

Project

The Mastitis Network: Continuing the advancement of milk quality in Canada



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National Dairy Research Strategy investment priorities targeted:

- Strategies to mitigate targeted infectious diseases
- Dairy cows' genetic improvement (disease resistance)
- Development of alternative tools and practices to antimicrobials use and management

PERIOD: 2018-2022

TOTAL BUDGET: \$1,249,999

Why this research is important:

Mastitis is one of the costliest dairy cow health problems faced by dairy farmers. Previous research completed under the Dairy Research Cluster 2 by the Network estimated losses associated with mastitis at \$665 million per year, which is 10% of net farm receipts in Canada.

Nine coordinated research projects will be conducted over the five-year period to provide knowledge enabling the industry to further: 1) decrease the national average somatic cell count (SCC) in order to reduce the average cost of production; 2) decrease losses from culling due to mastitis; 3) optimise best management husbandry practices and antimicrobial use, and develop new technologies and management strategies to ensure animal health and welfare while enabling further control of undesired risks; and, 4) characterise on-farm control points that will support dairy farmers' ability to produce the highest milk quality and assure the food safety characteristics of Canadian-produced milk.

Research objective:

Develop novel strategies and tools to prevent and treat mastitis and reduce the need for antimicrobials while ensuring animal health and welfare and high-quality milk production.

Project overview:

The Network's projects are regrouped under three research themes: the animal, the pathogen and the environment. In the *Animal theme*, research teams will investigate methods to stimulate cow immunity to build resistance to mastitis, including the investigation of therapeutic alternatives and genetic selection tools. They will also explore the development of a multi-purpose vaccine that can potentially be effective against many pathogens that cause mastitis.

The *Pathogen theme* will address the defense mechanisms used by invading pathogens; develop a rapid, cost-effective and more accurate test to identify mastitis pathogens and more rapidly determine whether they are resistant to treatment if it occurs; and, investigate the development and treatment of infections at the quarter level to better control risks of infection and help mitigate their effects.

Under the *Environment theme*, teams will investigate how milking frequency and milk yield variations in the weeks leading up to dry off in robotically milked cows affect the risk of an intra-mammary infection at calving; evaluate the impact of a standardized risk assessment; and develop an intervention program on the adoption of best management practices for udder health.

Expected outcomes:

- New knowledge, tools and technologies to continuously improve the quality of milk at lower costs using genetic selection tools to improve cow immunity;
- Best management practices to prevent mastitis infections at the animal's most susceptible stages of infection; and,
- Reducing the need to use antimicrobials to treat mastitis infections.

The participation of 300 Canadian dairy farms will contribute to the successful completion of the project.

FUNDING PARTNERS:



NOTE: As per the research agreement, aside from providing financial support, the funders have no decision-making role in the design and conduct of the studies, data collection and analysis or interpretation of the data. Researchers maintain independence in conducting their studies, own their data, and report the outcomes regardless of the results. The decision to publish the findings rests solely with the researchers.