

TEXAS TECH UNIVERSITY – DEPARTMENT OF VETERINARY SCIENCES

RESEARCH PROJECT TITLES

2018

- Role of natural antibodies in the immune system of postpartum dairy cows (Machado)
- The effect of an interspecific immunostimulant on the health and performance of pre-weaned calves transported to a calf raising facility (in collaboration with Luciano Caixeta – University of Minnesota) (Machado)
- Predicting disease, mortality, and performance of pre-weaned calves transported to a calf raising facility (Machado)
- Biomarkers associated with metritis cure in dairy cows (Machado)
- Epidemiology of hypocalcemia in Jersey cattle (in collaboration with Rafael Neves – Texas Tech University) (Machado)
- Predicting weekly calf starter intake by measuring calf starter intake once, twice, or three times a week. (Ballou)
- Impacts of various milk replacer supplements on the health and performance of high-risk dairy calves. (Ballou)
- Effect of supplementing active dry yeast, a blend of lactic acid producing bacteria, or the combination on the performance and total tract digestion of growing dairy steers. (Ballou)
- Effects of a live yeast in natural-program finishing feedlot diets on growth performance, digestibility, carcass characteristics, and feeding behavior. (Ballou)
- Effects of rumen protected methionine on inflammation and oxidative stress during the periparturient period and early lactation in Holstein cows (Collaboration with Dr. Loor; University of Illinois) (Ballou)
- Preweaned plane of nutrition influences the inflammatory response to a combined bovine herpes virus-1 and *Mannheimia haemolytica* infection in postweaned Holstein steers.
- Supplementing a blend of lactic acid producing bacteria attenuates both local and systemic inflammation in Jersey calves infected with *Salmonella enterica* Serotype Typhimurium. (Ballou)
- Acute immunologic and metabolic responses of beef heifers following topical administration of flunixin meglumine at various times relative to a bovine herpesvirus-1 and *Mannheimia haemolytica* challenge. (Ballou)

2019

- Metaphylactic use of tildipirosin to control BRD in pre-weaned calves (Machado & Ballou)
- Investigation of udder skin microbiome of dairy cows under organic management (in collaboration with Noelle Noyes – University of Minnesota) (Machado)
- The effect of injectable trace mineral supplementation on immunity, health, and performance of dairy cows under heat stress (Machado)

- Effects of oral calcium bolus supplementation on intracellular immune cell calcium metabolism and function in primiparous and multiparous dairy cows. (Ballou & Machado)
- Respiratory vaccine antigen type and stress influence the immune response and performance of beef calves. (Ballou)
- The use of portable X-ray fluorescence spectrometry to measure apparent total tract digestibility in beef cattle and sheep. (Ballou)
- Oral electrolyte composition and time relative to milk replacer feeding influences the ability of pathogens to survive in abomasal contents. (Ballou & Machado)
- Plane of milk replacer nutrition and as-fed milk replacer temperature fluctuations influence abomasal dynamics and ability of pathogens to survive in abomasal contents. (Ballou & Machado)

2020

- Predicting metritis spontaneous cure and treatment failure in dairy cows (Machado)
- The association of immune variables with metritis in dairy cows (Machado)
- Epidemiology of intramammary infections of dairy cows under organic management (Machado)
- Influence of intranasal vaccination of preweaned dairy calves on the humoral and cell-mediated immune responses (Ballou & Machado)
- Influence of various nutritional supplements to improve the health and performance of calves infected with *Eimeria bovis* (Ballou & Machado)
- Influence of supplementing yeast extracts on the concentrations of various glucan and mannans throughout the digestive tract and in systemic circulation (Ballou)
- Influence of a novel biotoxin adsorbent on apparent total tract digestibility of macro- and micro-nutrients. (Ballou)

2021

- Predicting metritis spontaneous cure and treatment failure in dairy cows (continuing) (Machado)
- Development of experimental liver abscess challenge models using non-ruminating calves (Machado & Ballou)
- In-vitro adsorbent efficacy of various putative adsorbents against gram-negative pathogens. (Ballou)
- A comparison of various putative adsorbents to reduce inflammation caused by endotoxin in the lumen of a calf's ileum. (Ballou)
- A novel biotoxin adsorbent ability to reduce colonization and inflammation in weaned pigs infected with *Salmonella enterica* serotype Typhimurium. (Ballou)
- Influence of a microbial supplement, active dry yeast and lactic acid producing bacteria, on the in situ rumen fermentation and milk production of mid-lactating dairy cows (Ballou & Machado)

- Application of novel immune stimulant as a Dry Cow Therapy for the Prevention of New Intramammary Infections. (Ballou & Machado)
- Influence of Triacylglycerol Source and Vitamins and Trace Mineral Supplementation on the Performance and Health of Preweaned Dairy Calves fed a Component-Based Milk System (Ballou)
- The effect of eicosapentaenoic acid in bovine adipocyte metabolic function and inflammatory response (Strieder-Barboza)
- Depot-specific adipocyte-extracellular matrix metabolic crosstalk in bovine adipose tissue (Strieder-Barboza)