



2020 Research Highlights



Our Commitment to Research and Innovation

Dairy Farmers of Canada (DFC) invests in scientific research to foster innovation, increase farm efficiency and sustainability, enhance animal health and care practices, improve milk quality and strengthen the role of dairy in human nutrition and health.

DFC is proud to fund independent, credible research that is subject to a rigorous scientific peer-review process by external experts. When eligible, the organization aims to finance research through competitive, public programs to obtain matching funding contributions.

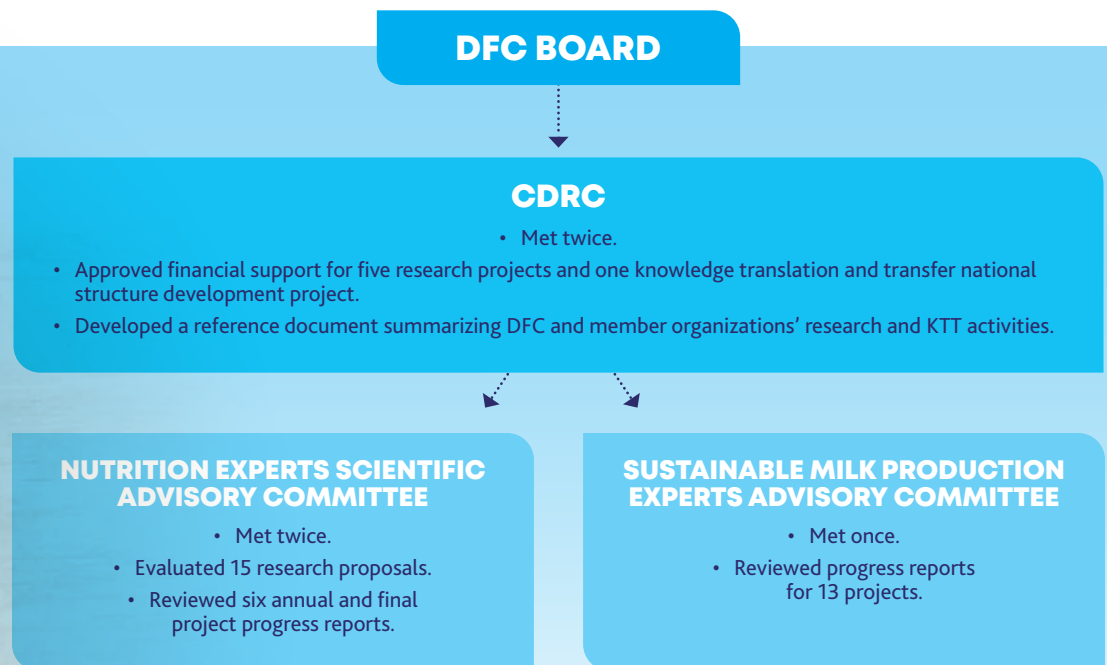
Governance

The Canadian Dairy Research Council (CDRC) directs DFC investments in dairy production and human nutrition and health research according to the priorities and targeted outcomes identified in the National Dairy Research Strategy and the annual research budget approved by DFC's Board of Directors.

The CDRC members include:

- six dairy farmers from DFC's Board of Directors (voting)
- technical representatives from member and partner organizations (non-voting)

Two scientific expert advisory committees evaluate research proposals, review progress reports and make recommendations to the CDRC for consideration when making decisions on research investments. The committees' members include independent scientists, technical experts, and specialists in dairy production and human nutrition and health.



2020 Research Investments and Partners

\$1.7 million invested in 2020 by DFC was boosted to a total of \$9 million by leveraging investments through grant programs and partnerships. DFC and 30 partners support scientific research to drive innovation in the Canadian dairy sector.



 Agriculture and Agri-Food Canada		
		
		
		
		
		
		
		
		
		

Investing in Our Dairy Future

Dairy Farmers of Canada works collaboratively with its members and partners to invest in scientific research that focuses on the dairy sector's priorities in the National Dairy Research Strategy.

RESEARCH PRIORITIES (2017-2022)



Dairy farm efficiency and sustainability

TARGETED OUTCOMES ✓

- New technologies and practices developed to optimize farm productivity and longevity of dairy cows
- Best management practices developed to minimize the environmental impact of milk production and enable adaptation to climate change
- Best farm management practices developed to support on-farm programs (i.e. proAction®)

INVESTMENT PRIORITIES 💰

- Genetic improvement
- Reproduction
- Dairy cattle nutrition
- Forage breeding and management
- Reduced environmental footprint

15%
of DFC investments



Animal health and welfare

TARGETED OUTCOMES ✓

- Reduced on-farm economic losses from production limiting diseases with zoonotic potential
- Improved health and welfare of cows, optimized productivity and longevity
- Better assessment of the impact of the evolving milk production environment on cows

INVESTMENT PRIORITIES 💰

- Calf management
- Infectious diseases mitigation
- Lameness
- Transition period
- Pain mitigation and euthanasia
- Sustainable barn design
- Barriers to adoption of best management practices

23%
of DFC investments



Milk composition, quality and safety

TARGETED OUTCOMES ✓

- Identified methods to naturally modulate milk composition to improve its quality and value, and potentially develop new products
- Reduced use of antimicrobials while maintaining farm biosecurity, dairy cattle health and welfare

INVESTMENT PRIORITIES 💰

- Microbiology
- Assessment of antimicrobial use in Canadian dairy herds
- Development of alternative tools and practices to antimicrobial use

4%
of DFC investments



Milk products and their components in human nutrition and health

TARGETED OUTCOMES ✓

- Clarified role of milk products in cardiometabolic health and healthy aging
- Provided data on the role of sugar-sweetened milk and yogurt on diet quality and health outcomes
- Strengthened role of milk products in musculoskeletal health
- Improved understanding of the value of dairy products in healthy, sustainable diets

INVESTMENT PRIORITIES 💰

- Full-fat dairy products and cardiometabolic health
- Sugar-sweetened dairy products and cardiometabolic health
- Dairy products and musculoskeletal health
- Sustainable diets

58%
of DFC investments

List of Ongoing Projects



Dairy Farm Efficiency and Sustainability

1. Understanding the impact of cutting-edge genomic technologies and novel phenotypes on breeding strategies for optimum sustainable genetic progress in Canadian dairy cattle (2018-2023)
Principal Investigator (PI): Christine Baes, University of Guelph
2. Designing a reference population to accelerate genetic gains for novel traits in Canadian Holsteins (2018-2023)
PI: Flavio Schenkel, University of Guelph
3. Optimizing health and production of cows milked in robotic systems (2018-2023)
PI: Trevor DeVries, University of Guelph
4. Reducing the water footprint of milk in current and future climates (2018-2023)
PIs: Andrew VanderZaag, Agriculture and Agri-Food Canada (AAFC)-Ottawa and Robert Gordon, University of Windsor
5. Increasing the production and use of alfalfa forages in Canada (2018-2023)
PIs: Annie Claessens, AAFC-Québec and Bill Biliget, University of Saskatchewan
6. Identification of best management practices for high quality silage production (2018-2023)
PIs: Nancy McLean, Dalhousie University and Linda Jewell, AAFC-St. John's
7. Integrating genomic approaches to improve dairy cattle resilience: A comprehensive goal to enhance Canadian dairy industry sustainability (2019-2022)
PIs: Christine Baes, University of Guelph, Paul Stothard, University of Alberta, Ronaldo Cerri, University of British Columbia and Marc-André Sirard, Université Laval
8. Genetic variability and trans-generational effects on production and reproduction in dairy cattle (2020-2022)
PI: Roger Cue, McGill University



Milk Composition, Quality and Safety

1. Antimicrobial stewardship and its impact on antimicrobial use, antimicrobial resistance, and animal health on dairy farms (2018-2023)
PIs: Javier Sanchez and Luke Heider, University of Prince Edward Island
2. The Mastitis Network: continuing the advancement of milk quality in Canada (2018-2023)
PIs: Simon Dufour, Université de Montréal and Pierre Lacasse, AAFC-Sherbrooke
3. Artificial intelligence to interpret and use milk fatty acids across Canada (2020-2023)
PI: Débora Santschi, Lactanet



Animal Health and Welfare

1. NSERC/Novalait/DFC/Lactanet Industrial Research Chair in Sustainable Life of Dairy Cattle (2015-2021)
Chair: Elsa Vasseur, McGill University
2. Unraveling susceptibility to John's disease (2018-2023)
PIs: Nathalie Bissonnette, AAFC-Sherbrooke and Kapil Tahlan, Memorial University of Newfoundland
3. Extending cow longevity on dairy farms by improving calf management practices in the first year of life (2018-2023)
PIs: Greg Keefe and J Trenton McClure, University of Prince Edward Island
4. Providing exercise to dairy cows by redefining indoor and outdoor spaces and best management practices (2018-2023)
PI: Elsa Vasseur, McGill University
5. Categorize practices and identify obstacles and limitations related to management of non-ambulatory cattle and euthanasia on the farms (2018-2020)
PI: Luc DesCôteaux, Université de Montréal
6. NSERC Industrial Research Chair on Dairy Cattle Welfare (2019-2023)
Co-Chairs: Dan Weary and Marina von Keyserlingk, University of British Columbia
7. NSERC Industrial Chair on Infectious Disease of Dairy Cattle (2019-2023)
Chair: Herman Barkema, University of Calgary
8. Evaluating the impact of long-distance transport on young dairy calves (2020-2022)
PI: David Renaud, University of Guelph
9. Assessment of the current status and opportunity for genetic selection to reduce the incidence of "Crampy" in Canadian Holsteins (2020-2022)
PI: Gerrit Kistemaker, Lactanet
10. Biosecurity 2.0 for the modern Canadian dairy farm (2020-2024)
PI: Simon Dufour, Université de Montréal



Milk Products and their Components in Human Nutrition and Health

1. Dairy product intake and cognitive function in free-living older adults (2018-2021)
PI: Stéphanie Chevalier, McGill University
2. Dietary protein quality assessment of milk in school-age children to meet the nutritional need for the most limiting amino acid, lysine, when combined with cereals (2018-2021)
PI: Rajavel Elango, University of British Columbia
3. The importance of milk and dairy products as determinants of vitamin B₁₂ status (2018-2021)
PI: Nancy Presse, Université de Sherbrooke
4. Whole milk to augment muscle protein synthesis in elderly women: A randomized, controlled trial (2018-2021)
PI: Stuart Phillips, McMaster University

As per research agreements, aside from providing financial support, DFC has no decision-making role in the design and conduct of the studies, data collection, and analysis or interpretation of the data. Researchers maintain complete independence in conducting their studies, own their data, and report the outcomes regardless of the results. The decision to publish the findings rests solely with the researchers.

5. Dairy consumption and cardiovascular disease in diverse populations (2018-2020)
PI: Andrew Mente, McMaster University
6. Students, schools, and society: Using a multi-level systems approach to understanding milk product consumption and reasons for under-consumption among Canadian high school students (2018-2020)
PI: Shannon Majowicz, University of Waterloo
7. Comparison of cheese, yogurt and milk effects on glucose homeostasis in rats fed high fat diet (2019-2022)
PI: Catherine Chan, University of Alberta
8. Role of dairy products in a healthy sustainable diet: modelling and comparing the carbon footprint and nutritional contribution of Canadian dietary recommendations (2019-2020)
PI: Julie-Anne Chayer, Groupe AGECO
9. Sensory and glycaemic properties of chocolate milk and fermented dairy products with reduced content of added sugar (2019-2022)
PI: Bodhan Luhovyy, Mount Saint Vincent University
10. Beneficial effects of dairy fat on postprandial intestinal and systemic immune function (2019-2021)
PI: Caroline Richard, University of Alberta
11. Novel effects of dairy in protecting against metabolic and inflammatory insults (2019-2021)
PI: David Wright, University of Guelph
12. The effects of long-term consumption of dairy products on satiety, body weight and glycemic control (2019-2023)
PI: Harvey Anderson, University of Toronto
13. The role of dairy products on body weight and metabolic health in families (2019-2023)
PIs: Angelo Tremblay and Vicky Drapeau, Université Laval
14. The importance of milk and other dairy foods in the maternal diet for maternal and child health (2020-2022)
PI: Catherine Field, University of Alberta
15. Role of dairy-associated branched-chain fatty acids in cardiometabolic disorders underlying type 2 diabetes: A longitudinal analysis in the PROMISE cohort (2020-2022)
PI: Anthony Hanley, University of Toronto
16. Novel effects of dairy protein on hepatic Omega-3 fat production (2020-2022)
PI: David Mutch, University of Guelph
17. Determination of true ileal amino acid digestibility in dietary protein sources commonly consumed by humans: Towards an international database of the protein quality of human foods - Phase III (2020-2022)
PI: Paul Moughan, Massey University, New Zealand
18. Role of dairy products in the prevention of type 2 diabetes (2020-2025)
PI: Sergio Burgos, McGill University

Building Dairy Research Excellence from the Ground Up

35 Research Institutions
124 Scientists
113 Students (M.Sc., Ph.D., Postdoc)
3,023 Dairy Farms collaborating on projects



Here are a few of the sector's many bright stars and their dairy research origins:

Dairy research excellence is achieved from the ground up by investing in the training and development of a highly skilled pool of experts in academic institutions across the country. DFC's investments in research help build networks of multidisciplinary scientific teams that include students of diverse backgrounds. Graduates go on to pursue careers in the dairy sector and it's their turn to contribute to training the next generation of dairy experts.

Trevor DeVries



Professor, Animal Biosciences
Canada Research Chair in Dairy Cattle Behaviour and Welfare

University of Guelph

- Ph.D. completed at the University of British Columbia (supervisor - M. Von Keyserlingk).
- Leads a Dairy Research Cluster 3 project on optimizing health and production of cows in automatic milking systems.

35 Graduate students trained.

"MY GOAL IS TO CONDUCT RIGOROUS SCIENCE THAT RESULTS IN IMPROVEMENTS IN DAIRY CATTLE HEALTH, PRODUCTION, AND EFFICIENCY - THIS IS GOOD FOR THE WELFARE OF THE ANIMALS AND THOSE WHO TAKE CARE OF THEM."

Elsa Vasseur



Associate Professor, Animal Science
William Dawson Scholar and NSERC/Novolait/DFC/Lactanet Industrial Research Chair in Sustainable Life of Dairy Cattle

McGill University

- Postdoc completed in a Dairy Research Cluster 1 project that developed animal-based measurements and protocols for DFC's proAction®.
- Current research aims to find cost-effective ways to improve dairy cattle housing and management practices for comfort and mobility.

47 Graduate students trained.

"IN CANADA, WELFARE IMPROVEMENTS ARE DRIVEN BY THE FARMERS AND CARRIED OUT WITH ALL STAKEHOLDERS AT EACH STEP OF THE PROCESS. I DECIDED TO CONTINUE MY RESEARCH IN DAIRY TO CONTRIBUTE TO THIS GLOBAL COLLABORATIVE EFFORT."

Simon Dufour



Associate Professor, Epidemiology
NSERC/MAPAQ/DFC/Novolait Industrial Research Chair in Milk Production Biosecurity

Université de Montréal

- Ph.D. completed in the Mastitis Network (supervisors - D. Scholl and I. Dohoo).
- Scientific Director of the Mastitis Network and Director of the Op+Lait research group.

13 Graduate students trained.

"DAIRY FARMERS AND WORKERS PROVIDED A LOT OF FEEDBACK ON MY WORK AND I WAS ABLE TO INCORPORATE THEIR OWN QUESTIONS IN MY RESEARCH. I STAYED IN DAIRY RESEARCH BECAUSE OF THAT VERY CONTAGIOUS ENTHUSIASM FROM DAIRY FARMERS FOR RESEARCH."

Andrea Josse



Assistant Professor, Kinesiology and Health Science

York University

- Ph.D. completed in Nutrition and Exercise Science at McMaster University (supervisor - S. Phillips).
- Current research investigates aspects of nutrition and exercise (including consumption of dairy products) to improve musculoskeletal and cardiometabolic health in humans.

11 Graduate students trained.

"A PART OF MY RESEARCH FOCUSES ON DISCOVERING THE IMPLICATIONS AND FUNCTIONAL APPLICATIONS OF WHOLE-FOOD DAIRY PRODUCTS TO HELP IMPROVE THE HEALTH AND WELLBEING OF CANADIANS. IT IS CLEAR TO ME THAT THIS HEALTH PRIORITY IS SHARED BY CANADIAN DAIRY FARMERS."

KEY OUTCOMES

Dairy Farm Efficiency and Sustainability



A Canadian first: Selecting cows for feed efficiency

Since April 2021, Canadian dairy farmers can select superior animals for feed efficiency, contributing to future improvements in farm efficiency and sustainability.

Lactanet Canada was the first organization to introduce Feed Efficiency (FE) genetic evaluations for the Holstein breed in Canada and among the first globally to provide FE evaluations.

FE evaluations are a new and innovative tool made possible through a large-scale international research project carried out over five years and co-led by Canadian dairy scientists from the University of Guelph and the University of Alberta. Called the [Efficient Dairy Genome Project](#), this major research collaboration received \$10.3M in funding from partners.

Feed is a major expense on every dairy farm and represents more than half of on-farm production expenses. It is estimated that the industry benefits associated to selecting dairy cattle for FE may reduce feed costs by \$108 per cow, per year and contribute to lowering methane emissions by 11-26%.¹

Like all functional traits, FE will be expressed as a Relative Breeding Value (RBV) with an average of 100 and general range from 85 to 115. For sires, the higher the RBV, the more efficient their daughters are expected to be in converting feed to milk production. This new trait targets feed efficiency in cows after peak lactation, minimizing stress during the transition period. For every 5-point increase in a sire's RBV for FE, the daughters are expected to reduce their total dry matter intake after peak lactation by 60 kg.

PIs: Flavio Schenkel, University of Guelph and Paul Stothard, University of Alberta

Project: [Efficient Dairy Genome Project \(2015-2019\)](#)

Environmental factsheets promote best practices for farm sustainability

Three factsheets were updated and 5,300 copies of each were made available to Canadian dairy farmers as part of the proAction® Environment module roll out, for which farm environmental assessments will begin in September 2021.

They contain best practices to mitigate greenhouse gases through [livestock](#), [manure](#), and [crop](#) management to support continuous improvement in farm sustainability.

The factsheets demonstrate how the increased adoption of best practices on Canadian dairy farms helped lower the carbon footprint of milk production by 7.3% in five years according to key results from [DFC's Life Cycle Assessment of Milk Production Update \(2018\)](#). These best management practices are based on a body of scientific evidence from projects supported by DFC and its partners.



Promising effective, low-cost method to manage bunker silo runoff

Preliminary research results suggest a slag filter (iron with gravel pit) can be a low cost, highly effective method for collecting and treating nutrient-rich runoff from bunker silos.

The runoff is challenging to manage on farms because it has high nutrient concentrations, especially of phosphorus.

A research team led by Andrew VanderZaag, AAFC and Robert Gordon, University of Windsor with the collaboration of Merrin Macrae at the University of Waterloo tested methods to best manage bunker silo runoff on two farms. They tried commercially available filters to reduce phosphorus loads from farm fields but they do not recommend it because they saturate too quickly. They found that the collection and treatment of runoff with a slag filter was more effective and durable (can last a decade or more). The system was designed and installed by the Upper Thames River Conservation Authority and is low cost, low maintenance but does require a sufficient area of land to implement. The research results will serve to develop best management practices to show farmers the potential to better manage bunker silo runoff with this system.

PIs: Andrew VanderZaag, AAFC-Ottawa and Robert Gordon, University of Windsor

Project: [Reducing the water footprint of milk in current and future climates](#), Dairy Research Cluster 3 (2018-2023)



Photo credit: Will Pliuer

KEY OUTCOMES

Animal Health and Welfare



Redefining housing for increased dairy cattle mobility

New research led by Elsa Vasseur, McGill University, is developing, re-designing and testing indoor and outdoor spaces in a tie-stall environment to allow cows more mobility while minimizing the costs to make changes as well as mitigate environmental impacts.

Tie-stall housing makes up about 73% of the dairy cattle housing systems in use in Canada² and these types of barns were built because of advantages like minimizing competition for feed and lying space, and the ability to care and observe the animals individually.

Existing research suggests that increased mobility can benefit cows' health, behaviour and welfare. Recent Canadian studies indicated: cows are motivated to access the outdoors when provided the opportunity in both winter³ and summer⁴ conditions when housed in different indoor housing systems (i.e. typical freestall barn, deep bedding composted pack, etc.); tie-stall farms that provided cows with outdoor access had 20% fewer lame cows and 16% fewer cows with hock injuries at the end of the winter (the period during which cows are most restricted to the indoors) than farms providing no outdoor access⁵; and, tie-stall cows have fewer hoof lesions (10% less) if access to an outdoor yard was provided.⁶

The outcomes from ongoing research will generate important information on the optimal conditions for increased cow mobility as well as the economic and environmental impacts on farms.

PI: Elsa Vasseur, McGill University

Project: Providing opportunity for movement to dairy cows by redefining indoor and outdoor spaces and best management practices, Dairy Research Cluster 3 (2018-2023); NSERC/Novolait/DFC/Lactanet Industrial Research Chair in Sustainable Life of Dairy Cattle (2016-2021)

Factsheet supports farmers' decision-making when drying off cull dairy cattle at high production and in emergency situations

A factsheet called, Drying off cull dairy cattle at high production and in emergency situations, was printed (11,675 copies) and distributed to dairy farms across Canada, providing guidance for decision-making and procedures when drying off dairy cattle generally, and in emergency situations.

The factsheet was developed by scientific experts from the Mastitis Network led by Trevor DeVries (University of Guelph) in collaboration with technical advisors, veterinarians and members of the proAction® Animal Care Technical Committee.

Applying these procedures enables farmers to ensure they maintain animal health and welfare and comply with the new revised federal regulations (2020) for dairy cattle transport.

REQUIREMENTS FOR THE TRANSPORTATION OF CULL DAIRY CATTLE

Revised federal regulations (2020) set new standards for dairy cattle transport.

DAY	Activity
DOY 1	AM milking
DOY 2	AM milking only
DOY 3	AM milking only
DOY 4	Milking
DOY 5	Final AM milking

DO NOT

- Use chemical disinfectants
- Use antibiotics
- Use corticosteroids
- Use NSAIDs
- Use sedatives
- Use tranquilizers
- Use any other drugs

PROCEDURES BEFORE TRANSPORT

IF COW IS LEAVING THE HERD

UNKNOWN DEPARTURE DATE

NO TIME TO PREPARE (OR EMERGENCY)

TIME IN TRANSPORT:

- LESS than 12 hours
- MORE than 12 hours

Decades of research supports continuous improvement in dairy cattle welfare

Since 1997, the [Chair in Dairy Cattle Welfare](#) at the University of British Columbia has developed science-based recommendations and best practices to improve dairy cattle health, welfare and productivity in the Canadian dairy sector. Scientific evidence helped establish standards for the evaluation of the proAction® Animal Care module and revisions to the [Code of Practice for the Care and Handling of Dairy Cattle \(2009\)](#). Recent key findings include:

- Calves fed high volumes of milk (up to 12 Litres per day) and raised in pairs or in groups experienced benefits for their health, welfare and behaviour (social adaptation).^{7,8}
- Heifers benefited from having a social role model for adaptation to situations like a new housing environment.⁹
- The transition period is a critical time for cows and a number of studies were completed to help improve transition cows' health and care.^{10, 11, 12, 13}
- Cows' motivation to access the outdoors varies with time of day and season and providing a mechanical brush in the barn can be an important resource for the animals.^{14, 15, 16}
- Animal care at calving can be improved with flooring (sand or concrete) and providing a visual isolation like a barrier at the time of calving.^{17, 18}
- The use of benchmarking reports to measure growth rates and transfer of immunity from colostrum given by dairy farmers helped improve calf care on farms.¹⁹

In 2019, the Chair was renewed for a five-year period focusing on: calf and heifer rearing, cow health and lameness, housing facilities and management, and pain management procedures.

Chairholders: Nina von Keyserlingk and Dan Weary, University of British Columbia (David Fraser 1997-2019)

Number of students trained to date: 288 undergraduates, M.Sc., Ph.D. and Postdocs

Number of publications in refereed journals: +300

Period: 1997-present

KEY OUTCOMES

Milk Composition, Quality and Safety



Advances in Canadian milk quality

Canadian dairy farmers produce high-quality, nutritious Canadian milk in accordance with some of the most stringent standards in the world. Recent research shows dedicated efforts to improve Canadian milk quality even more.

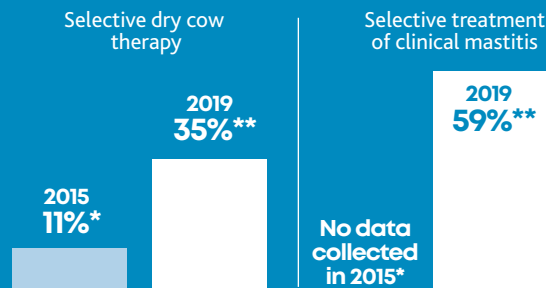
Preliminary results from studies in the Dairy Research Cluster 3 project, [Surveillance of antimicrobial use and resistance to improve stewardship practices and animal health on dairy farms](#), a collaboration with Public Health Agency Canada and the five Canadian veterinary colleges, including the [Chair in Infectious Diseases of Dairy Cattle](#) and the [Mastitis Network](#), indicate that an increasing number of farmers are practicing selective dry cow therapy (SDCT) and that they are selectively treating their clinical mastitis cases. These practices help decrease antibiotic use and resistance while continuing to ensure animal health and Canadian milk quality.

Results from a 2019 survey among 150 farms across five regions in Canada found approximately 35% of included farms (up from 11% in 2015; [National Dairy Study](#)) were routinely practicing SDCT and 59% of farms were practicing selective treatment of clinical mastitis. Scientific evidence published by the Mastitis Network has shown that selective dry cow therapy has the potential to reduce antibiotic use on dairy farms by an average of 60%.²⁰ Furthermore, using on-farm culture to identify clinical mastitis cases that require treatment can reduce intramammary antibiotic use by half while maintaining animal health.²¹

In 2020, all reported provincial average somatic cell count (SCC) results fell well below the national regulated standard of 400,000 cells/ml.²² All provinces consistently had results close to or under 200,000 cells/mL indicating excellent udder health. Bulk tank SCC or herd averages of individual cow SCC results are reliable indicators of the state of udder health in the herd.²³



Adoption rate



*National Dairy Study

**Based on a 2019 survey of 150 farms from BC, AB, ON, QC, NS (Dairy Research Cluster 3 project - Surveillance of antimicrobial use and resistance to improve stewardship practices and animal health on dairy farms; PIs: Javier Sanchez and Luke Heider, University of Prince Edward Island)

New resources and tools for farmers for herd health and milk quality

Ongoing efforts to develop evidence-based tools and resources to support farmers practicing SDCT will help move herd health and milk quality forward and reduce on-farm antibiotic use.

Guides and factsheets, like the [Recommended protocol for the administration of an internal teat sealant for dairy cows](#) (developed in 2020 by the Mastitis Network in association with DFC), are available for farmers' use in consultation with their veterinarians, to select and treat cows as part of a dry-off procedure for best animal health. Lactanet Canada has also developed a [selective dry cow therapy service and report](#) to help farmers apply protocols in consultation with their veterinarians to treat cows, reduce antimicrobial use, and maintain excellent animal health.

A new and [innovative illustrated comic](#)

book was designed to explain the research process used to identify disease-causing bacteria in sick animals, which may be resistant to antimicrobials. The "superhero" researchers and their students investigate and treat a case of mastitis that may be drug resistant. The comic book was published by Op+lait with involvement from professionals at the Mastitis Network. The comic book has been viewed close to 1,000 times.



KEY OUTCOMES

Milk Products and their Components in Human Nutrition and Health



Dairy products are an important part of weight management for over-weight/obese adolescent females

Research results from a randomized controlled trial (RCT) led by Andrea Josse, School of Kinesiology and Health Science, York University, found that dairy products consumed as part of a weight management and exercise program for over-weight/obese adolescent females had favourable effects on their body composition.

The study included 54 females aged 10-18 years old who were overweight or obese. They were divided into three groups: one group received 4 servings of dairy/day (recommended servings according to the 2007 Canada's Food Guide), another group received 0-2 servings/day (low dairy) and the control group followed their regular eating patterns. An exercise program and nutrition counselling were in place for the groups consuming dairy. Various body measurements were taken of participants in all groups at the beginning and end of the study. The researchers found that higher dairy product consumption significantly decreased fat mass and increased lean (muscle) mass.

The researchers also evaluated whether an increase in dairy product consumption, which included regular fat cheese, would affect cardiometabolic risk factors. Their results indicated that consuming more dairy products had a neutral effect on cardiometabolic disease risk factors such as triglycerides, cholesterol, blood glucose and insulin.

Overall, the researchers concluded that dairy consumption is beneficial for musculoskeletal health, body composition and nutrient intake and does not have any adverse effect on cardiometabolic health. As such, "...dairy foods should still be included as part of a healthy diet for adolescent girls with over-weight/obesity during this critical time of growth and development".²⁴

PI: Andrea Josse, York University

Project: Effects of a weight management intervention with increased dairy intake on body composition and bone health in overweight and obese girls, Nutrition Research Funding Program (2016-2019)

Translating Science into Practice

The Dietitians of DFC translate scientific findings into practical tools and materials for use by health professionals. Two webinars were organized and delivered to 2,055 health professionals that featured nutrition priority topics for DFC.

The webinars entitled, [Protein for Bone Health: Evidence Update and Implications for Practice](#) (presented in partnership with Osteoporosis Canada and delivered by Andrea Josse, Ph.D.) and [Dispelling Myths About Calcium and Bone Health](#) (Jennifer Sygo, M.Sc, RD, Dr. Lianne Tile, MD and Dr. Hassan Vatanparast, MD – hosted by Osteoporosis Canada) delivered key information on dairy calcium, protein and bone health.

Two factsheets were developed and made available via the [DairyNutrition.ca](#) website as well as distributed to health professionals and high school teachers as part of DFC's 2021 Nutrition Month Campaign. The factsheet, [Calcium: A Nutrient of Concern in Canada](#), contains important data on calcium intakes amongst Canadians and the contribution of milk products to calcium needs and the factsheet, [The EAT-Lancet's Planetary Health Diet: How Does it Compare to Canadian Nutrient Recommendations?](#), compares the nutritional evaluation made by the EAT-Lancet Commission based on its own dietary models with the recommended nutrient intakes in Canada. 2,732 factsheets were distributed to dietitians (both factsheets); 4,414 Calcium factsheets were distributed to Canadian high schools; and 1,150 Calcium factsheets were sent to DFC member nutrition affiliates in British Columbia, Manitoba and Saskatchewan and circulated via their own mailing lists.



Communications and Knowledge Translation and Transfer



112 articles published in magazines, newsletters and blogs

~11,000 health professionals subscribed to DFC's monthly newsletter NutriNews®

1 annual Research Highlights report produced and distributed to funding partners and dairy farmers

7 factsheets

5 for dairy farmers: Emergency dry off procedures, Teat sealant, and Livestock, Crop and Manure Management Practices to Mitigate GHGs

2 for health professionals: Calcium: A nutrient of concern in Canada and The EAT-Lancet's Planetary Health Diet: How Does it Compare to Canadian Nutrient Recommendations?

510,000 users on DairyNutrition.ca, DairyResearch.ca and the DairyResearchBlog.ca

900 farmers and dairy stakeholders reached with the Dairy Research kiosk at the Western Canadian Dairy Seminar in March 2020

129 farmers and dairy specialists attended 2 webinars supported by DFC on assessing lameness in tie-stalls and freestalls in Quebec

2,055 health professionals attended 2 webinars organized by the Dietitians of DFC

Average of 37% increase in views and 65% increase in visitors in the DairyResearchBlog.ca

4% increase in Twitter followers for @DairyResearch with 17 posts, 17,043 impressions

120 posts on @DairyNutrition on Facebook

DFC's National Strategy for Dairy Production Research Knowledge Translation and Transfer (2017-2022) targets improved coordination, collaboration and distribution of research results to help drive innovation on Canadian dairy farms.

In 2020, more than 200 communications and KTT bilingual products were developed and disseminated to user audiences targeted in dairy production (dairy farmers and stakeholders) and human nutrition and health (health professionals).

-  Blog | dairyresearchblog.ca
-  Web | dairyresearch.ca | dairynutrition.ca
-  Twitter | [@dairyresearch](https://twitter.com/dairyresearch)
-  Facebook | [@dairyresearch](https://www.facebook.com/dairyresearch) | [@DFCDairyNutrition](https://www.facebook.com/DFCDairyNutrition)
-  YouTube | Dairy Research Cluster Channel