



Annual report
2016.2017  

Novalait
Research Catalyst



Company profile

A strong vision

Created by **Quebec dairy farmers** and **processors** to invest in research, **Novalait** develops **solutions** and the **expertise** that dairy companies need to innovate.

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Conception and credit

Redaction: Novalait

Design: Isabelle Jobin, graphiste

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- Jessica St John
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- Mario Duchesne
- Novalait
- Producteurs laitiers du Canada
- Simon Dufour
- Shinae Hartley
- Valacta

A unique business model

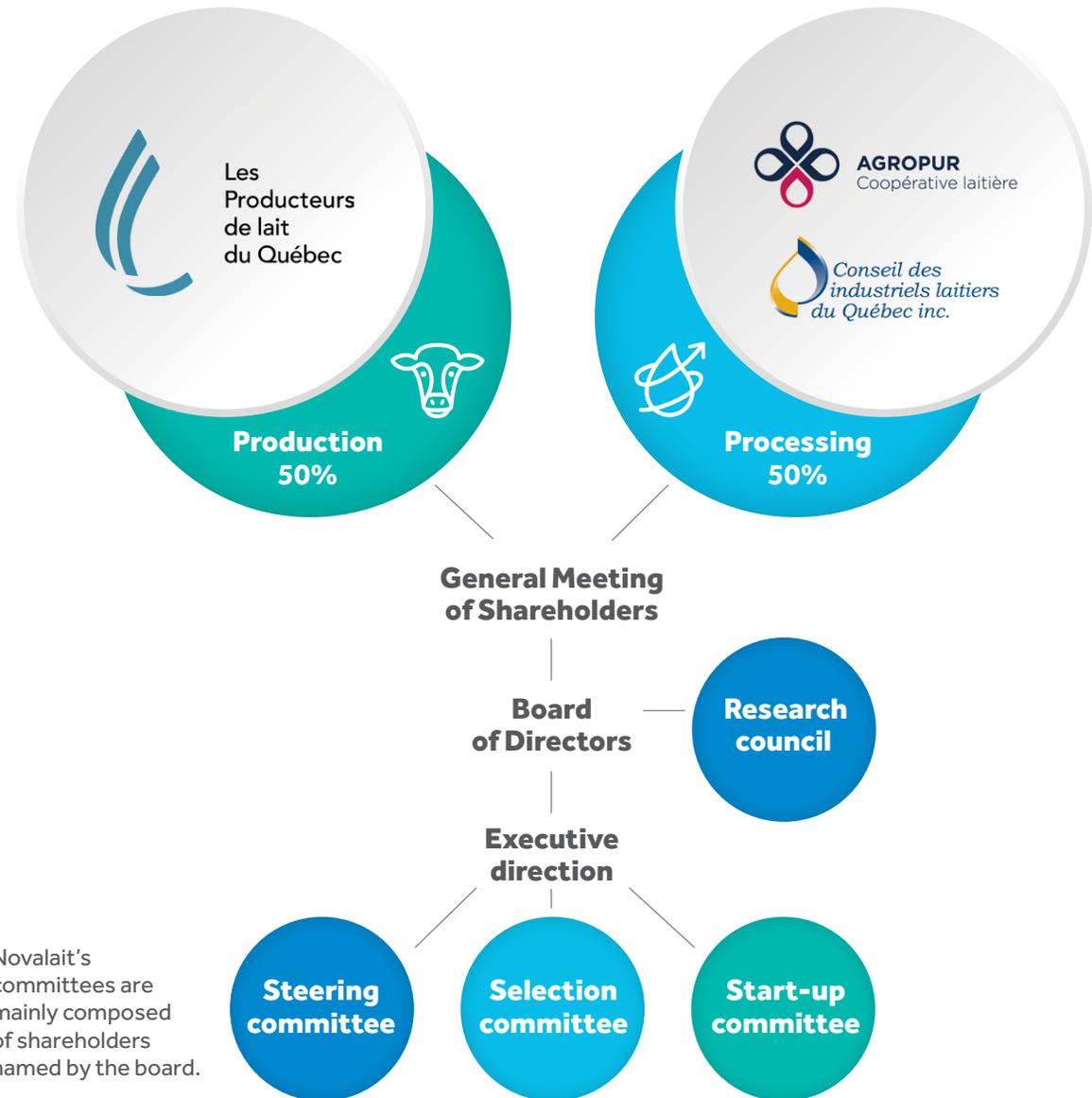
Novalait brings together all businesses that produce or process milk in Quebec – from small-scale cheese factories to family farms to multinational companies – making contributions to the research investment fund equivalent to €1.27/100 l of managed milk. They are represented within Novalait by three groups of shareholders. Les Producteurs de lait du Québec holds 50% of Novalait's 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's shares.

Calling upon the creativity and expertise of researchers from all disciplines and horizons, Novalait ensures that it meets its shareholders' research priorities. Novalait's committees evaluate the proposals received according to the potential for commercial 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 transfer of research results. In everything it does, Novalait aims to optimize benefits for dairy farmers and processors.

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

Establishing research priorities	Selecting and monitoring projects	Transferring research results
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Shareholding and organizational structure



Board of Directors

2016-2017

Novalait is governed by six experienced administrators who represent the three groups of Novalait shareholders.

Novalait wishes to underline the exceptional contribution of **Mr. Donat Roy** in the creation of Novalait. Mr. Roy believed in gathering collective strength to advance a cause. He was a key builder of Quebec's dairy industry and an outstanding ambassador of Novalait. Following the demise of Mr. Roy, the Board of Directors wanted to pay tribute to this great man for its unique contribution to the development of the Quebec dairy sector and Novalait.

President
Réal Gauthier

Les Producteurs de lait
du Québec



Administrator
Michel Couture

Agropur cooperative



Vice-President
Charles Langlois

Conseil des industriels
laitiers du Québec



Administrator
Geneviève Rainville

Les Producteurs
de lait du Québec



Secretary-Treasurer
Simon Robert

Agropur cooperative



Administrator
Carole Thibault

Conseil des industriels
laitiers du Québec



A Word from the President and Executive director

The focus of our work: research that responds to the challenges faced by dairy companies

An enriched selection process

Choosing the right R&D projects is critical to obtaining the knowledge that dairy companies expect and need. Novalait's Board of Directors is responsible for making research investment decisions at the conclusion of a stringent and transparent review process. The Board of Directors designates evaluators and decides on the selection modalities and criteria. Whether it is a spontaneous submission or a response to a call for proposals, all R&D projects go through the same process. Starting this year, the teams retained for the final selection must present their project in person. The objective: to improve harmonization between research and the specific challenges shared by dairy companies. All of the researchers, specifically those who were recruited or scientists who were not as familiar with the dairy sector, appreciated the new initiative.

Findings on dairy research expertise in Quebec

With three university faculties dedicated to agriculture and veterinary medicine, multiple Agriculture and Agri-Food Canada R&D centres, as well as centres of expertise and technological transfer, Quebec's dairy sector has a vast network of experts to rely on. In response to a Novalait survey, approximately 50 researchers identified themselves as specialists who are active in dairy research. Out of this number, more than half will be eligible to retire within ten years. During its annual retreat, Novalait brought together university deans and different stakeholders to share strategies for renewing scientific resources. Since its creation, Novalait has supported six industrial research chairs, creating eight research positions in strategic areas for the dairy industry.

Novalait defends its business model

When Novalait was created, its founders agreed that it would be more effective and fair for stakeholders to transfer tax credits to Novalait for research. All of the dairy farmers and processors contribute the equivalent of ¢1.27/100 l of managed milk to Novalait's share capital. Individually, for most of these companies, this contribution to research makes it difficult to justify investing in human and financial resources to manage a tax credit claim. Pooled together, Novalait reinvests its tax credits in research and development for the benefit of the entire dairy sector. In 2015, following a tax revision, the Canada Revenue Agency decided to no longer give Novalait the tax credits it claimed. As the Board of Directors has always considered itself entitled to the credits, it decided to appeal the decision to the Tax Court of Canada. The case will be heard over four days, from November 28 to December 1, 2017.

Acknowledgements

To conclude, we would like to thank the members of the Board of Directors for their enlightened and dedicated governance of the organization. The precious time that our many volunteers dedicate to selecting and monitoring projects is priceless and beneficial to the entire industry. Thank you to the scientific community for its renewed interest in the challenges faced by the dairy industry. Last but not least, we would like to thank Valérie, the essential ingredient to making all of our projects a success.

Eight researcher positions, responding to strategic issues of the dairy industry, were created thanks to Novalait's research investments.



Réal Gauthier, president of Novalait
Élise Gosselin, CEO



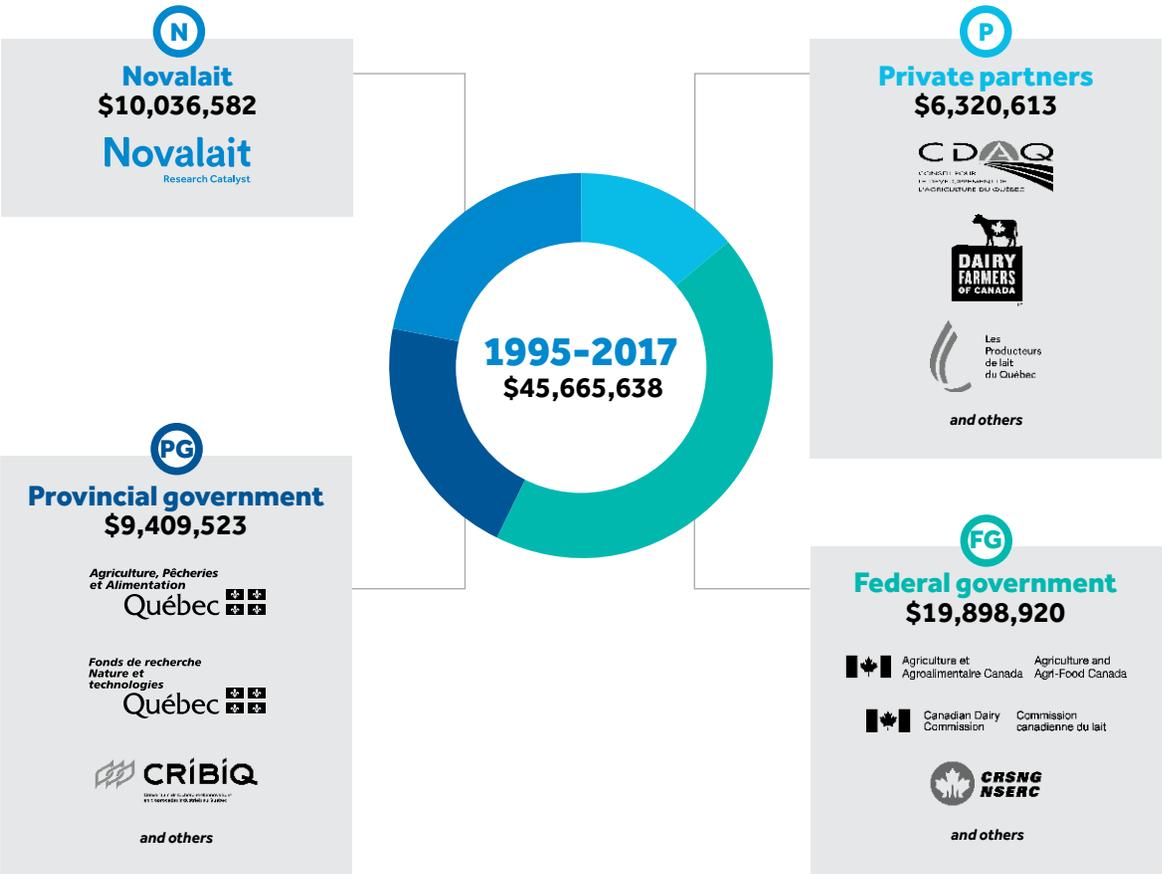
Novalait in numbers

Since 1995 – \$45.7 M invested in R&D for the dairy sector

Powerful leveraging

Novalait leverages its shareholders' investments in research by multiplying its partnerships.

Investments in dairy R&D 1995–2017



\$1,549,293
invested in R&D projects currently underway

60
responses from shareholders to the survey on research priorities

56
researchers involved

60
students in training

Solutions and expertise

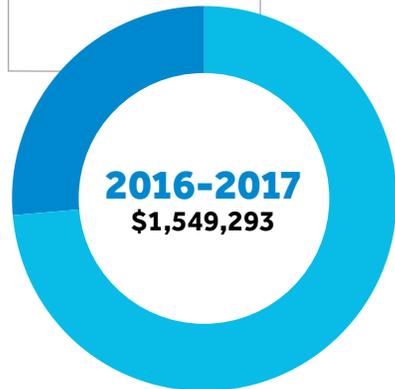
In addition to the results it generates, Novalait's investments in R&D train world-class professionals with an awareness of the issues and challenges faced by dairy companies in Quebec.

Novalait's activities mobilize an important network of researchers to respond to the scientific challenges in the dairy sector.

Annual R&D expenditures

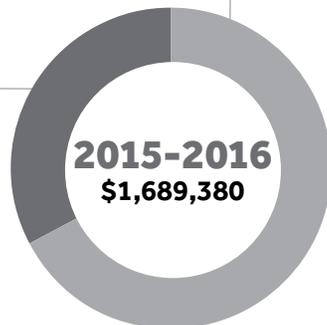
N Novalait \$407,418

P Partners \$1,141,875



N Novalait \$553,436

P Partners \$1,135,944



Highlights 2016–2017

During the fiscal year, Novalait analyzed more R&D proposals and increased the amount of feedback provided to researchers. Novalait's shareholders responded to the challenge of evaluating, orienting and monitoring more R&D projects. Thank you!

19 R&D proposals analyzed

6 selection committee meetings

5 feedback meetings with researchers



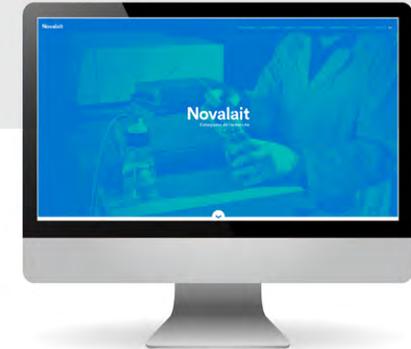
3 chairs and 14 R&D projects currently underway

More than 20 farms and dairy plants provided samples and data

7 steering committee meetings



Communications 3.0



Novalait.ca

3,152 users and **14,063 page views**

3 pages viewed on average

52 % of visitors visit more than one page

66 % are new users



Lait'Xpress

Newsletter launched on **October 6, 2016**

Already nearly **300 subscribers**
Sign up today!

Research

Newly launched projects

METABIOLAC leverages the power of lactic acid bacteria

Launched on December 5, 2016, the METABIOLAC Industrial Research Chair quickly reached cruising speed. The research team is studying the antimicrobial activity of lactic acid bacteria to identify protective cultures with the potential to naturally prolong the shelf life of food – for example, a conservation agent that could preserve the freshness of smoked salmon up to three weeks in the refrigerator. In food processing, these substances provide alternatives to the traditional additives in yogurt, cheeses and meat. In animal production, they can improve the quality of carcasses and even replace antibiotics as growth factors. Materials integrating natural antimicrobials are also being developed, such as a single-use napkin for cleaning a cow's udder before milking.



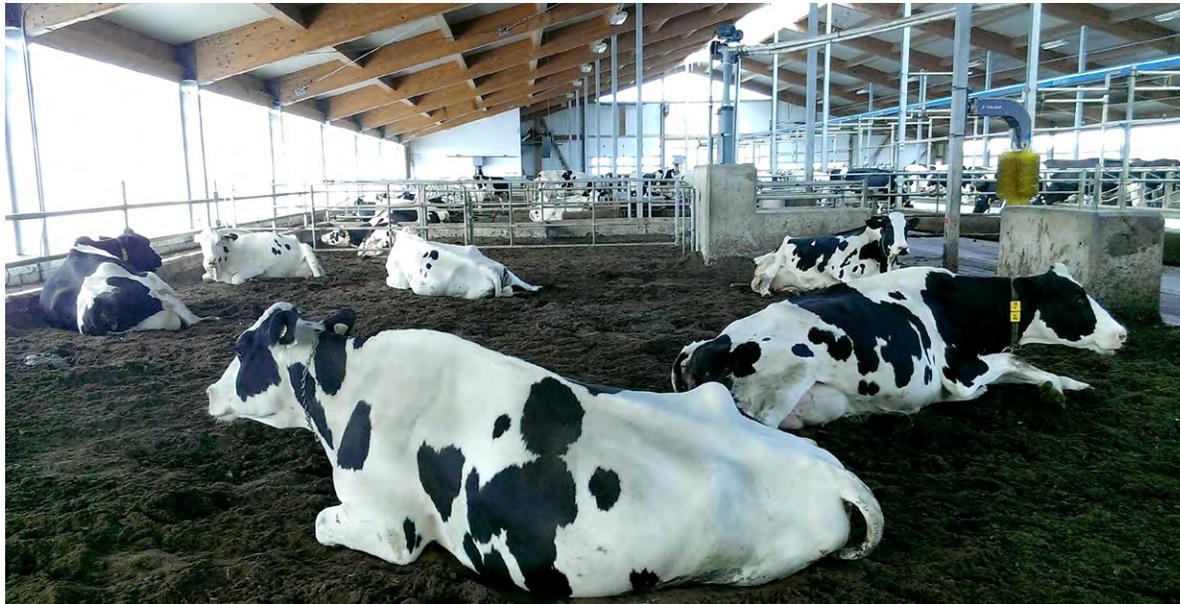
From left to right: Nathalie Gauthier, Director of Innovation, Cascades Canada; Sylvain Fournaise, Vice President, Food Safety and Technical Services, Olymel; Jean Morin, Director of Research & Development, Cascades; Élise Gosselin, Chief Executive Officer, Novalait; Simon Beaudoin, Vice President of the Food & Beverage Division, Sani Marc; Ismail Fliss, Chairholder, Université Laval; Antoine St-Cyr, Director of Animal Production, La Coop fédérée; Laura Boivin, President, Fumoir Grizzly; Patrick Marchand, Innovation and Development Director, Sani Marc; Émilie Desfossés-Foucault, R&D Director, Biena; Marisa Gattuso, Food Safety Director, Olymel.



Professor Ismail Fliss, METABIOLAC Chairholder, Université Laval.

Supervised by Professor Ismail Fliss, a Université Laval researcher, the chair brings together more than a dozen master's and doctoral students, serving to prepare tomorrow's professionals. It has also allowed for the creation of a research position in the microbiology of agri-food systems. Congratulations to professor Marie Filteau on her new position! Novalait funds the chair's research along with the Natural Sciences and Engineering Research Council of Canada and industrial partners Biena, Cascades, Grizzly Smokehouse, La Coop fédérée, Olymel and Sani Marc.





Recycled manure bedding: Does it affect milk?

Processing manure into comfortable bedding for cows is attracting the interest of dairy farmers. However, the practice often raises questions about the quality of the milk produced. A new research project will be studying the impact of different dejection recycling methods (by separator, windrow composting or rotating drum). It aims to quantify the risks for animal and human health, as well as to establish recommendations for the production and safe use of recycled manure bedding.

+ 90
than
farms

will participate in the data collection phase for this project, with some using recycled manure bedding and others using traditional bedding.



Audrey St-Yves, a master's student with the Industrial Research Chair on Sustainable Life of Dairy Cattle at McGill University.

Predicting cow well-being through milk

Being able to evaluate the well-being and health of cows is a prerequisite for application to the proAction certification program in Canada. Could a simple milk sample satisfy the requirement? This project aims to develop reliable indicators for the detection of signs of discomfort or disease in dairy cattle production. It will also evaluate the possibility of monitoring the level of cow well-being and milk production.



This project is being led in collaboration with the Valacta Production Centre of Expertise.

Research in progress: with thanks to our partner companies!

Numerous dairy companies have contributed to Novalait's research. Their practical support helps us to get a better grasp on current commercial realities. Whether a participating farm or dairy plant, you make our research come alive. Thank you!

Cheddar test subjects

As part of a research project on the ageing of cheddar, Novalait approached cheesemakers for samples. Five of them quickly responded to the request and the scientific team was able to obtain the material required to validate ageing markers. In the long run, the team hopes to develop a diagnostic tool capable of predicting the ageing potential of cheddars to facilitate lot selection. All thanks to a few hard cheddar "guinea pigs"!

 To learn more, consult the [factsheet](#)

Eco-efficient production of Greek yogurt

Novalait has invited Greek yogurt producers to participate in a consultation on process efficiency. The study aims to evaluate the environmental and economic performance of different methods for Greek yogurt production and the valorization of its co-products. Its desired end result is a decision-making tool that can be used by dairy processors. Numerous dairy companies have participated in the project and data analysis is currently underway.

 To learn more, consult the [factsheet](#)

New scholarship recipients

The Canadian Dairy Commission Scholarship Program, managed by Novalait, came to an end this year with the awarding of two final master's scholarships.



Jessica St John
McGill University



Isabelle Fournier
Université Laval

Project

Impacts of modification to the height and position of tie-rails on the well-being of dairy cows housed in tie-stalls

Project

Improving cheesemaking performance of dairy concentrates through inverse osmosis at the curd washing stage

In its more than ten years in existence, the program awarded more than 30 master's scholarships and three doctoral scholarships. Combined with funding from Novalait for skills development, it has contributed to the training of young professionals ready to tackle the challenges faced by the dairy industry.

In more than ten years:

30 + 3
master's scholarships + doctoral scholarships



Current research projects 2016–2017

Novalait supported three industrial research chairs and 14 research projects currently in progress for 2016–2017. These projects were funded with support from sectoral ministries, funding agencies and private partners in Quebec and Canada. Our funding partners support research that responds to the priorities established by our shareholders.

Industrial Research Chairs



2016–2020

NSERC-Novalait-Dairy Farmers of Canada-Valacta Industrial Research Chair in Sustainable Life of Dairy Cattle

Elsa Vasseur, McGill University



2014–2018

NSERC–Novalait Industrial Research Chair on Process Efficiency in Dairy Technology

Yves Pouliot, Université Laval

2016–2021

Industrial Research Chair in Metabolic Activity and the Functionality of Bioprotective Lactic Cultures – METABIOLAC

Ismail Fliss, Université Laval

NOVALAIT – FRQNT – MAPAQ Partnership for Innovation in Dairy Production and Dairy Processing (2011–2017)



2013–2017

Adjusted milking during transition periods to better control negative energy balance and its consequences

Simon Dufour, Université de Montréal

2014–2017

Improving fodder grass in the context of climate change

Édith Charbonneau, Université Laval



2012–2016

Do mechanical treatments have an impact on the technological quality of milk?

Yves Pouliot, Université Laval

2013–2016

Development of an innovative green biotechnology for the valorization of cheese co-products: the Biobac process

Michèle Heitz, Université de Sherbrooke

2013–2017

Prevalence of microorganisms in silage and raw milk and their impacts on dairy product quality

Denis Roy, Université Laval

2013–2016

Impact of the dynamics of the process and composition of fermented dairy products on their stability and rheological qualities

Sylvie Turgeon, Université Laval

2014–2017

Systems biology applied to cheddar

Sylvain Moineau, Université Laval

2014–2017

Greek yogurt production and its impacts on co-products

Gisèle Lapointe, Université Laval

2014–2017

Improving eco-efficiency in milk processing by optimizing the usage of milk components: the case of Greek yogurt

Yves Pouliot, Université Laval

NOVALAIT – CRIBIQ – FRQNT Partnership for Innovation in Dairy Production and Dairy Processing (2015–2020)



2016–2019

Pushing back the insemination of cows in metabolic stress to day 120: an idea to validate for the health and profitability of the herds

Marc-André Sirard, Université Laval

2016–2018

Improving the history of health and fertility traits in dairy cattle

Claude Robert, Université Laval

2017–2020

Searching for the microflora of local milks and cheeses

Simon Dufour, Université de Montréal

2017–2020

Can milk analysis predict the level of well-being and health of dairy cows?

Elsa Vasseur, McGill University



2016–2019

Searching for the microflora of local milks and cheeses

Steve Labrie, Université Laval

Results

Three research projects were concluded during the 2016–2017 fiscal year and two industrial research chairs pursued their research activities. Their results point to positive impacts for farms and dairy plants.

Production

Improving energy balance through adjusted milking

Who would have thought that we would one day recommend that dairy farmers leave milk to freshly calved cows? That's exactly what Simon Dufour, a researcher at the Université de Montréal, Faculty of Veterinary Medicine, has done. According to his work, reducing milking during the first week of lactation helps to maintain the cow's energy balance while reducing the risk of acetonemia, a disease that weakens the animal's forces and affects its production.

The research team evaluated an adjusted milking protocol on more than 800 Holstein cows in 13 herds in Quebec. Their conclusions? By only taking 10 litres of milk daily for three days post calving, 12 litres the fourth day and 14 litres the fifth day, dairy farmers decrease the risk of acetonemia in cows by more than 50% in comparison to traditional milking for the duration evaluated. Cows who were subject to the adjusted milking showed no signs of discomfort, remaining standing for just as long as those in the control group. More good news: Their production levels did not see a decrease. In 44 weeks of lactation, they delivered the same amount of corrected milk (containing a determined proportion of fat and protein).



"I continued following the adjusted milking protocol after the research project. I like being at the forefront of my industry, plus I'm increasing my chances of keeping my cows' immune system in good shape with this practice."

Mr. Émilien Roy,
Ferme Romili,
Saint-Damase in
the Montérégie
region of Quebec



Adjusted milking could become a preventive practice to reduce acetonemia in herds. More than 40% of Quebec's herds are victims of this silent disease, which costs an average of \$300 per case. This new protocol therefore has the potential to create a significant impact.

 **To learn more about the adjusted milking project, look for the November issue of the journal *Le producteur de lait Québécois* and the summary of the presentation given at the 2017 Dairy Cattle Symposium presented by CRAAQ.**

+
than **800**

Holstein cows

have been evaluated
by the research
team

+
than **40%**

of herds

are victims
of acetonemia
in Quebec



Different tie-rail positions at McGill University's experimental farm.

Cow comfort for everyone's benefit

The Chair in Sustainable Life of Dairy Cattle, created by Novalait at McGill University, is celebrating its first anniversary. Chairholder Elsa Vasseur now supervises approximately ten students at the master's and doctoral levels. And the research they're conducting is promising!

The team is developing methods to improve the comfort level of cows in tie-stalls. For example, what chain length makes it easier for animals to move around in the stall? And where should the tie-rail be placed to reduce injuries? The preliminary results indicate that it is preferable to attach the tie-rail to the cow's natural neckline. Several of the modifications studied would be easy to implement in barns.

The experts also studied the hidden benefits of animal welfare. To determine if a cow's comfort increases its longevity, they compiled data collected between 2007 and 2015 on approximately 100,000 cows from more than 500 herds. The analysis aims to identify the key factors that influence the longevity of dairy cattle (and, as a result, their profitability), as well as the management practices that are most beneficial in this respect. The information drawn from the milk recording and milking robots also serves to establish comfort level indicators.

The chair will soon be publishing recommendations to facilitate implementation of the proAction Canadian certification program for dairy farms. In the mid-term, she will be evaluating the effects of the modifications suggested on cow productivity and health.

▶ To stay up-to-date on the chair's activities, subscribe to the blog cowlifemcgill.blogspot.com and watch the [video capsule](#) available at novalait.ca



Elsa Vasseur, Industrial Research Chair in Sustainable Life of Dairy Cattle, McGill University.

Between **2007**
and **2015**
data have been collected
on approximately 100,000
cows from more than 500
herds

The preliminary results indicate that it is preferable to attach the tie-rail to the cow's natural neckline.

Processing

Do mechanical treatments affect milk quality?

Milk undergoes a lengthy process before it becomes cheese. But how do all of these mechanical treatments modify its physico-chemical properties and its processing capability? Above all, what effect do they have on cheese yield? That's what researcher Yves Pouliot, at Université Laval's Department of Food Sciences, is trying to understand.

The researcher has studied the effects of mild treatments (pumpage, skimming) and intense treatments (churning, homogenization) on milk's characteristics. The good news: These mechanical operations did not modify the milk's capacity to coagulate. Nothing changed in the fat content distribution, the properties of casein particles or the balance between the colloidal and soluble phases. In addition, the cheese yields remained the same. The only exception concerns the churning of cream, which produces a buttermilk whose fraction's technological qualities are inferior to those of milk. These results have served to reinforce the practices currently implemented in the industry.

The research team then verified if the partial homogenization of the fat content in milk modifies the cheese structure. The test was positive as the milk's starting fat content, as the proportion of homogenized fat, changed the composition of the finished product. The cheese showed increased moisture and fat retention, all while maintaining the same protein level. The yield also increased. Thanks to a non-conventional use of homogenization, it is therefore possible to optimize milk's characteristics to control cheese composition, all while increasing productivity. The next step in the project will be to complete large-scale testing to validate the results and anticipate their real impact in the industrial context. In the end, dairy processors will have a new way to leverage the technology's potential.



 Watch the project's [video capsule](#)

Thanks to a non-conventional use of homogenization, it is therefore possible to optimize milk's characteristics to control cheese composition, all while increasing productivity.

A new solution for valorizing whey

Whey valorization is an ongoing concern for dairy processors. The way forward may be to reuse this cheesemaking co-product to produce components that can be used in green chemistry. Concretely, the lactose contained in whey or its permeate could serve as a source of nutrients in fermentation, a solution to replace the use of petroleum components. It is an idea that fascinates Michèle Heitz, a researcher at the Faculty of Engineering at Université de Sherbrooke.

The research team succeeded in biologically processing whey and its permeate into different alcohols. In a bioreactor, it exposed the raw material to a genetically modified bacterium. Through fermentation, it created two alcohols, acetoin and butane-2,3-diol (BD). A quantity seven times greater was produced in comparison to the initial strain. The microorganism was able to metabolize the whey's purified sugars, as well as its permeate. A second modification to the bacterium – this time resulting in BD synthesis – increased the maximal productivity nearly twenty-fold in comparison to the initial strain under the same fermentation operating conditions. Tests are still underway to determine the alcohol yield from whey and permeate fermentation with new-generation bacteria.

According to a preliminary analysis, production of BD from cheese co-products could reduce greenhouse gas emissions by 35% in comparison to the use of petroleum inputs.

In addition, this bioprocess would allow small and medium-sized dairy companies to valorize whey in the absence of a filtration system. It has the potential to produce greater economic benefits than current methods by creating high-value products.

FORUM
TECHNO
2018

Check out the program for the 2018 Forum Techno which will present the detailed results of this research.



Daniel Marchand-Tremblay, Filtration pilot plant obtained by the SERC-Novalait Chair, laboratory of food technology, Université Laval.

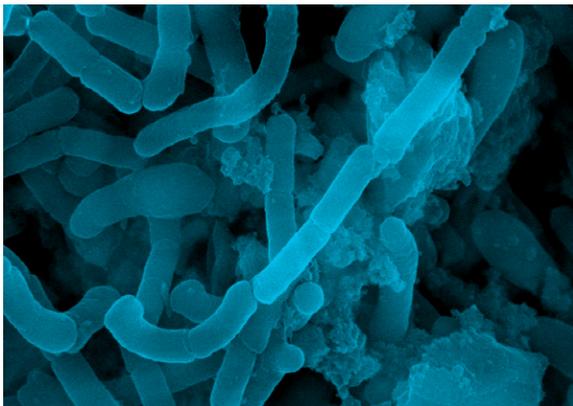


Image of a biofilm formed on the surface of a filtration membrane obtained by electron microscopy, Julien Chamberland, Université Laval.

Energy efficiency

Optimize the production of dairy products while reducing their environmental impact: such is the mission of the Chair in Efficiency of Milk Processing Methods, directed by researcher Yves Pouliot at Université Laval. Since its beginning, the team has welcomed 12 graduate-level students and the same number of interns, and it has already brought several discoveries to the industry. The participating dairy processors who are helping to orient the research appreciate the continuous collaboration since their exchanges throughout the project help them to better understand how they can appropriate the research results. Here are a few of the advances made this year:

Dairy concentrates

The chair has taken on the challenge of perfecting controls for dairy concentrates used in cheesemaking. It has demonstrated that 3X concentrate (with three times more protein than milk) conserves its viscosity for seven days, an attribute that is favourable in cheesemaking. It plans to study other properties of these substances, specifically how their mineral contents modify rennet activity and how their lactose contents contribute to a cheese's qualities.

Membrane types

The chair has also tested different types of membranes for milk filtration. The use of spiral polymeric membranes for milk filtration (casein separation) leads to superior hydraulic performance under operating conditions that require less energy, all while being more cost-effective than ceramic membranes with a permeability gradient.

The fight against biofilms

The biofilms that form on the surface of filtration membranes are a recurring problem in dairy processing. The chair is currently testing different methods for slowing the development of these layers of microorganisms in a bioreactor equipped with eight different membranes. The tests will provide information on the critical use time before a biofilm forms. While the material used only slightly alters filtration performance in the short term, its rough quality modifies the types of bacteria that adhere to it. In addition, chlorine washings wear out the surface, which accelerates the process. Research is ongoing to identify the number of washings that a membrane can withstand before becoming so rough that it retains bacteria.

Attaining energy efficiency through software

The chair is also developing software to evaluate the energy efficiency of dairy processes. The program simulates the flow of materials and energy in virtual plants, providing summaries similar to those obtained in real operating conditions. Thank you to our industry collaborators who have generously participated in the first step of the software validation process.

+ 12
than
students
from graduate-level
were welcomed by
the Chair since
its beginning

7
days
time for the
3X concentrate
to conserves
its viscosity

Impacts and benefits

Novalait selects research projects based on their potential impacts on farms and plants. Dairy farmers and milk processors can apply the results obtained in numerous ways. Here are just a few success stories.

Canadienne breed now recognized

Novalait is proud to have supported a research project that contributed to the establishment of reserved designations for cheeses from the Canadienne heritage breed. Currently six Quebec cheeses have obtained reserved they are produced according to specific production methods in the regions specified. They value the milk collected in almost all of the Canadienne herds.



Photo: Mario Duchesne

The research team led by Steve Labrie, at Université Laval, used genomics to identify the technological and microbiological characteristics of milk produced by different breeds. According to their work, the Canadienne cow has a genetic makeup that makes it well adapted to produce the raw material needed for fine cheeses. In comparison to other breeds, Canadienne cattle produce milk with high levels of proteins, fat content and minerals. The calcium concentration in Canadienne milk is also higher. These characteristics confer specific qualities to cheeses.

The reserved designations help to more easily differentiate high value-added products from Quebec and to recognize and promote the knowledge of Quebec dairy farmers and processors.

Heifers at the height of profitability

The Valacta Centre of Expertise recently made a tool available online to help dairy farmers choose the best time to inseminate heifers in order to optimize profits. The breeder needs only to enter the data on its heifer's growth in the Web Vision2000 platform or the Lac-T software program. The software then calculates the average daily weight gain and the percentile ranking, compares each cow's development to the breed chart and determines the ideal breeding date.

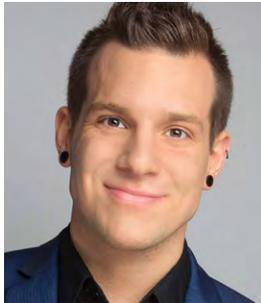
It all began with a growth modelling project on dairy heifers, supported by Novalait at the beginning of the 2000s, by the researcher Roger Cue at McGill University. The research team inventoried more than 140,000 weight and height recordings on cows raised in Quebec. The objective was simple: to learn if we can correctly estimate an animal's growth curve in order to integrate it into a decision-making tool for dairy farmers. It's now been scientifically proven!

Novalait is pleased to have participated in the early stages of knowledge development that has generated such a profitable tool. It is an excellent example of the synergy between Novalait, who develops knowledge, and Valacta, who integrates the knowledge into tools destined for dairy farmers.



Milk: an excellent source of ... creativity!

Thanks to the professionals trained within the framework of its projects, Novalait fuels innovation in companies in the dairy sector. Just as milk is an excellent source of calcium, these young professionals constitute an excellent source of creativity.



Dany Mercier-Bouchard
R&D project manager,
Ingrédients alimentaires
BSA Inc.



Liliana Fadul-Pacheco
PhD, post-doctoral
fellow at Valacta



Daniel Rico
PhD, researcher and
joint scientific director
at CRSAD

Research applied to project management

A graduate from the Chair in Efficiency of Milk Processing Methods at Université Laval, Dany Mercier-Bouchard compared the performance of different filtration membranes used in milk casein separation and characterized the optimal operating conditions. His master's degree allowed him to develop rigorous work methods.

“Working for a research chair exploring current issues in the dairy processing industry was a formative experience for me. It allowed me to gain an understanding not only of scientific issues, but also of issues related to profitability and dairy company operations. My frequent interactions with the industry allowed me to take a step back from my project and conduct a rigorous analysis of the results generated. I'll be able to apply the skills I acquired throughout my career and they are currently serving me well in my position as a R&D project manager.”

Decrypting milking robot data

Liliana Fadul-Pacheco obtained her doctorate as part of a chair studying milk components at Université Laval. Using databases from Valacta, she evaluated the effect of cows' nutrition on the fat and protein contents in their milk. The experience led her to discover the richness of information provided by farms. Thanks to an industrial post-doctoral grant, she is currently pursuing research on dairy cattle well-being and comfort, analyzing data from milking robots to generate comfort-level indicators.

“My post-doc at Valacta and McGill University has given me the opportunity to continue exploring data analysis, a current topic of interest, through the new technologies available on farms. It's an excellent way to enrich my knowledge of the field and to provide ground-breaking insights into technologies used by dairy farmers.”

A new researcher focusing on fat synthesis

After obtaining his doctorate in animal nutrition and physiology from Penn State University, Daniel Rico arrived as a post-doctoral fellow with the chair on milk components at Université Laval. His experience in Quebec convinced him to stay. He now holds a position as researcher and joint scientific director at the Centre de recherche en sciences animales de Deschambault (CRSAD). His research aims to gain a better understanding of fat synthesis in dairy cows.

“My post-doc at Université Laval allowed me to work on numerous research projects with the goal of improving milk quality. The research helped me to develop my understanding of the metabolism of dietary lipids in cows. As a new researcher, I'm establishing a research program to study all of the factors that influence fat synthesis in lactating cows. It's a subject that will definitely be of interest to Quebec's dairy industry.”

New researcher at work

To better respond to scientific and technological challenges in the dairy sector, Novalait is participating in the creation and renewal of research positions in strategic fields. Among other things, it contributes to the funding of industrial research chairs. Dairy farmers and processors also benefit from privileged contact with international-calibre researchers.



Marie Filteau

researcher and professor at the Faculty of Agriculture and Food Sciences, Université Laval

“New sequencing technologies allow us to catalogue the microorganisms that are present in a community, but we don’t yet understand how these bacteria interact with each other and how those interactions affect our food. By studying the microbial interactions in food, I hope to extract information that will make it possible to optimize the development of natural antimicrobials for specific applications in the agri-food industry.”



Those microbes in our refrigerators: ecosystems worth studying

Thanks to support from Novalait, the Chair in Metabolic Activity and the Functionality of Bioprotective Lactic Cultures — METABIOLAC was able to create a new research position at Université Laval in 2016. New researcher Marie Filteau is interested in the microbial interactions in food matrices. She is developing experimental approaches to better understand how microbial ecosystems work and how to manipulate them in order to ensure food quality and safety.



Novalait – accessible and present

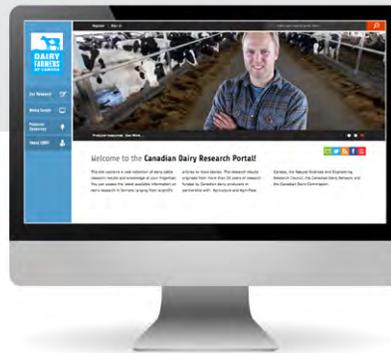


Invitation from Quebec's Chief Scientist

Novalait presented its unique model and research projects to the Boards of directors of three funding bodies from the Fonds de recherche du Québec (FRQs) gathered for their annual strategic discussions.

Invitation from Genome Canada

Genome Canada is in the process of developing a genomic strategy for the agri-food industry. Novalait participated in a strategic workshop bringing together leaders in animal production (dairy, beef, pork and poultry). Novalait's research initiatives in the field of genomics and the scientific challenges faced by the dairy industry were topics of discussion.



Up-to-date with the Canadian Dairy Portal

Novalait is widening the distribution of its factsheets and popular science articles on the Canadian Dairy Portal. The project, completed in collaboration with the Dairy Farmers of Canada, emerged following discussions with the Canadian Dairy Research Council.

Perspectives

➔ Funding partners

Novalait is strengthening and developing relationships with its partners to fund dairy research. The shareholders that represent Novalait, its credibility and its capacity to prioritize projects according to what brings the most benefits to dairy farms and plants are key assets in our discussions with partners.

➔ Consolidating critical masses of researchers

Novalait's shareholders have identified strategic research priorities to develop the dairy industry. A lack of expertise limits the research offer in certain fields. In the coming months, Novalait will be initiating the development of two new industrial research chairs which will lead to the creation of university professor-researcher positions in the scientific fields targeted.

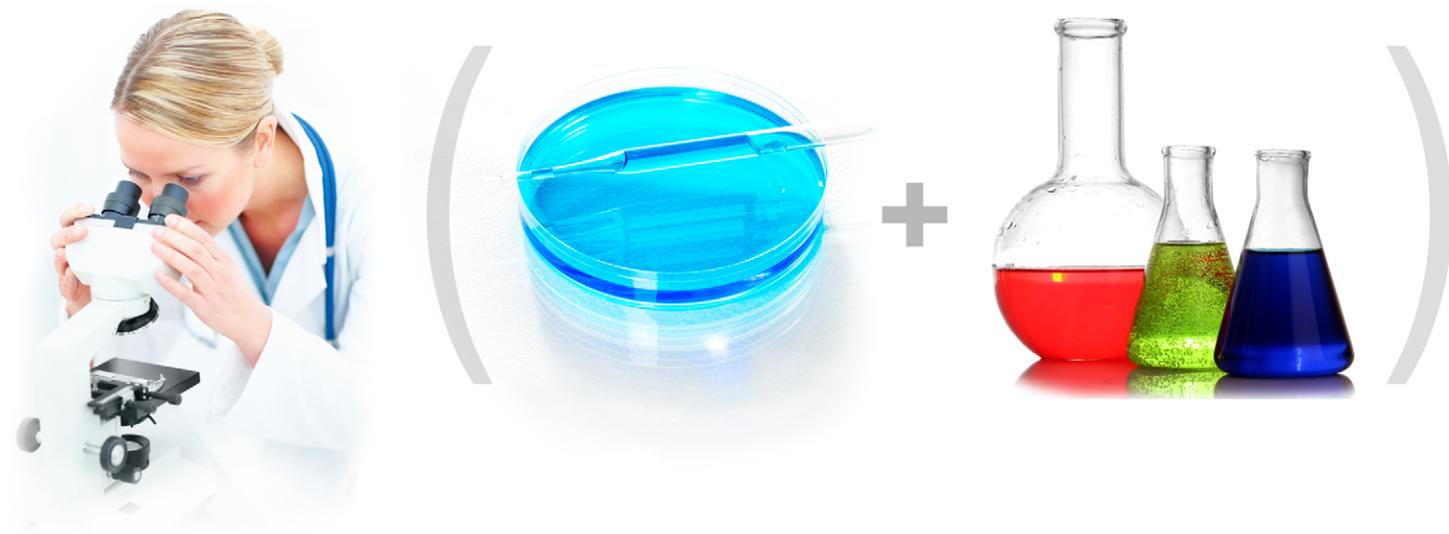
➔ 2018 Forum Techno

Novalait is continuing to perfect its formula for its technological forum, our flagship communications event. For the 2018 edition, expect new ways to discover Novalait's research results and the dynamic professionals trained within the framework of Novalait's research.





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