UNIVERSITY of GUELPH
ONTARIO AGRICULTURAL COLLEGE
DEPARTMENT OF ANIMAL BIOSCIENCES

MSc. Defence

USING PLASMA AMINO ACID PROFILES TO IDENTIFY THE LIMITING AMINO ACIDS IN LACTATING DAIRY COWS

Matt Wells

Date: May 17th, 2021 at 1:00pm

The MSc Defence for Matt Wells has been scheduled for Monday May 17th, 2021 at 1:00pm. The defence will be held online via Teams: https://teams.microsoft.com/l/meetup-join/19%3ameeting_MThiMmEzZGItNjk4My00OTdkLWJlYWEtNjY5OWJiZjg1YzRj%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: Trevor DeVries

Advisor: John Cant

Adv. Committee Member: Kate Shoveller

Additional Member: Vern Osborne

Abstract:

The effects of individual amino acid infusions, formulated from each cow's blood amino acid profile, on milk protein production were studied in twelve lactating Holstein cows fed a total mixed ration with 15.4% crude protein. Treatments were jugular infusions of either 0.9% saline (SAL), limiting amino acids according to the NRC (NRCT), or limiting amino acids according to the blood profile (BT) in a Latin square design for three, 10 d periods where milk and blood samples were collected. NRCT and BT reduced milk protein content. Essential and branch chain amino acid concentrations increased with NRCT and BT. The expected increase in milk protein yields and content in response to amino acid infusion did not occur. Rather, amino acid infusion harmed production, presumably because infusion induced an amino acid imbalance, increasing the catabolism of the truly limiting amino acid and reducing milk protein synthesis.