



National Research and Knowledge Transfer Strategy 2027-2032



Background and approach

Dairy Farmers of Canada (DFC) has developed a National Research and Knowledge Transfer (KT) Strategy to guide farmers' investment in research and KT. The Strategy was developed through collaborative prioritization and a series of consultations (interviews, a national online survey and reflection workshops) involving provincial dairy organizations, farmers, members of the scientific and professional communities and other industry partners. The Strategy is in line with DFC's mission to support the growth of the Canadian dairy farming industry through the coordination of innovative and sustainable production.

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Targeted impact

The Strategy fosters innovation and supports the long-term growth of the dairy industry, as well as Canada's food sovereignty. Its implementation aims to increase the sustainability and resilience of dairy farms, optimize dairy cattle health, care and welfare practices, ensure optimal milk quality and composition, and expand the understanding of the role of Canadian dairy products in healthy, nutritious and sustainable diets.

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Guiding principles

The following guiding principles inform the implementation of the Strategy and are in line with DFC's values of integrity, equity, collaboration, adaptability and transparency.



Collaboration and partnerships

DFC recognizes the need to strengthen partnerships with its member organizations, governments and stakeholders to collectively build research capacity and drive future sector growth. When eligible, the organization aims to finance research through competitive, public programs to obtain matching funding contributions. DFC strives to maximize farmers' investment at the national and provincial levels through a coordinated and collaborative approach across two research pillars: dairy production and human nutrition and health.

Scientific integrity

DFC funds independent, credible research that is subject to a rigorous scientific peer-review process by external experts. DFC does not have a decision-making role in the conduct of the studies, data collection, and analysis or interpretation of the data. Researchers are independent in conducting their studies and report the outcomes regardless of the results. The decision to publish the results rests entirely with the researchers.



Social responsibility

DFC's investments in research provide the scientific evidence needed to continuously improve the stewardship of animals and the responsible management of resources, and to reduce the dairy sector's impact on the environment. This supports the sustainable production of high-quality, safe, and nutritious food for consumers, while fostering the well-being of current and future generations of Canadians.

Flexibility

DFC recognizes that the dairy sector needs, scientific knowledge and realities facing farmers are constantly evolving. The organization, therefore, favours a flexible approach to implementing the Strategy to enable the adjustment of priorities and investments in response to emerging issues, new knowledge, and opportunities, thereby maximizing the relevance, impact, and value of research and KT activities.



Research themes

1.
Dairy farm
sustainability
and resilience

2.
Dairy cattle health,
care and welfare



3.
Milk quality
and composition

4.
Dairy products in
human nutrition
and health

The following sections break down each theme into targeted outcomes, and then into research priorities that specify their scope and actions.

1.

Dairy farm sustainability and resilience



Improve the productivity, quality and resilience of forage systems

- Improve forage yield, resilience, and resistance to pests, diseases, and invasive plants, including through species diversification and the development of new cultivars
- Improve the nutritional value and digestibility of forages
- Optimize forage harvesting and post-harvesting practices

Improve the environmental footprint of dairy farms

- Optimize the climate-smart on-farm carbon management—including through emissions reduction and carbon sequestration—by developing and evaluating best management practices (manure management, high-performance grazing systems, genetics, etc.)
- Optimize integrated on-farm water management—including through reduction, recovery and reuse measures—with a particular focus on identifying and developing practices
- Improve the identification and documentation of environmental benefits provided by dairy farms, including those related to biodiversity

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2.

Dairy cattle health, care and welfare



Enhance animal care and welfare

- Improve the robustness, long-term health and performance of calves and heifers, in particular by analyzing the impact of group housing
- Optimize replacement, productivity and longevity strategies to optimize herd inventory management
- Adapt livestock systems, in particular by optimizing buildings, air quality and rearing conditions, in accordance with the *Code of Practice for the Care and Handling of Dairy Cattle*
- Enhance the hoof and leg health and improve mobility, including through early detection, genetics, exploration of solutions and an improved understanding of factors contributing to locomotion changes

Optimize herd health

- Optimize herd health by developing appropriate practices for disease prevention and early detection, improved herd health management protocols and enhanced antimicrobial stewardship practices
- Optimize feeding practices and feed efficiency
- Improve herd genetics and reproductive performance

The implementation of the Strategy aims to increase the sustainability and resilience of dairy farms, optimize dairy cattle health, care and welfare practices



3.

Milk quality and composition



Ensure the production of high-quality milk in conformance with market requirements

- Identify and understand on-farm factors influencing milk production and quality
- Identify and understand management practices that influence the composition, and technological properties of milk

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4.

Dairy products in human nutrition and health



Characterize the role of the dairy matrix in cardiometabolic disease prevention and management

- Clarify the effects of whole dairy products, including regular-fat dairy, on cardiometabolic outcomes (i.e., hard endpoints of cardiovascular disease, type 2 diabetes and obesity)
- Evaluate the impact of whole dairy products, including regular-fat dairy, on metabolic health and intermediate metabolic outcomes (including classic and non-classic biomarkers), e.g., inflammatory markers, blood sugar, blood lipids and blood pressure, as well as on satiety hormones and appetite regulation
- Assess the role of dairy products in cardiometabolic and musculoskeletal health, as well as in body recomposition, in the context of energy deficit and weight loss, including GLP 1 analogue therapies
- Evaluate the health and nutritional effects of nutrient-dense dairy products in the context of food classification systems based on degree of processing
- Understand how unique dairy components (e.g., lipids, protein, lactose) as part of the whole food dairy matrix influence the health effects of dairy products

Examine the role of dairy in healthy aging

- Evaluate the effects of dairy products on the preservation of muscle health (mass, strength, quality) and function, and the prevention of sarcopenia
- Evaluate the effects of dairy products on brain health and cognitive maintenance
- Examine the role of dairy products in optimal bone development and maintenance as well as musculoskeletal health, particularly in younger populations such as teenagers and young adults
- Assess the effects of dairy products on bone health outcomes and osteoporosis prevention in middle-aged and older adults

The implementation of the Strategy ensure optimal milk quality and composition, and expand the understanding of the role of Canadian dairy products in healthy, nutritious and sustainable diets.



4.

Dairy products in human nutrition and health



Describe the role of dairy in gut and immune health

- Confirm the role of dairy products in colorectal cancer prevention
- Understand the relationships between dairy products, gut microbiota and systemic functional changes related to the gut-brain, gut-bone, and gut-immune axes
- Examine the relationship between dairy consumption and systemic inflammation
- Explore the relationship between dairy consumption and immune function

Clarify the role of dairy in healthy, sustainable diets

- Define the contribution of dairy products to food-based dietary guidelines
- Examine the role of dairy products in nutrient adequacy (e.g., protein quality, vitamins, minerals) for various age groups
- Clarify optimal protein requirements for health and the role of dairy products in supporting optimal protein intakes according to life stages
- Ascertain the bioavailability of key micronutrients in dairy products
- Determine the economic health outcomes associated with adequate dairy intake (e.g., cardiometabolic diseases, osteoporosis, colorectal cancer)

DFC contributes to the sustainable production of high-quality, safe, and nutritious food for consumers, while fostering the well-being of current and future generations of Canadians.





Cross-cutting research considerations

Cross-cutting research considerations play a role in the selection and implementation of research projects and are complementary to research priorities. Some apply to dairy production research, human nutrition and health research, or both research pillars.

Considerations for dairy production research:

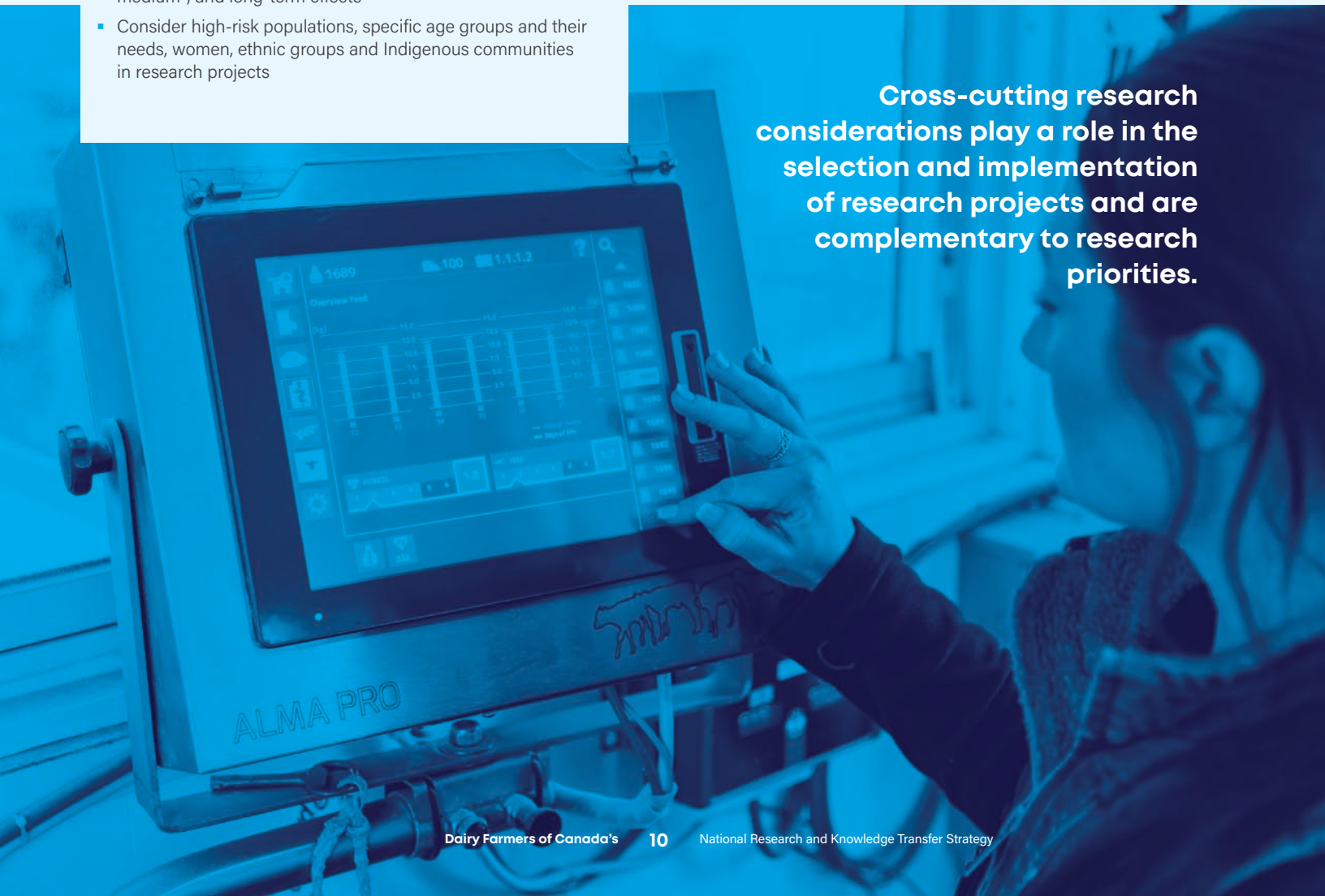
- Promote system-based and multidisciplinary research approaches
- Consider ease of adoption, and techno-economic (e.g., farm profitability, milk quality and composition), environmental (e.g., climate-smart on-farm carbon management) and societal impacts when developing practices
- Take into account regional variability and farm heterogeneity in research projects

Considerations for human nutrition and health research:

- Prioritize research types that will strengthen associations, establish causal relationships, and document short-, medium-, and long-term effects
- Consider high-risk populations, specific age groups and their needs, women, ethnic groups and Indigenous communities in research projects

Considerations for both research pillars:

- Ensure complementarity between the various types of research selected to maximize the impact of research results
- Encourage collaboration between research and industry partners, in particular by supporting projects involving dairy partners and other target audiences
- Prioritize pre-competitive research with a collective scope, excluding projects aimed at developing, validating or demonstrating products, technologies, or services for the benefit of a private company



Cross-cutting research considerations play a role in the selection and implementation of research projects and are complementary to research priorities.

Cross-cutting knowledge transfer considerations

The cross-cutting considerations described below structure the KT process to increase the impact on target audiences. Some apply to dairy production KT, human nutrition and health KT, or KT for both research pillars.

Considerations for dairy production KT:

- Disseminate knowledge primarily to dairy farmers, dairy partners, government agencies and decision-makers
- Collaborate with provincial dairy organizations, partners, researchers, and end users to identify priority KT needs
- Engage and strengthen national and regional knowledge mobilization networks to ensure effective KT that builds on the strengths of existing actors and networks

Considerations for human nutrition and health KT:

- Disseminate knowledge primarily to decision-makers, public health stakeholders, and health professionals, while also ensuring deployment to consumers and farmers in line with the regulatory framework
- Strengthen the coherence between scientific evidence and public perceptions, by adapting messages to preserve their rigour while making them more accessible
- Consider the issues facing government, public health organizations and other audiences to ensure the results of research projects can address current concerns

Cross-cutting considerations described below structure the KT process to increase the impact on target audiences.

Knowledge transfer priorities

KT priorities will be determined annually according to evolving needs and knowledge, and in line with priority research themes. They will aim to help target audiences adopt innovative dairy production practices based on credible research results and better understand and leverage the role of dairy products in human nutrition and health.

Considerations for KT pertaining to both research pillars:

- Integrate KT considerations into the design of research projects from the beginning, and support research teams in this process to ensure the relevance of findings produced and to facilitate their adaptation and use by the different target groups
- Adopt an audience-centric approach to understand user needs and adapt methods and messages, diversifying channels and delivery formats
- Structure evidence and leverage higher-impact results to create coherent messages tailored to target audiences
- Ensure alignment of actions and messages with the regulatory framework
- Strengthen credibility and trust in disseminated knowledge by leveraging recognized collaborators and experts, highlighting the scientific rigour of the research program, and communicating in advance about funded projects to showcase their quality and the excellence of the researchers involved
- Evaluate the impact of KT initiatives to measure their reach, relevance and impact on target audiences





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dairyfarmersofcanada.ca/en/dairy-research

