Pathobiology, Auburn University, Auburn, AL 36849
[3]Department of Clinical Sciences, Kansas State University, Manhattan, KS 66506
[4]Department of Veterinary Microbiology, University of Saskatchewan, Saskatoon, SK S7N 5B4, Canada

Introduction

Failure of adequate colostrum intake in neonatal calves contributes to increased morbidity and mortality in both beef and dairy calves. Characterizing neonatal calf behavior predictive of future production has not been fully explored in beef cattle. Research objectives included characterization of behavioral indices from birth until day 7 in beef calves born to primiparous (Calves-H) and multiparous dams (Calves-C). Evaluation of body weight, serum total protein, and IgG concentrations were performed to determine correlations between activity, transfer of passive immunity, and weight gain during the first 7 days of life.

Materials and Methods

Activity data were collected from a total of 70 mixed breed beef calves using accelerometers (IceQube™, IceRobotics™). Accelerometers were placed on the hind limb of calves within 6 to 8 hours of birth, and body weight and blood samples were collected on day 0 and 7. The number of steps, standing time, lying time, and number of lying bouts were continuously recorded at 15-minute intervals throughout the study period.

Results

Calves-C had significantly higher IgG concentrations and increased weight gains compared to Calves-H. A positive correlation between change in body weight and IgG status on day 7 was present for both Calves-C and Calves-H. For Calves-C, but not calves-H, statistically significant correlations existed between serum IgG concentrations and behavioral indices, indicating that calves with greater intake of colostrum were less active than calves with lower rates of passive transfer. Although not statistically significant, Calves-C with higher weight gains also tended to take fewer steps than Calves-C with lower weight gains.

Significance

Characterization of neonatal calf behaviors and their correlations with weight gain and immune status were achievable in pastured beef calves using accelerometers.

A descriptive analysis of the commensal luminal and mucosal microbiome of the duodenum using a cannulated calf model

Ricardo M. Stockler, *DVM, MS, DABVP-Dairy Practice*[1]; **Erin S. Groover**, *DVM, DACVIM-LA*[1];
Benjamin W. Newcomer, *DVM, PhD, DACVPM, DACVIM-LA*[2]; **Paul H. Walz**, *DVM, PhD, DACVIM-LA*[2]
[1]Department of Clinical Sciences, Auburn University, College of Veterinary Medicine, Auburn, AL 36849
[2]Department of Pathobiology, Auburn University, College of Veterinary Medicine, Auburn, AL 36849

Introduction

The gut microbiome provides important metabolic functions for the host animal. Bacterial dysbiosis as a result of bacterial, viral, and parasitic gastrointestinal infections can adversely affect the metabolism, productivity, and overall health. The objective of this study is to characterize the commensal microbiome present in the lumen and the epimural surface of the duodenum of cattle, as we hypothesize that due to metabolic processes and/or host proprieties, there are differences in the natural microbiota present in the epimural surface and luminal contents of the bovine duodenum.