

## Project

# Providing opportunity for movement to dairy cows by redefining indoor and outdoor spaces and best management practices



### Principal Investigator:

Elsa Vasseur (McGill University)

### Co-Investigators:

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### Collaborators:

Anne-Marie de Passillé, Jeff Rushen (University of British Columbia), Steve Adam (Lactanet), Doris Pellerin (Université Laval)

### National Dairy Research Strategy investment priority targeted:

- Sustainable barn design for conventional and alternative dairy cattle housing systems

PERIOD: 2018-2022

**TOTAL BUDGET: \$542,525**

## Why this research is important:

Through the proAction® Initiative, Dairy Farmers of Canada is assuring excellent standards for animal welfare on Canadian dairy farms and is promoting continuous improvement in animal care practices. Moreover, the process to update the *Code of Practice for the Care and Handling of Dairy Cattle* (2009) has recently been initiated and the opportunity for movement of dairy cattle will be a topic of interest in targeting better animal welfare outcomes. In this context, rethinking how spaces can be adapted to provide dairy cows with the opportunity for movement is essential, especially since there is no research available on relevant and practical options for existing tie-stall housing systems (70% of Canadian dairy farms in Canada use tie-stall housing).

## Research objectives:

- Provide best management practices regarding the frequency of opportunities for movement for cows kept in tie-stalls; and,
- Develop, document and test re-designed indoor and outdoor spaces to enhance opportunity for movement for cows while minimizing the economic costs and environmental impacts.

## Project overview:

A research project completed under the Organic Science Cluster 2 by Elsa Vasseur and her team showed farms with tie-stall housing that provided outdoor access had 20% less lame cows and 16% less cow hock injuries at the end of the winter compared to farms that did not provide outdoor access<sup>1</sup>. Other work completed by Elsa Vasseur and her team indicated that cows with extended experience with the outdoors, chose to go outdoors in winter and summer, when provided the opportunity<sup>2</sup>.

The project will build on the research evidence to date to test best management practices in providing cows with the opportunity for movement in existing tie-stall systems. Experimental approaches will be applied to determine the amount and duration of movement by dairy cows in tie-stalls when provided with an increased opportunity for movement at different frequencies; identify the types of activities performed; and quantify the amount of movement displayed when opportunities are provided. The researchers will evaluate the effects of providing more opportunity for movement on cows' locomotion, typical outcome measures of welfare (i.e. lying time, injuries), daily patterns of activity, interactions between animals during movement, and the impact on milk production. They will also assess the effects of providing more indoor and outdoor opportunities for movement for cows in tie-stalls on farmers' workloads and document the impact on air and groundwater quality.

## Expected outcomes:

Best practices will be developed to provide dairy farmers with practical, economical and sustainable solutions to increase the opportunity for movement for their cows without having to change the type of housing or greatly increase their workload, while taking into consideration animal welfare standards, Canadian climate and environmental regulations.

<sup>1</sup>Palacio, S. et al. 2016b. *J. Dairy Sci.* 98(9): 6085  
<sup>2</sup>Shepley, E. et al. 2017. *Can. J. Anim. Sci.* 97(1): 1; Shepley, E. et al. 2016. Invited paper to *Appl. Anim. Behav. Sci.* 192: 10

## FUNDING PARTNERS:



In-kind contribution provided by:



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.