

MSc. Defence

The Impact of Supplementary Trace Mineral Source on the Innate and Acquired Immunity of Transition Dairy Cows and Their Neonate Calves

Lori Ogilvie

Date: August 31st, 2021 at 1:30pm

The MSc Defence for Lori Ogilvie has been scheduled for Tuesday August 31st, 2021 at 1:30pm. The defence will be held online via Teams: https://teams.microsoft.com/l/meetup-join/19%3ameeting_MGVIMTkzNmQtY2FkNS00NzgyLWFjZGYtNjI1ZWlzMjk5MDVk%40thread.v2/0?context=%7b%22Tid%22%3a%22be62a12b-2cad-49a1-a5fa-85f4f3156a7d%22%2c%22Oid%22%3a%22fbd28915-dda5-478f-8ecb-a3682dcf0c3a%22%7d

The exam committee will consist of:

Examining Chair: Dr. David Huyben

Advisor: Dr. Eduardo Ribeiro

Adv. Committee Member: Dr. TBD

Additional Member: Dr. Dave Renaud

Abstract:

This thesis investigated the impact of complete replacement of inorganic sources of supplementary trace minerals by organic sources in the diet of transition cows on cellular and humoral immunity of dams and neonate calves, colostrum characteristics, and oxidative balance, health and growth of calves. In cows, neutrophil function was assessed in vitro by flow cytometry assays, and acquired immunity was evaluated by in vivo IgG responses to ovalbumin. In calves, passive transfer of immunity was assessed at 24 h after colostrum feeding, and neonatal cellular immunity was evaluated by cytokine responses to ex vivo LPS stimulation of whole blood. The replacement strategy enhanced postpartum phagocytosis intensity of neutrophils in cows, increased concentration of Se in colostrum and in serum of female neonates, increased basal concentrations of effector cytokines (IFN γ and IL4), enhanced secretion of β -chemokines (CCL2, CCL3) upon stimulation with LPS, and tended to improve preweaning health of female calves.