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ANNUAL
REPORT

Novalait

Research Catalyst



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A unique business model

Novalait brings together all of the businesses that produce or process milk in Quebec—from small-scale cheesemakers to family farms and multinational companies. They are represented within Novalait by three groups of shareholders. Les Producteurs de lait du Québec holds 50% of Novalait shares. Agropur Cooperative, which represents dairy cooperatives, and the Conseil des industriels laitiers du Québec, which brings together private dairy processors, split the other half of Novalait shares.

Novalait draws on the creativity and expertise of researchers to respond to the research priorities established by its shareholders. Novalait's committees evaluate the proposals received according to the potential for opportunities and applications on farms and in plants. Novalait invests in the development and monitoring of the R&D projects selected. It collaborates with actors in the sector for the successful transfer of research results.

Novalait involves its shareholders in all of its activities, including:

- Establishing research priorities;
- Selecting and monitoring projects; and
- Communicating, transferring and applying results.

COMPANY PROFILE

Vision

Novalait accelerates the development of scientific knowledge and skills for the dairy industry of tomorrow.

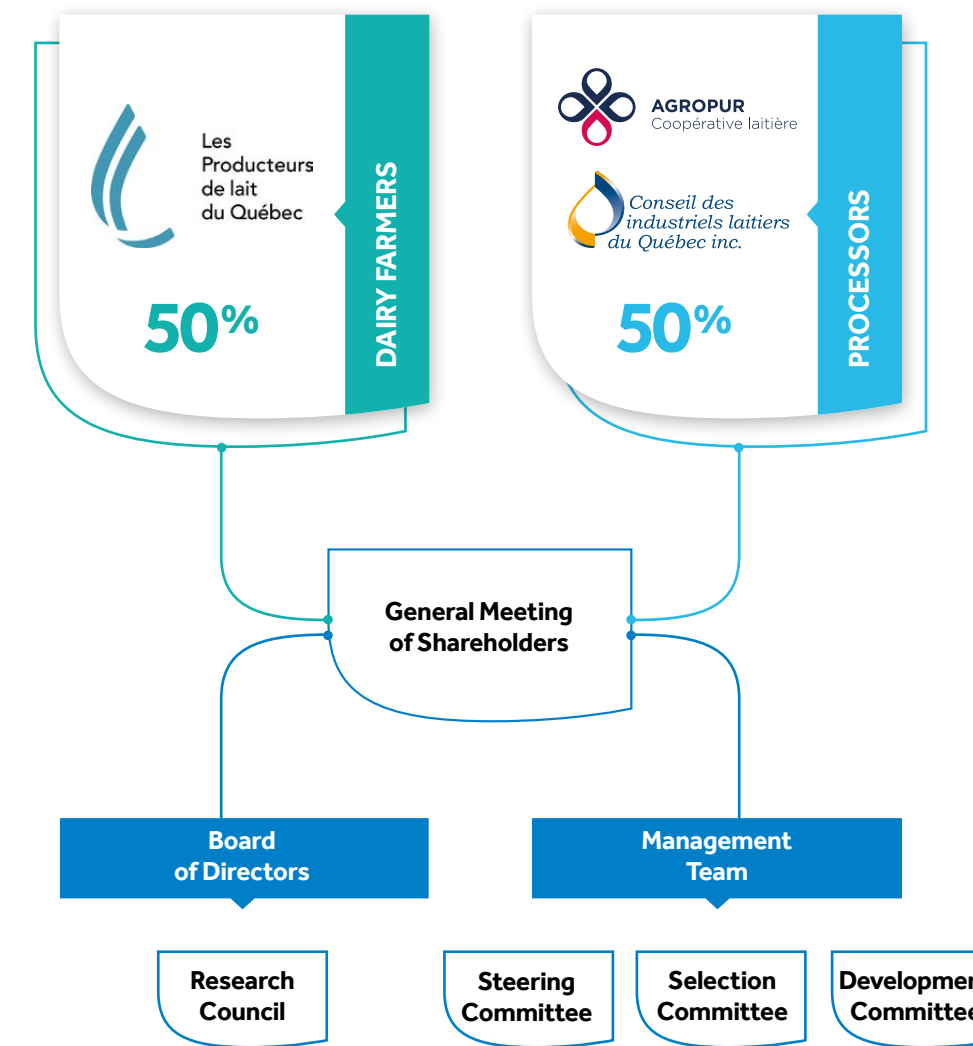
Mission

Novalait ensures through its **leadership**, knowledge and **investments** in **research**, the **development** and **promotion** of knowledge to stimulate **innovation** and foster the **sustainable growth** of Quebec's dairy industry.

Design and development

Written content: Novalait | Graphic design: Isabelle Jobin, Graphic Designer | Photography: Tracé Laitier, Dairy Farmers of Canada

Shareholding and organizational structure



2022–2023 BOARD OF DIRECTORS

Novalait is governed by six directors who represent each of Novalait's three shareholder groups



President
Charles Langlois
Conseil des industriels
laitiers du Québec



Administrator
David Poulin
Les Producteurs de lait
du Québec



Administrator
Alex Berthiaume
Agropur dairy coopérative



Administrator
Claudine Martel
Agropur dairy coopérative



Administrator
Chantal Fleury
Les Producteurs de lait
du Québec



Administrator
Jean-Marc Bertrand
Conseil des industriels laitiers
du Québec

A WORD FROM THE PRESIDENT

Dear Shareholders,

On behalf of the Board of Directors and the Novalait team, I am pleased to present this 2022–2023 annual report.

This report makes it clear that Novalait optimizes the research funds entrusted to it and maintains a high level of investment. A continuous process composed of calls for proposals, opportunity analyses and co-development work ensures an ever-evolving flow of projects. Thank you to the researchers for putting your scientific expertise and creativity to work to meet the challenges of the dairy industry. The quality of your projects is also recognized by our essential financial partners who make our research possible.

Communication and knowledge transfer remain a priority for Novalait. The organization of the Forum Techno, in conjunction with the CILQ summer event in 2023, demonstrates our desire to innovate to increase access to research results. Particularly with the return of an in-person Forum Techno, researchers and students once again set themselves apart by the quality and accessibility of their presentations.

On July 10th, Agriculture and Agri-Food Canada (AAFC) announced \$5.5 million in funding over five years (2023–2028) for the Carbon-Neutral Milk Living Laboratory under the Agricultural Climate Solutions program. This funding was granted to Les Producteurs de lait du Québec who had asked Novalait to develop the Carbon-Neutral Milk Living Laboratory and who have entrusted Novalait with its management.



BY CREATING NOVALAIT, DAIRY FARMERS AND PROCESSORS HAVE BUILT A PRIVILEGED PLACE FOR CONSULTATION AND REFLECTION TO ADDRESS THE CHALLENGES OF THE DAIRY SECTOR, IN AN INNOVATIVE WAY AND FOR THE BENEFIT OF ALL.

This is a major mandate for Novalait, which will leverage its expertise and network to make it a success.

In concluding my term as president, I would like to emphasize that the creation of Novalait remains a unique asset for Quebec's dairy sector. This research investment company for dairy farmers and processors maintains its performance, innovates in its practices and continuously takes on new challenges. It remains a privileged place for consultation and reflection in order to tackle the challenges faced by the dairy sector in an innovative way, for the benefit of all.

Charles Langlois
President of Novalait

REPORT FROM THE EXECUTIVE DIRECTOR

Dear Novalait Shareholders,

During the 2022–2023 fiscal year, Novalait maintained its leverage in terms of additional funding for research projects and obtaining credits for its R&D expenditures. Notably, Novalait signed four new research agreements confirming commitments of more than \$700,000 from Novalait, out of a total research value of \$5.3 million.

Les Producteurs de lait du Québec (PLC) have entrusted Novalait with a new mandate to co-develop a Carbon-Neutral Milk Living Laboratory. Novalait would like to thank all its shareholders, both dairy farmers and processors, who generously shared the expertise and knowledge from their sustainable development initiatives to help make this undertaking a success. In the process, Novalait harnessed its co-development experience acquired as part of the steering committee, a privileged place of interaction between dairy farmers, processors and researchers. This project has also served to enrich Novalait's extensive network of research partners and experts. Novalait is pleased that the Carbon-Neutral Milk Living Laboratory is being launched thanks to funding provided by Agriculture and Agri-Food Canada (AAFC) through the Agricultural Climate Solutions program. Novalait would like to thank Les Producteurs de lait du Québec for reaffirming their confidence in Novalait's management of the living laboratory.



IN 2022-2023, NOVALAIT MAINTAINED THE INTENSITY OF ITS INVESTMENTS IN RESEARCH ALL BY CARRYING OUT A NEW MANDATE OF CO-DEVELOPMENT OF A LIVING LAB.

The Novalait team has also been bolstered by a new resource, Mélissa Lalonde, who has served in the role of project manager since May 2023. Ms. Lalonde will use her project management skills at Novalait and within the framework of the mandate for managing the Carbon-Neutral Milk Living Laboratory.

The 2022–2023 fiscal year proved successful in more ways than one for Novalait and is paving the way for new developments in the coming years!

Élise Gosselin
CEO of Novalait

NOVALAIT IN NUMBERS

1995-2023

A research portfolio worth \$69.8 million

Novalait is the tool that Quebec's dairy farmers and processors have created to invest in research. All milk production and processing companies in Quebec contribute annually to Novalait's research funds. In 2023, this contribution amounted to 1.27 cents per hectolitre of managed milk. In return, dairy farmers and processors benefit from the results of Novalait's research investments:

Solutions and answers to questions and issues in the dairy sector

Training of highly qualified personnel

World-class network of researchers

Since 1995, Novalait has invested \$13.2 million in a portfolio of more than 140 research projects, with a total value of \$69.8 million in 2023. With its funds, Novalait maintains powerful leverage when it comes to obtaining its share of public funding.



2022-2023

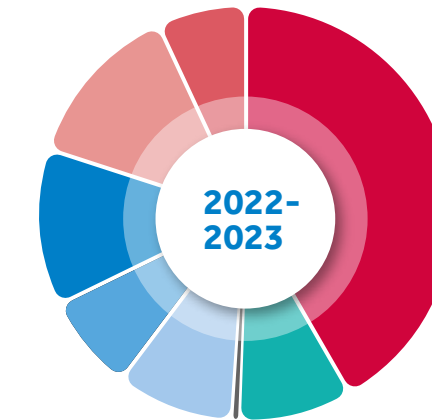
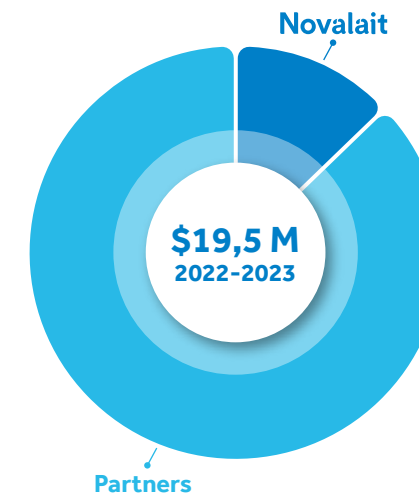
\$5.3 M for new projects

The new research agreements signed by Novalait in 2022–2023 total \$5.3 million.

Novalait maintains strong leverage thanks to diverse partnerships

Commitments by Novalait and its partners in ongoing research projects in 2022–2023 totalled \$19.5 million.

The projects that Novalait selects are successful in obtaining additional government funding. Novalait also partners with Canadian dairy partners and other agri-food stakeholders to share the risks, costs and benefits of research.



Novalait's team gets a refresh

In May 2023, Ms. Mélissa Lalonde joined the Novalait team as project manager. Ms. Lalonde has program management expertise in the field of sustainable production. Novalait has entrusted Ms. Lalonde with the management of the Carbon-Neutral Milk Living Laboratory. Ms. Lalonde has also leveraged her expertise to update Novalait's project portfolio management tools.



Committee activities

Numerous governance and R&D project monitoring meetings were held over the year.

6

BOARD OF DIRECTORS MEETINGS

6

SCIENTIFIC COMMITTEES MEETINGS FOR THE MONITORING OF 4 CHAIRS

4

MANAGEMENT MEETINGS

Communications

New format for the Novalait Forum Techno

The Forum Techno is the main communication event organized by Novalait to disseminate its research results. For shareholders, the Forum is also an opportunity to interact with researchers and students trained within the framework of Novalait's research projects. The Forum differs from other scientific conferences through its strong focus on the application of research results and potential spin-offs to reduce costs or create value on the farm or in the plant. This format combines:

Sessions given by researchers on their research results;

Scientific posters presented by students and excellence awards; and

Student presentations: My Thesis in 180 Seconds

The format of Novalait's Forum Techno has evolved in order to disseminate research results more widely and raise the profile of researchers' and students' expertise. At the same time, the new format minimizes Novalait's involvement in logistics in favour of content. To better reach dairy farmers, Novalait has partnered with CILQ to combine the Forum Techno and the summer activity in a new event called *Lait'cole d'été*. To better reach stakeholders and dairy farmers, Novalait signed an agreement with CRAAQ. For the 2023 to 2025 editions of the Dairy Cattle Symposium, a 45-minute session by given by Novalait will be dedicated to the presentation of Novalait's research results.



NOVALAIT HAS PARTNERED WITH CILQ TO COMBINE THE FORUM TECHNO AND THE SUMMER ACTIVITY IN A NEW EVENT CALLED LAIT'COLE D'ÉTÉ.

The Forum Techno at Summer Lait'cole

The new edition of the Forum Techno on June 13, 2023, brought together more than one hundred participants in the casual setting of CILQ's summer event, *Lait'cole d'été*. The results of five dairy processing research projects supported by Novalait were presented. Five students also presented their research results in 180 seconds with gusto. Congratulations to Myriam Landry who won the *Coup de cœur* award!



Elloise Coyle and Amadou Ndiaye.



Myriam Landry, winner of the *Coup de cœur* award, and Rachel Gervais, researcher, Université Laval.

Lait'Xpress

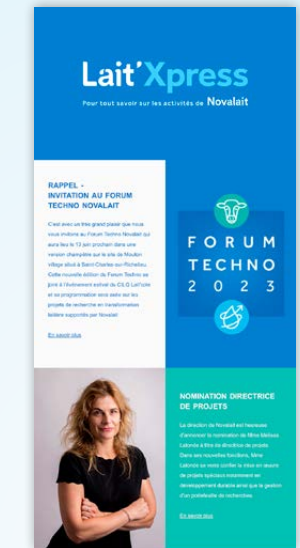
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NEWSLETTERS WITH ALL YOU NEED TO KNOW ABOUT NOVALAIT'S NEW RESEARCH AND ACTIVITIES

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Novalait gets involved!

The Novalait team is involved in several organizations as a member of committees or boards of directors:

- > *Planification stratégique de la filière laitière québécoise* [Strategic planning committee for Quebec's dairy sector]
- > National Dairy Research Council (Dairy Farmers of Canada)
- > Quebec Cheese Expertise Center (Board of Directors)
- > Quebec Consortium for Industrial Bioprocess Research and Innovation (CRIBIQ) (Board of Directors)
- > *Comité bovins laitiers* [Dairy cattle committee] (CRAAQ)
- > Quebec Dairy Technology Foundation (Board of Directors)

RESEARCH PROJECTS

NEWLY LAUNCHED PROJECTS

In the 2022–2023 fiscal year, Novalait signed four new research agreements confirming investments of more than \$700,000 from Novalait out of a total budget of \$5.3 million.

Research and Innovation Chair in Animal Welfare and Artificial Intelligence

Elsa Vasseur, McGill University and Abdoulaye Baniré Diallo, UQAM

The voices of concerned citizens have been heard and prompted an increase in demand for dairy production that is conscious of animal welfare and environmental sustainability. While changing markets are putting economic pressure on farms, dairy farmers are showing an increased interest in addressing these issues. This interest is not trivial. Science shows that animal welfare and longevity go hand in hand, and improving dairy cow longevity is seen as an answer to multiple issues related to the dairy sector's economic, social and environmental sustainability.

In line with this idea, our initiative is based on the use of sensors and artificial intelligence (AI) to improve the detection of changes related to cow welfare and longevity before visible signs appear. In doing so, we want to generate forecasts that will improve decision-making on the farm, so that efforts can be focused primarily on the animals that are most likely to succeed in the long term. The objective of this initiative is to assess the



impacts of changes to housing systems, cow management and handling practices. A true digital living laboratory, this project will focus on the needs of cows and users, and will be built using data from: i) two research farms (for farm-applicable results); ii) a network of connected farms (for projects requiring longitudinal analyses); and iii) user feedback (to validate the applicability of the recommendations).

This ecosystem, reinforced by remote sensors and artificial intelligence, will be used to capture a more accurate picture of the situation on the farm and to develop automated and predictive indicators of animal welfare, longevity and profitability throughout the life of dairy cows. This will allow us to better assess how changing the cow's environment affects their welfare and longevity, and how a digital environment can help dairy farmers improve the physical and psychological condition of their cows, providing the dairy sector with new keys that will help ensure sustainability.

From milk to packaging

Gregory Patience, École Polytechnique

Every year, the dairy industry produces 1.76 billion litres of milk and milk permeates, much of which is concentrated or dried and sold in animal feed, a low value-added market. The approximately 40 kt/yr of lactose contained in these streams represents an opportunity to produce high-value biofuels and specialty chemicals, including biomonomers. The development of technologies to better exploit these solids could contribute to economic sustainability within the dairy industry.



Lactose, like other sugars, can be hydrolyzed and hydroxylated by an acid catalyst to produce lactic acid. Lactic acid is an important chemical element in the food, cosmetic, chemical and pharmaceutical industries. It is a promising chemical platform for acrylic acid, as a monomer for polylactic acid and for biochemicals.

This project will explore catalytic and reactor technologies to produce a polymer-grade lactic acid solution in water from whey permeate.



The proposed process consists of several steps:

- About 96% of the lactose present in the whey permeate will be converted to glucose and galactose by catalytic hydrolysis with a heterogeneous catalyst with a tin and zinc base.
- The concentrated sugar solution will be converted to lactic acid by dehydroxylation over a Lewis acid catalyst, such as zeolite Sn-beta, with a sugar conversion of 99% and a lactic acid yield of 66% to 75% at 150-200 °C.
- Several reactor technologies, including fixed beds, fluidized beds, rotating disk reactors and ultrasonic reactors, will be evaluated in terms of process intensification efficiency.

In collaboration with Novalait, BOSK, a biopolymer manufacturer, and other stakeholders, technological pathways will be evaluated during the project development phase to improve the feasibility of the process, while meeting the expectations of end users.

There is a current trend in society urging industry to develop environmentally responsible, sustainable, and biobased technologies. The proposed process represents an effective alternative to fermentation to convert lactose into lactic acid from dairy co-product streams.

New silage production technique to reduce crop losses and improve silage quality

Édith Charbonneau, Université Laval

Fodder is an integral part of dairy cow feed and often the backbone of an efficient and profitable dairy farm. To successfully preserve fodder as silage, harvested material must be pre-wilted, increasing its dry matter (DM) content from 20% to a value that depends on the type of storage. Unavoidable losses occur during the pre-wilting of harvested fodder since soluble carbohydrates are lost due to plant respiration and the conversion of part of the plant protein to non-protein nitrogen. In addition, pre-wilting in the field exposes fodder to physical DM losses and damage from rain, fungal growth, and potential mycotoxin development.

We propose determining the minimum pre-wilting period required as well as the type and minimum quantity of grains (e.g. corn or barley) and/or by-products (e.g. wheat bran, soybean husks or corn grain) to be added in various forms (e.g. ground or rolled) to freshly cut fodder (e.g. grasses or legumes) in order to ensile them faster and produce 30-35% DM silage. The addition of grains/by-products will increase the DM and fermentable carbohydrate contents of the mixture and will allow for the direct, or at least, very fast ensiling of fodder after mowing. This new type of mixed silage could be served alone or mixed in a ration ensuring that the starch content of the ration does not exceed the recommended limits. This new approach will minimize losses associated with post-harvest processing of fodder and may represent a potentially more environmentally friendly substitute for corn silage.

THE ADDITION OF GRAINS/ BY-PRODUCTS WILL INCREASE THE DM AND FERMENTABLE CARBOHYDRATE CONTENTS OF THE MIXTURE AND WILL ALLOW FOR THE DIRECT, OR AT LEAST, VERY FAST ENSILING OF FORAGE AFTER MOWING.

To our knowledge, no previous studies have been published to validate the proposed solution. We are proposing studies that will compare the fermentative profile, nutritional value, aerobic stability and ruminal fermentation in vitro (gas production, microbial protein synthesis and degradability of organic matter, neutral detergent insoluble fiber and starch) of silage made from pre-wilted fodder or freshly mowed fodder with the addition of grains/by-products.





New approach to optimizing the fertility and profitability of dairy cows and heifers

Marc-André Sirard, Université Laval

Cows in early lactation are increasingly experiencing fertility problems. This situation is partly caused by the natural metabolic deficit associated with high milk production. This deficit has impacts on numerous tissues including the ovary and uterus. This deficit can also directly jeopardize the expression of the genetic potential of the cow and possibly its daughter conceived in this context. By identifying cows that may have a fertility problem or that transmit an energy deficit signal to their daughters, we could make gains in three different areas:

- 1 Reduce drug and insemination costs;
- 2 Identify cows that have a suboptimal response to the diet being followed; and
- 3 Prevent metabolic programming responsible for decreased production and fertility in young females.

To achieve this, all inseminated cows from two selected herds will be part of the experiment. The BHB blood level will be measured on day 60 and blood will be kept for epigenetic analysis (DNA methylation analysis). For cows with a BHB level > 0.9 mM: 50% will be inseminated without synchronization (7-2-1) and 50% will be postponed to day 90. The same strategy will be applied to cows with a BHB < 0.9 mM. A comparison of the results of these four groups x two herds (n>96) will validate a personalized approach in relation to the BHB level to determine the best insemination strategy for each animal. For the epigenetic component, the mother's blood (DNA methylation analysis) will be analyzed according to the level of BHB (n=24, or six per group of two herds) according to the artificial insemination (AI) success rate. (< 2 or > 3 AI) depending on the next lactation and retention

in the herd. For heifer blood at birth (all Holstein females in year 1 from the two herds) (n = 60), DNA methylation will be analyzed according to the mother's BHB at day 60 (n = 12), according to calving time (+/- 90 days) and the number of months from the heifer to the first calving. Milk production of year 1 females will be measured over 305 days and compared according to treatments and standardized for Lifetime Performance Index (LPI). In addition, all possible variables will be isolated in order to compare whether high BHB is correlated with decreased fertility (mothers) and whether a phenotype in the daughter can be predicted for both milk production and fertility.

ALL POSSIBLE VARIABLES WILL BE ISOLATED IN ORDER TO COMPARE WHETHER HIGH BHB IS CORRELATED WITH DECREASED FERTILITY (MOTHERS) AND WHETHER A PHENOTYPE IN THE DAUGHTER CAN BE PREDICTED FOR BOTH MILK PRODUCTION AND FERTILITY.

Much has been done to optimize genetic traits but less to adapt the right environment for their expression. This new approach is more complex because it is personalized to the farm and the animal, but represents a potential for short, medium and long-term gain insofar as it focuses on the critical points to be controlled. The objective is to better adapt the calf redelivery procedures to the situation of each cow and to validate the consequences (benefits) of this approach as well as its feasibility on the farm.



20
COMPANIES FROM
FOUR REGIONS OF
THE PROVINCE
WILL PARTICIPATE
IN THE PROJECT.

Development of an extensive network of partners

The first collaborations were developed with partners established in the regions and with expertise in applied research, sustainable development and regenerative agriculture. These partners—Agrinova, CIARC and UPA-Montérégie—mobilized 20 innovative farms spread over the Bas-St-Laurent, Estrie, Montérégie and Saguenay-Lac-St-Jean regions. At the same time, Novalait and research leaders from Université Laval and Agriculture and Agri-Food Canada brought together approximately thirty enthusiastic researchers working in real conditions associated with a living laboratory to address the challenges of co-development. The development of additional collaborations with a network of experts continues for data collection, carbon footprint calculations, the development of climate change strategies and support for the implementation of beneficial management practices on farms. Key stakeholders in the dairy sector in Quebec and Canada have supported the Carbon-Neutral Milk Living Laboratory. Their expertise will be put to use in the network's planning meetings and for the dissemination of knowledge from the living laboratory.

CARBON-NEUTRAL MILK LIVING LABORATORY

Les Producteurs de lait du Québec have mandated Novalait to develop the Carbon-Neutral Milk Living Laboratory and will entrust it with the management of the project over five years (from April 1, 2023 to March 31, 2028). The project has received \$7 million in funding through the Agricultural Climate Solutions program. In addition to this contribution from Agriculture and Agri-Food Canada, Novalait has contributed a total of \$500,000. Twenty companies from four regions of the province will participate in the project. The Carbon-Neutral Milk Living Laboratory aims to support dairy farmers in reducing their carbon footprint by measuring the impacts and benefits of adopting co-developed and improved management practices that are beneficial and adapted to the context of different types of dairy farms.

What makes the Carbon-Neutral Milk Living Laboratory stand out?

The Carbon-Neutral Milk Living Laboratory research unit consists of a dairy farm in its entirety—soils, crops, herds, and manure. The objectives are to reduce the carbon footprint of dairy farms by co-developing and improving management practices available to dairy farmers. A five-year continuous innovation process will begin with data collection on each of the 20 farms for the calculation of their carbon footprints. Researchers and partners will then propose strategies adapted to each farm to improve their carbon footprint. These strategies will be discussed with farmers and their advisors. Dairy farmers will have

the final say on the beneficial management practices they wish to adopt. Farms will receive implementation support in the form of training, consulting services and technical assistance. Researchers will deploy protocols to improve the carbon footprint measurements, models and beneficial management practices in the fields, in the barn and for manure management. A team of researchers will focus exclusively on the human aspect by studying the major adoption factors for farmers and communications within the living laboratory. Regional and provincial activities will be organized to encourage the adoption of management practices on the periphery of pilot farms, to the largest number of dairy farmers.



LABORATOIRE
— VIVANT —
Lait carbon neutre

CURRENT RESEARCH PROJECTS 2022–2023

Projects underway in 2022-2023 include four chairs and 16 multidisciplinary team research projects.



Innovative practices on the farm

Bacteriocins of lactic bacteria: a natural approach for the control of thermophilic bacteria sporulated in silage

Principal investigator: Ismail Fliss, Université Laval

Financial contributions: CRIBIQ and NSERC

Educational Leadership Chair in Sustainable Agricultural Building Design

Principal Investigator: Sébastien Fournel, Université Laval

Financial contributions: AAFC-MAPAQ Canadian Agricultural Partnership, the Association des ingénieurs en agroalimentaire du Québec, Consultants Lemay & Choinière Inc., Consumaj Inc., Équipements Jolco Inc., Groupe Alco Inc., Industries et Équipement Laliberté Ltée, Industries Harnois Inc., Lactanet Inc., Les Consultants Mario Cossette Inc., Maximus, Technologies Intelia Inc., Zaxe Technologies Inc.

New silage production technique to reduce crop losses and improve silage quality

Principal investigator: Édith Charbonneau, Université Laval

Financial contributions: CRIBIQ and NSERC

Dairy farming and feed efficiency

Improving cows' protein diet through new models tested in Quebec

Principal investigator: Doris Pellerin, Université Laval

Financial contributions: CRIBIQ and NSERC

Optimizing the efficiency of proteins in rations

Principal investigator: Cristiano Côrtes, Agrinova

Financial contributions: CRIBIQ and NSERC

Cow's lipid diet and its impact on milk production, composition and technological properties

Principal investigator: Rachel Gervais, Université Laval

Financial contributions: CRIBIQ and MAPAQ

Variability of water quality on Quebec dairy farms and its effects on performance

Principal investigator: Véronique Ouellet, Université Laval

Financial contribution: MAPAQ

Cow welfare, reproduction and health

Research and Innovation Chair in Animal Welfare and Artificial Intelligence (WELL-E)

Joint holders: Elsa Vasseur, McGill University and Abdoulaye Baniré Diallo, UQAM

Financial contributions: NSERC, Dairy Farmers of Ontario, Lactanet Canada, Les Producteurs de lait du Québec, Dairy Farmers of Canada, Prompt

Deciphering the molecular mechanisms of infertility in lactating dairy cows with subclinical acidosis

Principal investigator: Raj Duggavathi, McGill University

Financial contributions: CRIBIQ and NSERC

New approach to optimizing the fertility and profitability of dairy cows and heifers

Principal investigator: Marc-André Sirard, Université Laval

Financial contributions: CRIBIQ and NSERC

NSERC-MAPAQ-NOVALAIT-DFC Industrial Research Chair in Biosafety of Dairy Production

Holder: Simon Dufour, Université de Montréal

Financial contributions: NSERC, MAPAQ, Dairy Farmers of Canada

Process technology and eco-efficiency

Educational Leadership Chair in Cheese Technology

Holder: Julien Chamberland, Université Laval

Financial contributions: AAFC-MAPAQ Canadian Agricultural Partnership, Agropur Cooperative, Centre d'expertise fromagère du Québec, Conseil des Industrialists Dairy du Québec, Lactalis, Saputo

Co-product valorization

An eco-efficient approach to valorizing buttermilk

Principal investigator: Guillaume Brisson, Université Laval

Financial contributions: CRIBIQ and NSERC

Prospective study on the valorization of non-fat milk solids and processing co-products

Principal investigator: Alain Doyen, Université Laval

Financial contributions: CRIBIQ and Canadian Dairy Commission

From milk to packaging

Principal investigator: Gregory Patience, École Polytechnique

Financial contributions: CRIBIQ, NSERC and BOSK

Milk Quality

How do milk's natural microflora and composition contribute to cheese quality?

Principal investigator: Steve Labrie, Université Laval

Financial contributions: Agriculture and Agri-Food Canada, Dairy Farmers of Canada

Presence and impact of microbial biofilms on milk quality, from the farm to dairy plants

Principal investigator: Denis Roy, Université Laval

Financial contributions: Agriculture and Agri-Food Canada, Dairy Farmers of Canada

Creation of a collection of microorganisms associated with non-compliant and atypical dairy products

Principal investigator: Julie Jean, Université Laval

Financial contributions: CRIBIQ and MAPAQ

Dairy Alliance

Principal investigator: Gisèle LaPointe, University of Guelph

Financial contributions: NSERC, Dairy Farmers of Ontario, Dairy Farmers of Canada, Lactalis, Lallemand Inc.

Artificial intelligence tool for the rapid and accurate identification of pathogenic mastitis and spoilage microorganisms in milk

Principal investigator: Arnaud Droit, Université Laval

Financial contributions: CRIBIQ and MAPAQ



> For more information on each project, visit novalait.ca

Novalait

Research Catalyst

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