

NSERC Industrial Research Chair in Dairy Cattle Welfare – Moving Forward

Marina von Keyserlingk and Dan Weary

University of British Columbia; marina.vonkeyserlingk@ubc.ca and dan.weary@ubc.ca

NSERC IRC Overview

The Natural Sciences and Engineering Research Council of Canada (NSERC) promotes and supports discovery research and fosters innovation by encouraging organizations to participate and invest in postsecondary research projects. One of the ways they do this is through appointment of Industrial Research Chairs (IRC), to collaborate with the public and private sectors to support Canadian universities in major research endeavours and providing an enhanced learning environment for graduate students and post doctoral fellows. There are a number of IRCs in dairy cattle research across Canada, with two being held by researchers in Alberta. Alberta Milk is currently contributing funds to three IRCs: Herman Barkema at the University of Calgary, Anne Laarman at the University of Alberta and Dan Weary/Marina von Keyserlingk at the University of British Columbia.

IRC – Dairy Cattle Welfare

Drs. von Keyserlingk and Weary have held the IRC in Dairy Cattle Welfare since 1997, which has grown into one of the leading research groups in dairy welfare. In 2019, their IRC appointment was renewed for another 5 years. In the last 5-year period, their research program focused on:

- Dietary and management transitions of dairy cattle
- Access to pasture and alternative outdoor areas
- Re-imagining indoor housing for cattle
- Benchmarking disease and welfare on commercial farms
- Identifying simple outcome-based welfare measures for dairy farmer self-assessment

In the last 5-year period alone, Drs. von Keyserlingk and Weary have trained 57 undergraduates, MSc, PhD and post doctoral fellows and have published 102 papers in peer-reviewed scientific journals.

The Next 5 Years

The current IRC appointment is supported by DFC, BC Dairy Association, Saputo, Intervet Canada Corporation, BC Cattle Industry Development Fund, Alberta Milk, Boehringer Ingelheim Animal Health, Semex, Dairy Farmers of Manitoba, Lactanet and SaskMilk. For this term, the IRC program will focus on 4 main areas:

Calf and Heifer Rearing: the weaning process is often overlooked in calf raising. With so many different protocols used, it is important to understand what producers consider as weaning success and the long-term effects of different strategies. Additionally, the effect of outdoor access on calf performance has yet to be determined.

Cow Health and Lameness: lameness is still a major issue on dairy farms. However, with the development of automated behaviour measures it may be possible to identify and even predict cows with a higher risk for lameness. In addition, outdoor access may also influence lameness in the lactation period.

Housing and Facilities Management: with all the new technology available on farm, it is important to understand producers' perspectives and how behaviour measurement can be used to improve management. Continuing past work in outdoor access, UBC is also collaborating with the University of Calgary to understand producers' perspectives and the effect on cow health.

Painful Procedures: managing painful procedures has implications for animal health, welfare and productivity. In particular, disbudding and castration represent acutely painful procedures for calves. Understanding the short- and long-term effects of different procedures, as well as the calves subjective experience will help inform recommendations for on-farm pain management strategies.

Current and Proposed Projects

Calf and Heifer Rearing:

- The effect of providing outdoor access during the milk feeding period on preference and performance
- Gradual weaning methods and their impact on feeding behaviour and growth of dairy calves
- Producers' perspectives on weaning success

Housing and Facilities Management

- The use of technology in producer management decisions
- Automated measurement of social behaviour and the association between social competition and illness
- Training dairy heifers for voluntary injections
- Producers' perspectives on outdoor access (joint project with UCVM)
- The effect of outdoor access on dairy cow health (joint project with UCVM)

Cow Health and Lameness:

- Measuring lameness dynamics and prediction of cows at a high risk for lameness during the lactating period
- The effect of outdoor access on lameness in lactating cows
- How fever for 1 day or multiple days after calving affects behaviour

Painful Procedures:

- The effect of NSAID use during disbudding on calves' subjective experience (memory aversion of procedure location)
- Systematic review and meta analyses of pain management strategies for cattle castration
- Long term effects of surgery vs. rubber ring castration



Interested in learning more about Drs. von Keyserlingk and Weary's research?

- [UBC Dairy Center](#) – news, updates and research reports
- [“How Pasture Access Impacts Cow Welfare”](#) – Dairy Global
- List of [scientific publications](#)
- UBC [bio and contact](#)