

## Project

# Identifying best management practices for high quality silage production



### Principal Investigators:

Nancy McLean (Dalhousie University) and Linda Jewell (Agriculture and Agri-Food Canada (AAFC) – St. John's)

### Co-Investigators:

Kees Plaizier, Kim Ominski, Emma McGeough, Francis Zvomuya (University of Manitoba), Carole Lafrenière (Université du Québec en Abitibi-Témiscamingue), Shabtai Bittman (AAFC-Agassiz), Emmanuel Yiridoe (Dalhousie University)

### Collaborators:

David Dykstra (New Brunswick Department of Agriculture, Aquaculture and Fisheries), Fred Waddy (MILK 2020)

### National Dairy Research Strategy investment priorities targeted:

- Forage breeding and management for improved yield, resistance, conservation, quality and digestibility
- Dairy cattle nutrition

PERIOD: 2018-2022

**TOTAL BUDGET: \$799,419**

### Why this research is important:

Feed is the single highest expense for many Canadian dairy farms. Producing consistently nutritious and palatable silage to feed productive and healthy cows is challenging given the range of choices in silage production practices. Increasing costs pressures faced by dairy farmers are important when searching for alternative livestock feeding systems that can improve farm profitability. A comprehensive economic analysis that includes actual silage production and management is necessary to fully evaluate the adoption potential of alternative silage systems.



### Research objective:

Develop management plans that are specific to different types of silage in different regions of Canada in order to reduce costs, minimize environmental impacts and improve cow health and longevity.

### Project overview:

This multidisciplinary project will combine detailed survey information with economic analyses, and chemical and microbial tests to develop best management practices for silage production in Canada. A minimum of 400 farms across the country will be enrolled in the survey. All factors will be tested within and across regions for effects on silage quality. Factors that significantly affect silage quality will then be tested by multivariate analyses to determine the relative importance of different factors in producing high quality silage.

Silage quality data from commercial lab tests will be collected from 180 farms based on samples used for ration formulation and will be compared to academic lab tests. Data will also be collected from nutrient management or manure management plans. DNA will be extracted from silage samples to identify fungal contaminants in silage and determine whether mycotoxin-associated species are present in spoiled silage.

### Expected outcomes:

Evidence-based information on best management practices, cost reduction options and the optimal conditions for high quality silage production across Canada will be produced and made accessible to farmers for their decision-making.

The participation of 580 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.*