In partnership with *DairyGen* and *Novalait.*

# Call for Letters of Intent

## Dairy Research Cluster 5
## 2028-2033

**The submission deadline for this Call is January 5, 2027.**

Dairy Farmers of Canada (DFC) is a non-profit organization funded by dairy farmers across Canada and representing more than 9,000 dairy farms in the country. DFC plays a leadership role on behalf of the industry in several key areas, including funding and supporting research in dairy production and in human nutrition and health. For more than 30 years, DFC has demonstrated a long-standing commitment to investing in dairy research to drive innovation and support a sustainable future for the sector.

---

### INTRODUCTION

Since 2010, DFC has partnered with Agriculture and Agri-Food Canada (AAFC) through the AgriScience Program – Clusters component, under successive federal Agricultural Policy Frameworks (APF). The Program enables national research priorities to be addressed through a coordinated and strategic approach in partnership with industry and government.

As the current federal APF (Sustainable Canadian Agricultural Partnership) comes to an end in 2028, federal, provincial and territorial governments are working to develop the next APF for 2028–2033. In July 2026, Ministers issued the Halifax Statement, outlining four priority areas to guide the new framework: economic growth and competitiveness; market diversification and trade; science, research and innovation; and sector resilience.

**In anticipation of the renewal of AAFC's AgriScience Program under the next APF for 2028–2033, DFC, in collaboration with its DairyGen partners (Lactanet, Semex and Holstein Canada) and Novalait, is launching this Call for Letters of Intent (LOIs) to prepare the Dairy Research Cluster 5 funding application.** The Canadian scientific community is invited to submit LOIs for pre-competitive applied research projects addressing the research priorities of the industry partners, as outlined in the **Appendix** at the end of this document.

Research projects to be included in the Dairy Research Cluster 5 application will be selected through a two-step evaluation process (LOI and Full Proposal [FP]) based on the relevance for the dairy sector and on the scientific quality. ***It is important to note that funding is contingent upon the renewal of the***

***AgriScience Program and, should the program be renewed, upon AAFC's approval of the Dairy Research Cluster application. Therefore, funding cannot be guaranteed at this stage.***

## WEBINAR

A webinar will be held on November 24, 2026, from 2:00 to 3:30 p.m. (EST), to present partners' research priorities and provide an overview of the Call for LOIs, as well as answer questions from prospective applicants. Researchers intending to submit an LOI are encouraged to attend. The webinar will be bilingual, with simultaneous interpretation.

Webinar link:
**https://us02web.zoom.us/j/87207548425?pwd=TXIGeUM2AWbVAOxzSbEDhqFGamOETR.1**
*(Please use this link to join the webinar at the scheduled time.)*

## ELIGIBLE APPLICANTS

Researchers from Canadian universities and federal or provincial research and development centres are eligible to apply to this Call for LOIs. Non-Canadian researchers may participate as collaborators. A researcher cannot submit more than one LOI under this Call as Principal Investigator (PI).

This Call provides a unique opportunity to bring together researchers from AAFC and Canadian universities to combine expertise and address dairy sector priorities. Therefore, collaborative projects involving researchers from both AAFC and universities are strongly encouraged.

The PI is responsible for the overall direction of the project and all activities associated with its efficient execution. The role of the co-investigator(s) and collaborators in the project must be clearly defined. Graduate students and postdoctoral fellows are not eligible to act as PI or co-investigators.

## TARGETED PROJECTS

PROJECT SCOPE:
Projects must address at least one of the research priorities of one of the partners targeted by this Call for LOIs and focus on pre-competitive applied research, within Technology Readiness Levels 4–7, aimed at developing, acquiring, or validating new scientific knowledge to provide innovative, sustainable, and economically feasible solutions to well-defined challenges for the benefit of the Canadian dairy sector and to accelerate innovation in Canada. **Please refer to the Appendix – Partners' Research Priorities at the end of this document for the priorities targeted under this Call for LOIs.**

The Call is intended to support a broad range of projects addressing these priorities, from focused projects involving a small research team to larger, multi-institutional collaborations. Projects of varying scope and budget are encouraged, provided that the proposed approach and resources are appropriate to the research objectives.

CONSIDERATIONS:

Where relevant, projects must:

- adopt systems-based and multidisciplinary research approaches;
- consider the potential for adoption and implementation of research outcomes, as well as techno-economic (e.g., farm profitability, milk quality and composition), environmental (e.g., climate-smart on-farm carbon management), and societal impacts;
- account for regional variability and dairy farm heterogeneity, where these factors may influence the applicability or generalizability of research outcomes;
- build on and complement existing and ongoing research to address knowledge gaps, avoid unnecessary duplication, and maximize the collective impact of research investments and outcomes; and
- foster meaningful collaboration among researchers, dairy sector partners, and other relevant stakeholders, as appropriate to the project objectives.

INELIGIBLE PROJECTS: Projects aimed at developing, validating, or demonstrating commercial products, technologies, or services for the benefit of a private company are not eligible.

ETHICS APPROVALS FOR RESEARCH INVOLVING HUMANS AND ANIMAL CARE: Projects involving animals must be approved by the institution's Animal Care Committee, in accordance with the guidelines of the Canadian Council on Animal Care. Research projects involving humans must be approved by a Research Ethics Board, in accordance with the Tri-Council Policy Statement: Ethical Conduct for Research Involving Humans. Although these approvals are not required at the time of proposal submission, they must be obtained before the start of the relevant research activities. Researchers are encouraged to initiate the approval processes as early as possible to avoid delays if funding is approved.

DURATION: Research projects may last up to approximately four years and must start no earlier than September 1, 2028, and end no later than December 31, 2032.

BUDGET:

The overall budget envelope for Dairy Research Cluster 5 is expected to be comparable to that of the current Dairy Research Cluster 4, which has a total budget of approximately $13 million.

***It is important to note that funding is contingent upon the renewal of the AgriScience Program and, should the program be renewed, upon AAFC's approval of the Dairy Research Cluster application. Therefore, funding cannot be guaranteed at this stage.***

The maximum total project budget, including all funding sources, varies according to the research priorities addressed and is subject to the following conditions:

- **Projects addressing DAIRY FARMERS OF CANADA's research priorities:**
  - Maximum total project budget of $750,000; and
  - Mandatory collaboration between at least two research institutions[1].
- **Projects addressing DAIRYGEN's research priorities:**
  - Maximum total project budget is $750,000.

[1] *For the purposes of this Call, an institution is defined as a university or an AAFC research and development centre that will receive funding to conduct research activities.*

- **Projects addressing NOVALAIT's research priorities:**
    - Maximum total project budget of $500,000, or up to $750,000 for projects combining expertise in dairy production and processing; and
    - Mandatory collaboration between at least two research institutions[1], including at least one AAFC research and development centre, where the required expertise is available.

IN-KIND CONTRIBUTION: Research teams are strongly encouraged to seek in-kind contributions to support the proposed research. In-kind contributions may include, for example, access to facilities or equipment, specialized services, data, or other resources directly supporting the project. Any in-kind contributions included in the project budget must be confirmed before submission of the Full Proposal.

## SPECIFICATIONS FOR LETTERS OF INTENT

Deadline to submit a Letter of Intent (LOI): **January 5, 2027, at 11:59 p.m. in the PI's local time.** The LOI must be submitted through the *Submittable* platform at:
**https://dairyfarmersofcanada.submittable.com/submit**

*Note regarding the Submittable platform: You will need to create a free Submittable account to submit an application. All communications regarding your submission will be sent by email through the platform and will also be available through your personal Submittable account. Please be sure to safelist notification emails from Submittable to ensure you receive all communications.*

All LOIs will be reviewed for eligibility, including their alignment with the research priorities and considerations outlined in the Call. If a LOI is deemed ineligible, the PI will be notified, and the LOI will not proceed to the next stage of the selection process.

FRENCH SUBMISISON: LOIs submitted in French may be translated into English by DFC for English reviewers.

PROJECT COORDINATION AND ADJUSTMENTS: To ensure coordination and efficient use of funding, DFC and its partners reserve the right to share LOIs with other research funders. They also reserve the right to invite specific research teams to submit Full Proposals at any stage of the process if they determine that additional research is needed to address the research priorities targeted by this Call and the AgriScience Program. At the LOI and Full Proposal stages, DFC and its partners may also request adjustments to the project scope, objectives, duration, or budget (including increases or decreases) to ensure alignment with research priorities, available funding, and any updated information regarding the AgriScience Program.

## PROJECT EVALUATION AND SELECTION

**The submission of an LOI is the first step in this evaluation and selection process. Full Proposal (FP) requirements will be provided only to PIs whose LOIs are selected to proceed to the next step.**

**STEP 1** – LOI

The LOI will first be reviewed by committees of scientific and technical experts based on their alignment with the targeted research priorities, research relevance and approach, and expected outcomes for the

dairy sector. DFC, DairyGen and Novalait will make the final decisions regarding the selection of LOIs to proceed to the next step.

**STEP 2** – FP

The FPs will be evaluated based on scientific quality and feasibility, team expertise, training opportunities, knowledge translation and transfer, and budget. FPs will first undergo an independent external peer review process.

Based on the external peer reviews, committees of scientific and technical experts will evaluate the FPs and make recommendations to DFC, DairyGen and Novalait. Decisions on projects selected to be included in the Dairy Research Cluster 5 application will be communicated to PIs in the fall of 2027.

All reviewers will be required to sign a confidentiality, conflict of interest and non-disclosure declaration before completing their review.

Selection of an LOI and/or approval of an FP does not guarantee project funding. Funding will be confirmed only upon the signing of a research agreement (refer to Research Agreement section below).

## USE OF ARTIFICIAL INTELLIGENCE

Artificial intelligence (AI) tools may be used to assist in the preparation of proposals, reports, and other research outputs but should not replace scientific judgment. Researchers remain fully responsible for ensuring that all submitted content is true, accurate, complete, and scientifically sound, including content generated or assisted by AI. All sources must be appropriately acknowledged and referenced, and AI-generated information must be carefully reviewed and verified to ensure that it does not contain fabricated or inaccurate data, results, references, or other information.

Confidential proposal information or unpublished research data must not be entered into public, free versions of AI tools. Researchers should disclose the use of AI when it has materially contributed to research methods, analyses, or outputs. Routine uses for editing, formatting, or grammar checking do not require disclosure. AI use must comply with research institution, provincial, and federal requirements regarding research integrity, privacy, intellectual property, and data security.

## RESEARCH AGREEMENT

Prior to initiation of a project, a research agreement (available upon request) will be entered into by and between the research institutions, the PI, and the funding partners.

The agreement defines the rights and obligations of the research institutions, the PI, and funding partners, including without limitation:

- Responsibilities of the PI and research institutions in conducting the project;
- Financial responsibilities of the parties with respect to the project;
- Reporting requirements;
- Publication of the project results;
- Confidentiality;

- Ownership of intellectual property and other property rights; and
- Commercial use of the project results.

In accordance with the provisions of the agreement, the research institutions and/or the PI grant funding partner(s) a licence to use the project results for internal, non-commercial and research purposes; a first option to negotiate an exclusive commercial licence to commercially exploit project results; and a right of first refusal to match any third-party offer to commercialize the project results. If the funding partner(s) is (are) not involved in the commercialization of the project results, it (they) shall earn a royalty based on the net profits generated by the research institutions from the project results; the percentage of the royalty would be determined prior to commercialization through good faith negotiations based on commercially reasonable terms.

| **KEY DATES** | |
|---|---|
| November 3, 2026 | Launch of the Call for LOIs |
| November 24, 2026 at 2:00 p.m. | Webinar: Overview of research priorities and the Call for LOIs (bilingual with simultaneous interpretation) |
| January 5, 2027 | LOI submission deadline (11:59 p.m. – PI's local time zone) |
| Mid-March 2027 | Notification to PIs if they are invited (or not) to submit a FP |
| June 25, 2027 | FP submission deadline |
| End of October 2027 | Decision on selected projects to be included in the Dairy Research Cluster 5 application communicated to PIs |
| Winter 2028 | Review of Clusters applications by AAFC and final approval decision |

All inquiries for additional information pertaining to any of the above points should be directed to dairyresearch@dfc-plc.ca.

# APPENDIX – PARTNERS' RESEARCH PRIORITIES

## DAIRY FARMERS OF CANADA'S research priorities

| DAIRY FARM SUSTAINABILITY AND RESILIENCE THEME | DAIRY CATTLE HEALTH, CARE AND WELFARE THEME | MILK QUALITY AND COMPOSITION |
|---|---|---|
| **Improve the productivity, quality and resilience of forage systems**<br>→ Improve forage yield, resilience, and resistance to pests, diseases, and invasive plants, including through species diversification and the development of new cultivars<br>→ Improve the nutritional value and digestibility of forages<br>→ Optimize forage harvesting and post-harvesting practices | **Enhance animal care and welfare**<br>→ Improve the robustness, long-term health and performance of calves and heifers, in particular by analyzing the impact of group housing<br>→ Optimize replacement, productivity and longevity strategies to optimize herd inventory management<br>→ 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<br>→ 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 | **Ensure the production of high-quality milk in conformance with market requirements**<br>→ Identify and understand on-farm factors influencing milk production and quality<br>→ Identify and understand management practices that influence the composition, and technological properties of milk |
| **Improve the environmental footprint of dairy farms**<br>→ Optimize the climate-smart on-farm carbon management—including through emissions reduction and | **Optimize herd health**<br>→ Optimize herd health by developing appropriate practices for disease prevention and early detection, improved herd health management | |

| | | |
|---|---|---|
| carbon sequestration—by developing and evaluating best management practices (manure management, high-performance grazing systems, genetics, etc.)<br>→ Optimize integrated on-farm water management—including through reduction, recovery and reuse measures—with a particular focus on identifying and developing practices<br>→ Improve the identification and documentation of environmental benefits provided by dairy farms, including those related to biodiversity | protocols and enhanced antimicrobial stewardship practices<br>→ Optimize feeding practices and feed efficiency<br>→ Improve herd genetics and reproductive performance | |

## DAIRYGEN'S research priorities

**Cow Profitability**

In conjunction with selection placed on improving levels of production, producers are striving to increase their net profits. While good management can alleviate some of the stresses associated with high production, producers are looking for the genetic means to build a more profitable cow for both current and future production environments. Genetic parameters for traits of economic importance need to be identified and validated, which can then contribute to national selection indexes reflecting cow profitability. Studies involving the economic analysis of the various components related to cow profitability are continuously needed. Cost effective data collection methods are required to channel relevant data into these systems. Traits of major importance include:

- Genetic variation and economics of locomotion, mobility, lameness and crampiness
- Economics of reproductive performance traits
- Beef on dairy, body weight and growth of crossbred animals

**Animal Health and Welfare**

Dairy farmers are adapting to evolving consumer demands to maintain their social license to operate. They strive to be efficient at producing high-quality food products ensuring good animal health and welfare. Thanks to industry investment matching public funding,

multiple projects and initiatives have resulted in the implementation by Lactanet of a series of genetic evaluation systems to enhance health (resistance to mastitis, metabolic diseases and fertility disorders) and animal welfare (hoof health). However, we have limited metrics to objectively measure animal welfare, therefore, methodologies that measure and demonstrate improved welfare are needed. Nevertheless, it remains a priority to improve accuracy of genetic selection for various health traits and broaden disease resistance by adding new phenotypes including Johne's Disease, Leukosis and calf health and survivability to the health evaluation portfolio. There is a strong need to continuously improve young stock management for long-term health and performance, thus looking at traits in this area from a genetic perspective including genetic variation and relationships with other economically important traits. Potential phenotypes/traits and their indicators to be evaluated include:

- New emerging diseases
- Calf health traits and livability
- Colostrum quality intake and transfer of passive immunity
- Genetic abnormalities
- Animal contentment

**Genetic Diversity, Breeding Strategies and Economic Indexes**

Given the significant developments allowing for the application of genomics to improve the accuracy of genetic evaluations, especially for young bulls, heifers and cows, research is needed to compare the benefits of various strategies for breed improvement and selection. Also of interest is the development of genetic selection strategies and tools aimed at controlling the current reduction in genetic variation due to increased inbreeding levels in dairy cattle populations. The only tangible manifestation of inbreeding depression so far has been through lethal recessives and genomic information has provided relatively affordable solutions to tackle the problem. This might have mistakenly given the perception that inbreeding is a less pressing issue. However, if increasing selection intensity for greater productivity takes place at the expense of maintenance of genetic diversity there may be significant long-term costs. Thus, there is a strong need to develop new tools for the management of genetic diversity in dairy cattle. Methodologies are needed to differentiate harmful or risky inbreeding from more benign inbreeding. Breeders need tools to help them limit the riskiest matings in terms of negative shorter-term impacts on animal performance for economically important traits. Additionally, with release of genetic evaluations for many novel traits, there is an immediate need to develop selection indexes for overall health and environmental efficiency to significantly benefit from the use of new genomic evaluations for selection.

**Resilience and Adaptation to Climate Change**

Intensive selection to increase milk production has led to a higher generation of metabolic heat in dairy cows compared to other animals, which has been a major cause for concern during climate change. Moreover, the current debate about the use of antibiotics has limited its use in dairy farms. As a consequence, dairy farmers are looking for more resilient cows - meaning cows that can maintain (or quickly

recover from) sustainable production levels through several adversities, such as climate and environmental changes. In this context, an optimal definition of resilience needs to be identified and validated. Genetic and genomic evaluation systems need to be developed for various resilience indicator traits, which may include resistance to heat stress and diseases. Studies to incorporate the different resilience indicators in the same selection index are also required. In addition, the potential short- and long-term socio-economic impacts of selective breeding for resilience need to be assessed. Resilience indicators to be targeted may include:

- Production: milk production and quality
- Fertility: estrous expression, embryo survival and abortion
- Health: fertility disorders, metabolic disorders and calf health

**Environmental Impact and Efficiency**

The dairy cattle industry is under significant pressure to reduce the environmental footprint of milk production. Genetic evaluation for feed efficiency was recently launched in Canada, but other traits need to be evaluated. In this context, international efforts might enable national genomic evaluations for other difficult- and/or expensive-to-measure traits, such as methane emissions and nitrous oxide. Therefore, there is an immediate need to establish optimal methods to combine heterogeneous data from different sources and develop enhanced genomic evaluation systems for these traits. Studies to evaluate the feasibility of different statistical methods to improve the quantification of actual emissions and accuracy of predictions using limited datasets are also desirable. Potential traits and their indicators to be evaluated include:

- Emission of greenhouse gases, such as methane and nitrous oxide
- Enhanced evaluations for feed efficiency, quantity and quality
- Water consumption efficiency and availability

**Novel Ideas and New Technologies**

The five main areas of research priorities for the DairyGen Council, as outlined above, reflect those that are currently of greatest interest to producers and the industry. The DairyGen Council also encourages researchers to submit proposals incorporating novel ideas and new technologies (i.e.: artificial intelligence algorithms and machine learning), either through quantitative genetics or genomics, related to dairy cattle improvement of potentially beneficial impact.

## NOVALAIT'S research priorities

### MILK QUALITY

**ISSUES AND CHALLENGES**

Produce a milk of quality, consistent, suitable for processing and market needs.

**RESEARCH DIRECTIONS**

Researchers are invited to develop integrated and innovative approaches, combining expertise in dairy production and processing, to better control:

- Genetic, nutritional, environmental, and herd management factors influencing milk composition, particularly milk protein content and quality, and milk processing properties;
- Milk microbial communities, their dynamics, interactions, and the influence of herd management practices;
- Biological, biochemical, and microbiological mechanisms determining milk quality and its processing potential;
- Factors affecting milk safety, particularly somatic cell count (SCC) and thermoresistant, spoilage, or pathogenic microorganisms.

### DAIRY PRODUCTS

**ISSUES AND CHALLENGES**

Understand and control the technological properties and mechanisms influencing the processing and quality of dairy products.

**RESEARCH DIRECTIONS**

Researchers are invited to develop integrated and innovative approaches aimed at:

Understanding and controlling

- The physicochemical, technological, and sensory properties of dairy matrices and products, as well as the factors influencing their evolution;
- Microbial communities in dairy matrices, their activities, their interactions with starter cultures, and their impacts on product quality.

Improving

- Processes influencing the functionality and quality of dairy products, particularly curd mineralization management, lactose and colloidal calcium standardization, and strategies for enrichment and reduction of salt, preservatives, and texturizing agents.

Enhancing the value of

- Milk fat and its functional properties.

## MONITORING AND CONTROL

**ISSUES AND CHALLENGES**

Continuously monitor processing operations and measure and predict changes in dairy products.

**RESEARCH DIRECTIONS**

Researchers are invited to develop integrated and innovative approaches aimed at:

- Improving real-time monitoring of processing operations and changes in dairy products;
- Understanding and modelling physicochemical, microbiological, and biochemical phenomena influencing processing, ripening, and preservation of dairy products;
- Assessing ripening potential and predicting changes in product quality;
- Predicting shelf life and monitoring dairy product quality, particularly after packaging.

## ECO-EFFICIENCY OF DAIRY PROCESSING

**ISSUES AND CHALLENGES**

Create more value while using fewer resources and generating less waste.

**RESEARCH DIRECTIONS**

Researchers are invited to develop integrated and innovative approaches aimed at:

- Optimizing the use of energy, water, cleaning products, and other processing inputs;
- Reducing losses, co-products, and waste at the source;
- Improving the recovery, reuse, and valorization of process water;
- Adding value to dairy co-products, particularly lactose, permeates, buttermilk, whey, and acid whey.