

Current DFO-Sponsored Research Projects June 2010

This is a listing of current research projects that are supported in part by Dairy Farmers of Ontario. Other funding agencies such as, the Ontario Ministry of Agriculture Food and Rural Affairs (OMAFRA) and the Natural Sciences and Engineering Research Council (NSERC), as well as industry partners and the Universities also provide funds for many of these projects.

1. Project #2010-01

Manipulation of Gut Microbiota through Consumption of Dairy Products

Dr. Mansel Griffiths, Department of Food Science, University of Guelph

The research will study the mechanisms by which dairy components are converted in the gut to molecules that confer health benefits using a simulator of the human intestinal microbial ecosystems known as SHIME. Information garnered through this project will be beneficial in designing future dairy and food products that are tailored to human wellness and healthy aging.

2. Project #2010-02

Breed-specific Gene Expression Profiles and DNA Patterns in Johne's Infected Calves

Dr. Neil Karrow, Department of Animal and Poultry Science, University of Guelph

This research project will examine breed-specific differences in susceptibility to Johne's disease using gene expression profiling and DNA methylation profiling techniques. Genes that are identified may serve as candidates for future marker assisted selection and vaccine development.

3. Project #2009-01

The Impacts of Fatty Acid Metabolism on Milk Fat Content and of the Health Effects of this Milk

Dr. Brian McBride, Department of Animal and Poultry Science, University of Guelph

This research project is focusing on increasing the healthfulness of dairy products by the maintenance of healthy cows. Cows are being fed 3 different diets with the purpose being to better understand glucose metabolism in regard to type-2 diabetes and the potential use of healthy dairy products in the prevention of this disease.

4. Project #2009-02

Exploring Effects of Selenium on Cell Survival to Improve Lactation of Dairy Cows and Functionality of their Milk

Dr. John Cant, Department of Animal and Poultry Science, University of Guelph

The objectives of this research are to develop a strategy for selenium supplementation of dairy cows that will improve persistency of lactation and to evaluate the effect of milk from selenium-supplemented dairy cows as an anti-cancer agent.

5. Project #2009-03

Elixir Milk: Evaluation of Mechanisms of Phytochemical Transfer of Milk

Dr. Vern Osborne, Department of Animal and Poultry Science, University of Guelph

The focus of this project is on the development of naturally produced milk rich in phytochemical compounds derived from plant matter in the form of agricultural wastes. Examples include grape seed waste from the wine industry and cocoa-polyphenols. This work will also provide insight in the effects that phytochemicals have on the dairy cow, the metabolism and transport of the compound within the cow and mode of excretion into the milk.

6. Project #2009-04

Usefulness of Novel Monitoring Tools and Management Strategies to Ensure Welfare of Dairy Cows

Dr. Ken Leslie, Department of Population Medicine, University of Guelph

This work is evaluating several new approaches for the early detection of lameness in dairy cows as well as to predict impending calving and cows at an increased risk of periparturient disease problems.

7. Project #2008-01

Vitamin D Deficiency in Urban Canadian Toddlers: A Study of Prevalence and Risk Factors

Dr. Patricia Parkin, Division of Pediatric Medicine, Hospital for Sick Children

This study aims to determine the prevalence of vitamin D deficiency in a socioeconomically and culturally diverse cohort of healthy Canadian children, to identify risk factors for the development of vitamin D deficiency, to generate normative values for vitamin D by age and season and to evaluate the effect of sub-normal vitamin D levels on bone mineralization.

8. Project #2008-02

An Evaluation of a Supplementation Program to Enhance Passive Immunity and Improve the Growth, Development and General Health of Dairy Calves

Dr. Ken Leslie, Department of Population Medicine, University of Guelph

The objectives of this research are to evaluate a dried bovine colostrum supplementation program in an extensive field study. A wide range of observations relating to calf health and growth are being analyzed.

9. Project #2008-03

Milk and Dairy Products in the Regulation of Satiety, Food Intake, Blood Glucose and Risk Factors Associated with Obesity

Dr. Harvey Anderson, Department of Nutritional Sciences, University of Toronto

The overall objectives of this research are to describe the effect of milk and dairy products on satiety, food intake and glucose control and to determine the short and long-term mechanisms in the regulation of blood glucose, satiety and food intake after ingestion of milk and dairy products. It is expected that the results will provide new information about the importance of dairy products in the daily diet of Canadians

and further stimulate the formulation of novel dairy products with increased health benefits.

10. **Project #2007-03**

Structuring Dairy Products for Health

Dr. Milena Corredig, Department of Food Science, University of Guelph

This is a multi-faceted project that is designed to address challenges in the development of new high protein and high fibre dairy products with added health benefits. Specific objectives are to look into the possibility of incorporating soluble fibre in structured dairy products and to design novel particles from milk proteins that can be used as delivery systems for health-enhancing products. It is anticipated that the fundamental research in this project will lead to the incorporation of health promoting substances in dairy products.