



**ONTARIO  
AGRICULTURAL COLLEGE**

DEPARTMENT OF ANIMAL BIOSCIENCES

MSc Defence

Investigating the genetics of Bovine Spastic Syndrome (Crampy) in Canadian Holstein  
dairy cattle  
Gabriella Condello

Date: August 6th 2024 at 9:00am

The MSc Defence for Gabriella Condello has been scheduled for August 6th, 2024 at 9:00am. The defence will be held online via Teams and in room 141: [https://teams.microsoft.com/l/meetup-join/19%3ameeting\\_Mzg4YzIxMTMtNThjZS00NjRiLTliOGQtMzY5NmQzNWlwN2E3%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](https://teams.microsoft.com/l/meetup-join/19%3ameeting_Mzg4YzIxMTMtNThjZS00NjRiLTliOGQtMzY5NmQzNWlwN2E3%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. Tina Widowski

Advisor: Dr. Christine Baes

Advisory Committee Member: Dr. Filippo Miglior

Additional Committee Member: Dr. Andy Robinson

**Abstract:**

Bovine Spastic Syndrome (Crampy) is a neuromuscular disorder seen in cattle that are at least three years of age and is characterised by uncontrollable muscle spasms when attempting movement. The disorder is detrimental to cattle welfare and economic gain, therefore this thesis aimed to investigate Crampy from a genetic perspective to determine if selection against the disorder is possible to reduce its impact on Canadian herds. A heritability of 0.068 (SE=0.008), 0.085, and 0.057 (SE=0.006) was estimated for Crampy using a linear animal model, threshold animal model, and single-step GBLUP methodology, respectively. A genome-wide association study was used to identify candidate genes associated with Crampy on BTA8, BTA23, and BTA28; these genes have been associated with ion transport, neuron signaling, and muscle function. Overall, this thesis underscores the feasibility of genetic selection strategies to mitigate Crampy's impact on herd health, offering a foundation for future breeding practices aimed at reducing its prevalence in Canadian dairy cattle.