BC Dairy Research Priorities

September 2022

BC Dairy has adopted nine research priorities in the fields of animal health and welfare and environmental sustainability based on work done by Dairy Farmers of Canada (DFC). All projects submitted for funding consideration will be reviewed in relation to the goals below. Projects that align with priorities under the BC Dairy strategic plan, emerging issues affecting the dairy industry or dairy producers, or that propose a new opportunity/innovation that would be of value to dairy farmers will also be considered.

ENVIRONMENTAL SUSTAINABILITY

1. Define sustainable feed cropping systems for long term productivity

> ***Eg.*** *Regenerative cropping practices; Crop varieties to sustain adverse climate events or increase nutritional value or yield; Best management practices for manure management and nutrient application, Environmentally sustainable alternatives to plastic silage wrap*

2. Identify Canada-specific strategies to cost-effectively reduce greenhouse gases (GHG), maximize carbon sequestration and adapt to climate change

> ***Eg.*** *Strategies to mitigate GHG emissions or measure on-farm carbon sequestration; Practices and genetics for crop climate adaptation*

3. Explore the potential of innovative on-farm water use and conservation practices and technologies

> ***Eg.*** *Practices or technologies to maintain soil moisture in drought conditions, limit water erosion during heavy rainfall, and decrease water use for conventional crops; Opportunities to recycle water; Potential of concentrating milk with an evaluation of the impact on milk quality, transport, processing, etc.*

4. Define cost-effective and concrete measures to increase biodiversity on-farm

> ***Eg.*** *Benefits and impacts of increased biodiversity on dairy farms; Strategies such as pasture lands, complex crop mixture, use of plants in intercropping or on uncropped land to promote plant and animal biodiversity and pollinating insects.*

5. Define social and economic factors impacting adoption and implementation of any new practices on dairy farms, through integration of social and economic science into all research projects

> ***Eg.*** *Economic impacts of the adoption of new strategies, practices and technologies; Barriers to the adoption of on-farm recommended beneficial practices; Evaluate and monitor evolving societal acceptance of dairy farm practices*

ANIMAL HEALTH, CARE, AND WELFARE

6. Develop effective solutions to prevent and mitigate diseases and sustainably reduce the use of antimicrobials

> ***Eg.*** *Strategies to reduce endemic and emerging diseases; Udder health monitoring, diagnostic, and treatment systems to prevent and control mastitis; Quick, accurate, consistent, means of assessing locomotion assessments on farm; Reduce mobility issues and improve hoof health; Strategies to reduce overall antibiotic use*

7. Identify practical and sustainable (environmentally, economically and socially) housing and management options and adapt to evolving Canadian climate change for the best care and welfare of dairy cattle of all life stages

> ***Eg.*** *International trends and practices that can be relevant in the Canadian context; Housing designs that will increase animal welfare and mitigate environmental impact; Features of naturalness and adaptation to Canadian climate change; Precision livestock farming technologies; Conservative energy consumption and generation; housing impacts on animal health, welfare and potential trade-offs between animal welfare, production, labour, cost and environmental sustainability; Low-stress handling and transportation; calf management for long-term health and performance; solutions to implementing and facilitation new updates to the Dairy Code of practice and emerging issues*

8. Refine dairy cattle nutrition and feeding knowledge for improved feed efficiency, reduced production costs, and optimized milk composition and quality

> ***Eg.*** *Precision feeding through automation; individual dry matter and water intake monitoring on commercial farms related to feed efficiency, including the impact of pasture/outdoor access on feeding protocols and greenhouse gas emissions; Upcycling of by-products and co-products as feed ingredients; transition period feeding and management practices to reduce metabolic disorders; Impact of water profile, feeds, and feeding on milk composition/processing properties; Ability to monitor milk composition and quality continuously at individual and herd levels*

9. Create strategies and tools to improve genetics and reproduction performance

> ***Eg.*** *Genetic advancement of Canadian dairy cattle to reduce environmental impacts, improve animal health, welfare and reproduction and adapt to climate change; Targeted reproductive strategies that minimize interventions while maintaining/improving fertility; Alternative breeding strategies (like extended lactation, beef cross breeding, etc.) that ensure reproduction efficiency and optimal management of calves destined for purposes other than dairy production; Effect of genetics (e.g., A2) on the composition of milk and its processing properties*