

MSc Defence

Assessment of Heat Stress Response of Peripheral Blood Mononuclear Cells (PBMCs) from Dairy Cows Previously Stress Phenotyped Using Bacterial Lipopolysaccharide (LPS) Endotoxin

Nieve Komadan

Date: January 3rd 2025 at 1:30pm

The MSc Defence for Nieve Komadan has been scheduled for January 3rd, 2025 at 1:30pm. The defence will be held online via Teams and in room 141: https://teams.microsoft.com/l/meetup-join/19%3ameeting_N2YzYzVIY2EtYzdlZS00NTgzLWI3OGUtZjk0YWZjNzY5YzZcw%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

Examining Chair: Dr. Katrina Merkies

Advisor: Dr. Niel Karrow

Advisory Committee Member: Dr. Bonnie Mallard

Additional Member: Dr. Julang Li

Abstract:

Heat stress (HS) is a growing concern to the livestock industry as temperatures continue to rise globally. HS negatively impacts the productivity, health and welfare of livestock. Detected of endotoxin LPS in blood of animals with HS contributes to systemic inflammatory response that may compromise heat dissipation from the body. We anticipate that animals resilient to LPS-induced stress will also be more resilient to HS if LPS contributes to HS pathology. Therefore, the purpose of this thesis was to investigate the effects of an *in-vitro* heat shock challenge on bovine peripheral blood mononuclear cells (PBMCs) isolated from high (HSR), middle (MSR), and low (LSR) stress responding dairy cows. These cows were classified as either LSR, MSR or HSR based on the peak cortisol response to LPS immune challenge. Assessing PBMC function in these phenotyped animals could support future goals to genetically select cows with increased resilience to HS.