APPENDIX A

Dairy Farmers of Canada

National Dairy Research Strategy — *Investing in our Dairy Future*

Guiding Principles

The process to develop and implement the National Strategy for Dairy Research and Knowledge Transfer will be guided by the following principles:

- Transparency
- Inclusiveness
- Integrity
- Founded on a rigorous and credible scientific process
- Social responsibility

Context

Dairy Farmers of Canada (DFC) believes its strong history of research investments:

- enhances farm programs, operations and product value;
- drives dairy sector innovation and profitability;
- supports continuous improvement in the sustainable production of quality, nutritious dairy products; and,
- increases the understanding of the role of dairy products in health.

DFC recognizes the need to strengthen partnerships with its member organizations, governments and stakeholders to build research capacity together for future sector growth.

DFC aims to maximize farmers' investments at the national and provincial levels through a coordinated and collaborative approach to research in dairy production and nutrition.

Targeted Outcome
COORDINATION, COLLABORATION AND COMMUNICATION

A collaborative framework has been developed to coordinate national investments in dairy research and leverage partnerships at all levels (provincial/national) to maximize research results and investments for farmer investors.

Investment Priorities

- Create a DFC Board committee responsible for the ongoing review and evaluation of dairy farmer needs, priorities and investments in dairy production and human nutrition and health research.
- Exchange information and deliver new knowledge on pan-Canadian research results to dairy farmers.
- Prepare and implement a communications plan to report on research investments that contribute to the sector's improvement and growth, and add value to Canadian-made dairy products.

Dairy farm efficiency and sustainability

Targeted Outcomes

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

Investment Priorities

- Dairy cattle genetic improvement (fertility, productivity, feed efficiency)
- Dairy cow reproduction (including alternative tools and practices to reproductive hormones use)
- Dairy cattle nutrition
- Forage breeding and management for improved yield, resistance, conservation, quality and digestibility
- Reduced environmental footprint including GHG (enteric methane), energy and water

Animal health and welfare

Targeted Outcomes

- Best management practices and tools have been developed to reduce on-farm economic losses from production limiting diseases with zoonotic potential.
- Best management practices have been identified to improve the health and welfare of cows, optimize productivity and longevity.
- Simple and effective welfare measurements have been developed and used to assess the impact of the evolving milk production environment on cows.

Investment Priorities

- Strategies to mitigate targeted infectious diseases: mastitis, paratuberculosis, salmonellosis, leucosis, bovine viral diarrhea
- Dairy cows' genetic improvement (disease resistance)
- Lameness prevention, management and treatment
- Dairy cow transition period related health and welfare issues
- Pain mitigation and euthanasia BMPs and science-based decision making tools
- Sustainable barn design for conventional and alternative dairy cattle housing systems
- Barriers to adoption of BMPs
- Social aspects of dairy cattle health and welfare (such as consumers' perception)

Milk composition, quality and safety

Targeted Outcomes

- Methods have been identified to naturally modulate the composition of milk and improve its quality and value, potentially enabling new dairy product development.
- Strategies have been developed to sustainably reduce the use of antimicrobials while maintaining farm biosecurity, dairy cattle health and welfare.

Investment Priorities

- Microbiology – better understanding of the impact of microbes on milk and dairy products composition and quality
- Assessment of antimicrobials use in Canadian dairy herds
- Development of alternative tools and practices to antimicrobials use and management

Milk products and their components in human nutrition and health

Targeted Outcomes

- Further support has been provided to clarify the role of milk products, particularly full-fat, in cardiometabolic health and healthy aging.
- Further data has been provided on the role of sugar-sweetened milk and yogurt on diet quality and health outcomes.
- The role of milk products has been strengthened in musculoskeletal health, including the prevention of osteoporosis and osteoporosis related fractures.
- The value of dairy products in a healthy, sustainable diet (including plant-based diets) has been investigated.

Investment Priorities

- Dairy products, especially full-fat and specific dairy food matrices (milk, yogurt and cheese), on cardiometabolic health and healthy aging including:
  - Prevention of type 2 diabetes, metabolic syndrome, hypertension, cardiovascular disease
  - Weight and body composition, satiety
  - Risk factors: blood lipids, blood pressure, glycemic control, inflammatory markers
  - Age-related chronic diseases
- Role of sugar-sweetened milk and yogurt on diet quality and cardiometabolic health including:
  - Nutrient adequacy
  - Weight and body composition
  - Type 2 diabetes, metabolic syndrome, cardiovascular disease
- Role of dairy products, particularly milk, in musculoskeletal health including:
  - Muscle and bone quality
  - Prevention of sarcopenia, osteoporosis, falls and osteoporosis related fractures
- Role of dairy products in healthy sustainable diet (including plant-based diets):
  - Nutrient adequacy and healthy dietary patterns
  - Connection between nutrition and health with environmental and social aspects

Communications and Knowledge Transfer

Recognizing that communicating our research investment success stories and mobilizing and transferring results is a critical part of the research continuum for sector growth, DFC commits to developing a communications and knowledge transfer framework that will aim to:

- Report on our dairy research investments, processes and successful outcomes from farm to table;
- Identify and implement effective means of delivering pan-Canadian research results to support dairy farmers to continuously improve their farm businesses; and,
- Communicate findings on the role of dairy products in a healthy Canadian diet to the health sector.