April 26, 2017

AIC Conference

Assurance and innovation: Building blocks to a sustainable dairy industry

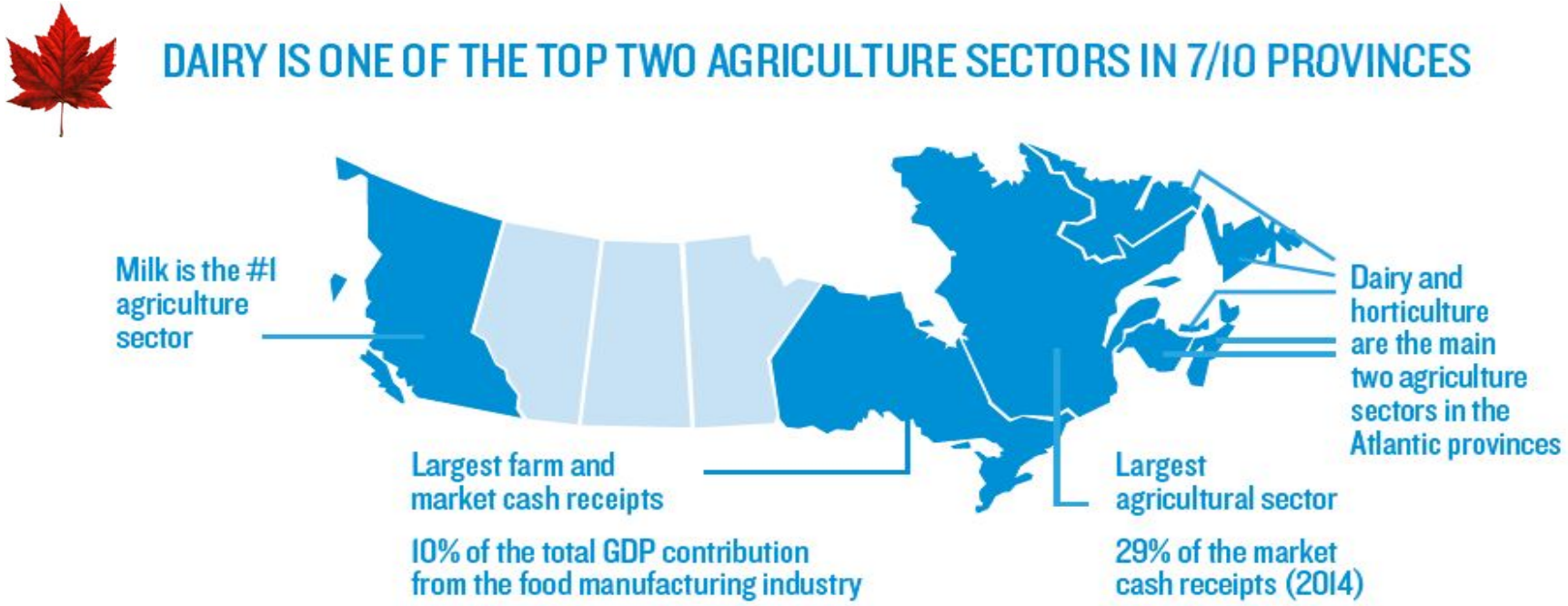
DAIRY FARMERS OF CANADA | LES PRODUCTEURS LAITIERS DU CANADA

Today's presentation

- Environmental stewardship on farms
- Research and productivity
- International dairy initiatives
- Life Cycle Analysis *& Dairy Farms+*
- proAction: Environment module
- Take Away for sustainability

11,683 farms, $8.7 B to GDP

7.31 B litres of milk sold in 2014
8.45 B litres in 2016



Source: Canadian Dairy Information Centre / Centre canadien d'information laitière

Environmental stewardship

Amalgamated Dairies Limited members Janet Stewart and John Wood. Wood is the co-owner of Craggan Farms and a DUC partner.

© SEAN LANDSMAN

STORY / *Atlantic, Landowners, Wetlands*

WETLANDS: A VALUABLE FARMHAND

Wetlands deliver ecological and financial dividends to dairy farmers in P.E.I.

March 15, 2017

Many farms partner with environmental associations, e.g. this farm in PEI partnered with Ducks Unlimited

Innovation on the farm

- Farms produce energy:
  - Wind
  - Solar
  - Biogas – being used for heat or electricity production
- Farms reduce energy needs
  - Cooling plates, recycling wash water, etc
- Farms reduce waste - e.g. farms recycling unused drywall waste (gypsum) for bedding → adds needed sulphur to fields
- Farms apply technology:
  - GPS precision agriculture technologies for planting and applying manure, fertilizers, and pesticides, etc

Research and Increases in Productivity

- Canadian dairy farms today require ~1/3 the number of cows to produce the same amount of milk as they did 50 years ago.
- Since 1990, the Canadian dairy industry has steadily decreased its GHG emissions by ~16%
- Further efficiency gains through continued research into:
  - Genetics and genomics
  - Animal comfort, health and welfare
  - Animal nutrition
    - and impacts on reducing enteric emissions
  - Improved environmental / sustainability practices

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

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;

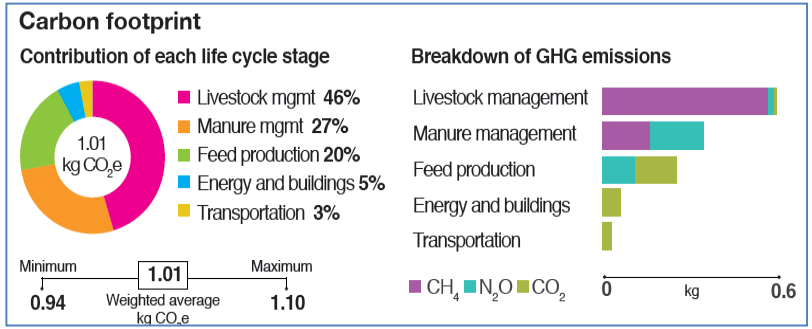
www.dairyresearch.ca

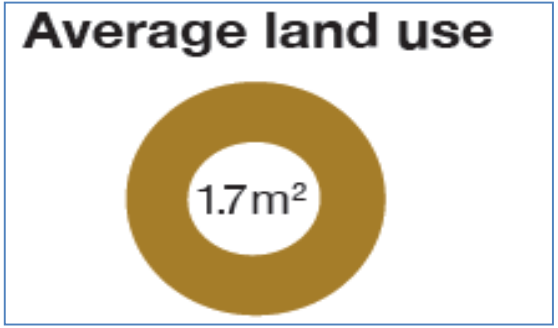
At the International level

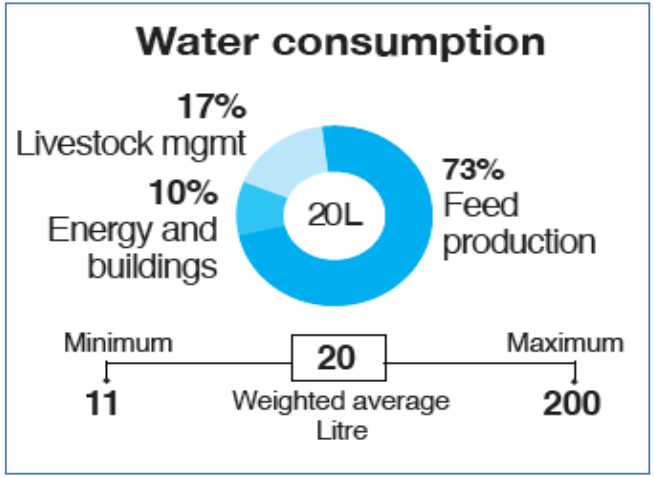
- Dairy Sustainability Framework
  - Compiles dairy sustainability initiatives at international level
  - DFC is a member and reports annually on sustainability

- International Dairy Federation
  - IDF regroups best dairy scientists around the world
  - IDF works with other international groups like FAO
  - DFC instrumental in developing methodology to measure life cycle analysis for dairy
  - DFC was among the first to use this methodology to conduct life cycle analysis of milk production in Canada in 2012

Environmental and Socioeconomic Life Cycle Analysis (LCA)

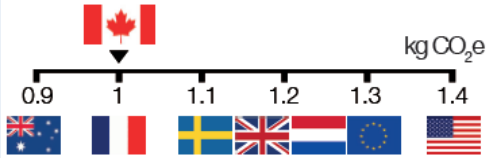






A carbon footprint among the best in the world

By referring to comparable studies in other countries, it can be shown that the GHG emissions generated per unit of milk produced in Canada are among the lowest globally.



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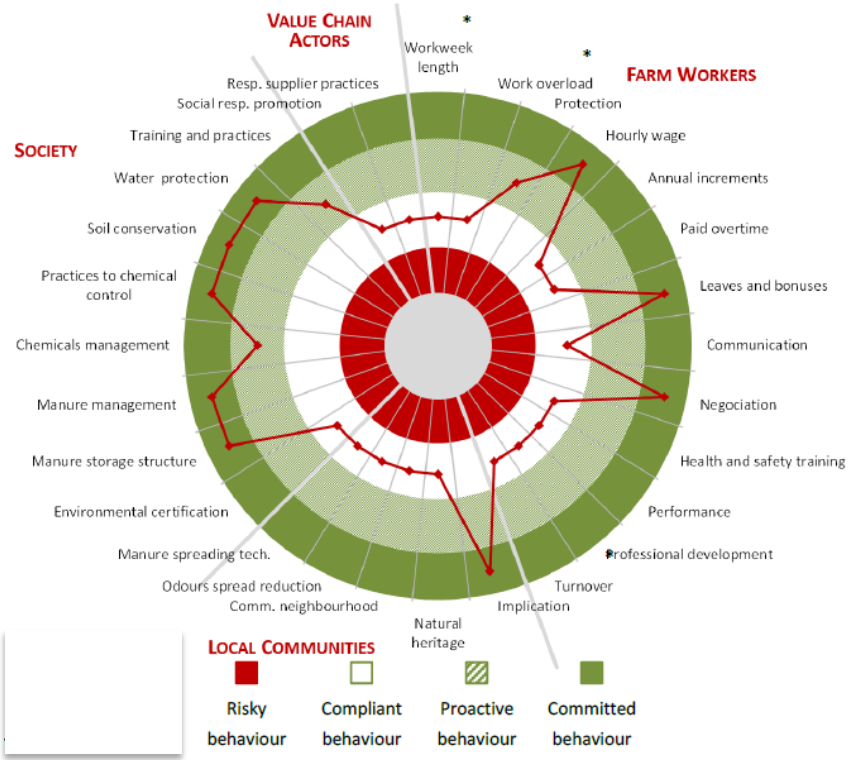


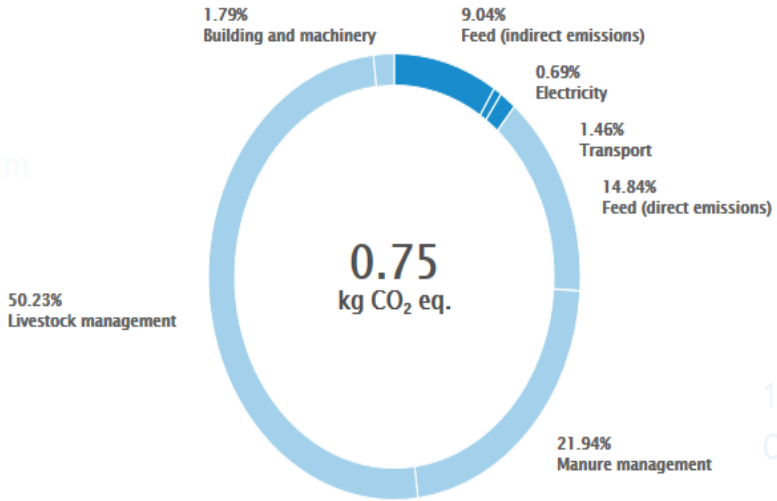
https://dairyfarmsplus.ca/

Your environmental footprint

GET MY RESULTS (PDF)

for 1 kg of milk (FPCM)

Carbon footprint | Water withdrawal | Land use | KPI



Provides assurance to customers about what we do

“Our sustainability story”

Vision

Through proAction, Canadian dairy farmers collectively demonstrate responsible stewardship of their animals and the environment, sustainably producing high-quality, safe and nutritious food for consumers.

Milk Quality

Food Safety

Traceability

Animal Care

Biosecurity

Environment

proAction – Environment Module

Benefits of an environment module…

...on the farm

- Reduce on-farm risk
- Preserve quality of land and water for future farming generations
- More efficient resource use: reduces energy use, water use, costs
- Enhance biodiversity

...for the industry

- Provide assurance to consumers about farm practices as they relate to the environment
- Reduce carbon and water footprint: produce food with fewer resources

Environment Draft Criteria

Environmental Farm Planning:

1.Do you have a valid provincial (individual) environmental farm plan (EFP), *Plan d'accompagnement agroenvironnemental* (PAA) or PAA-equivalent to identify and address environmental risks on your farm?

Discussion is ongoing

PEI ENHANCED ENVIRONMENTAL FARM PLAN

BC ENVIRONMENTAL FARM PLAN

prAction Initiative

PAA

Growing Forward 2
A federal-provincial-territorial initiative

NOVA SCOTIA ENVIRONMENTAL FARM PLAN

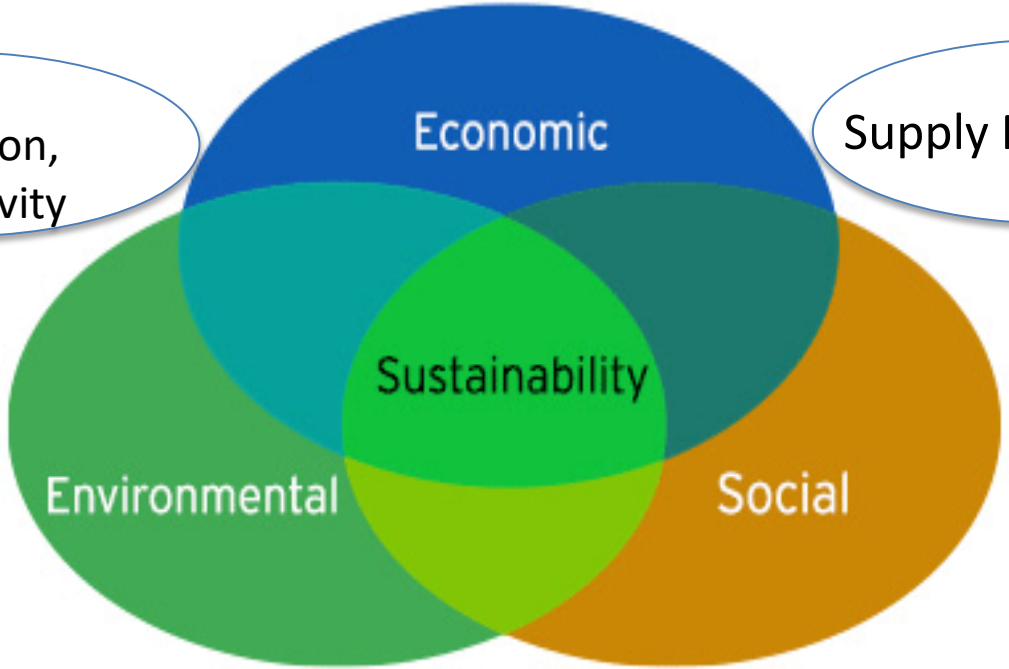
DAIRY FARMERS OF CANADA | LES PRODUCTEURS LAITIERS DU CANADA

Challenges in implementation

- proAction is a national program
  - Environmental regulations vary by province
  - Environmental realities are regional
- proAction requires on-farm validation of requirements every 2 years
  - Validation of environmental requirements difficult in winter
- proAction is a mandatory program
  - Requirements would need to be narrow enough to be relevant, flexible enough to apply to the whole country, but manageable for farms to undertake

Dairy Sustainability

R&D, innovation, productivity



Supply Management

proAction