Ontario Dairy Council Convention

Collaborating for Sustainable Dairy

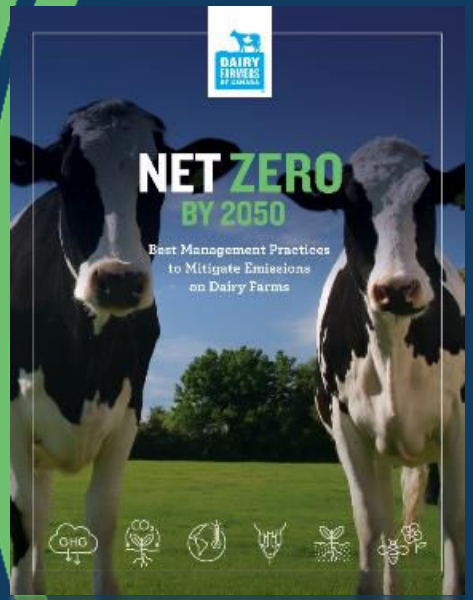
DFC Sustainability Team

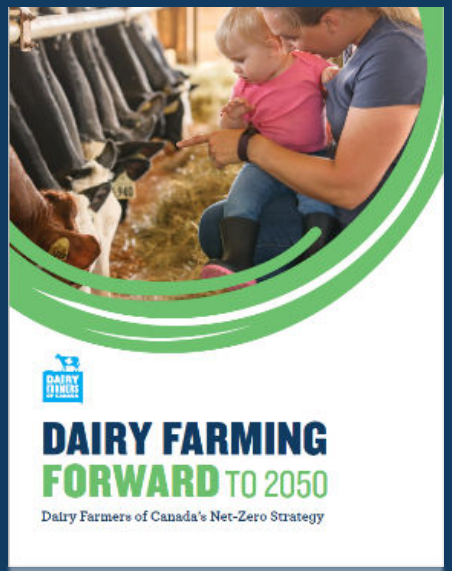
Date: June 4th, 2025

DAIRY FARMERS OF CANADA

NET ZERO BY 2050

A sustainable future for our farms and our planet





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Strategic Approaches

Leverage, Develop and Enhance Measurement Tools

Focus Research, Knowledge Transfer and On-Farm Innovation

Build Strategic Partnerships

Enhance Economic Opportunities

Advance Policy, Advocacy & Supporting Regulations

Communicate on the Sustainability Journey

2021 Life Cycle Assessment Results

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Main Objectives

Update the environmental life cycle assessment (LCA) for Canadian milk production in 2021.

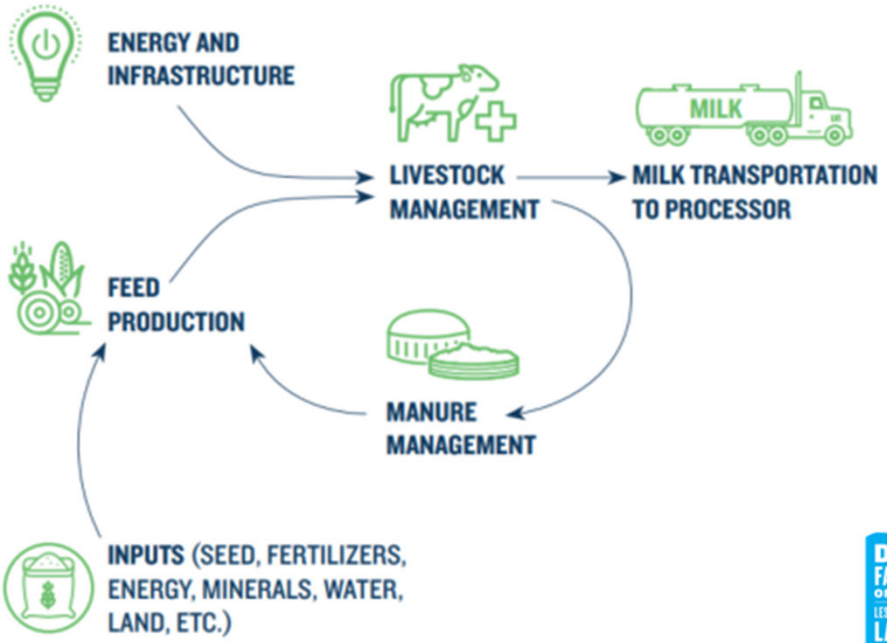
Compare the 2021 LCA results to the 2016 and 2011 LCAs.

Build on and improve DFC's two previous LCAs based on current standards, methodologies, and data.

Methodology, Functional Unit and Scope

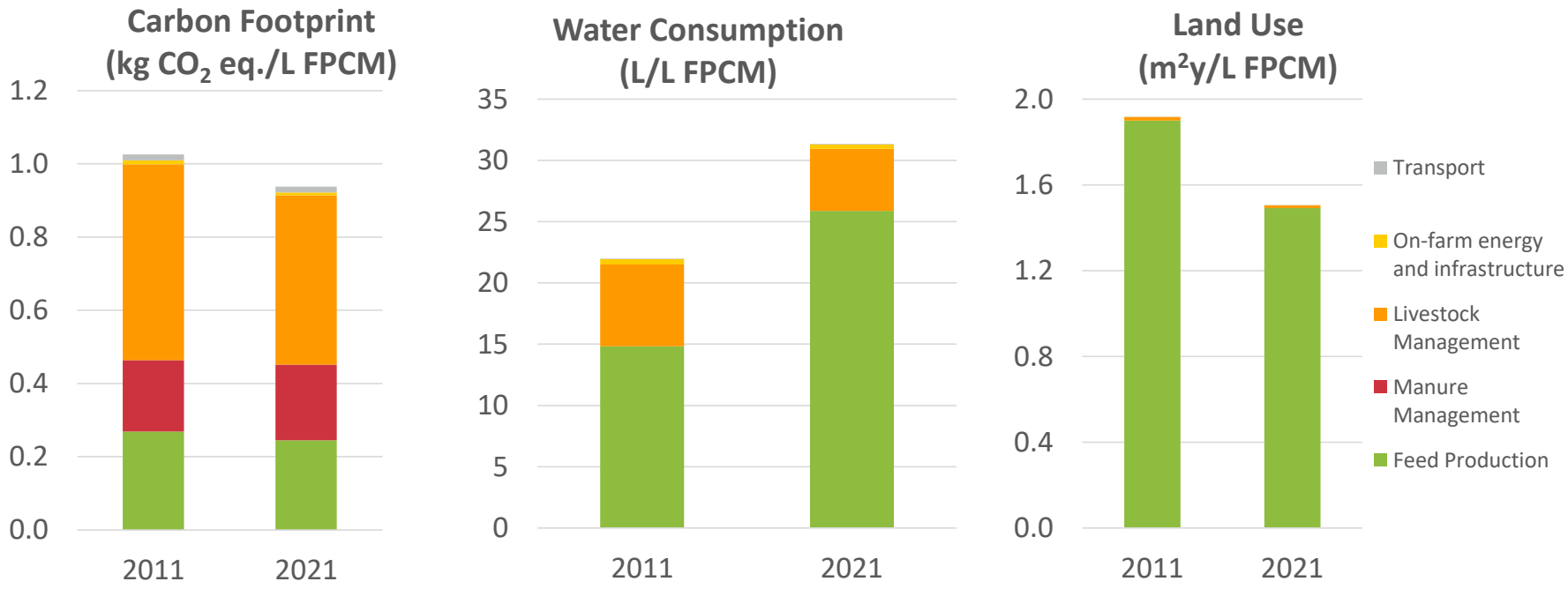
- Guided by ISO 14040/14044 and the IDF's 2021 methodology for a dairy LCA.
- A third-party panel of experts completed a critical review of the 2021 LCA results.
- Uses a "cradle-to-farm gate" approach.
- All public-facing results have been converted from kilograms to litres of fat-and-protein-corrected-milk (FPCM).

Figure 1: The LCA measures GHG emissions at all stages from farm inputs to transporting milk to the processor

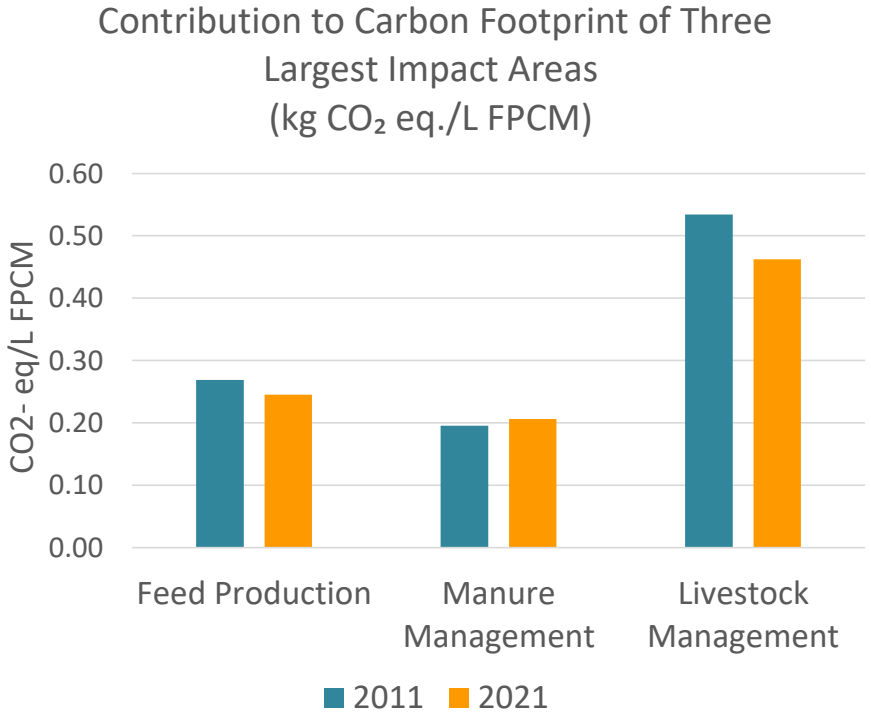


2021 LCA Results

Relative contribution of the life cycle stages to the average environmental profile of producing one litre of Canadian milk.

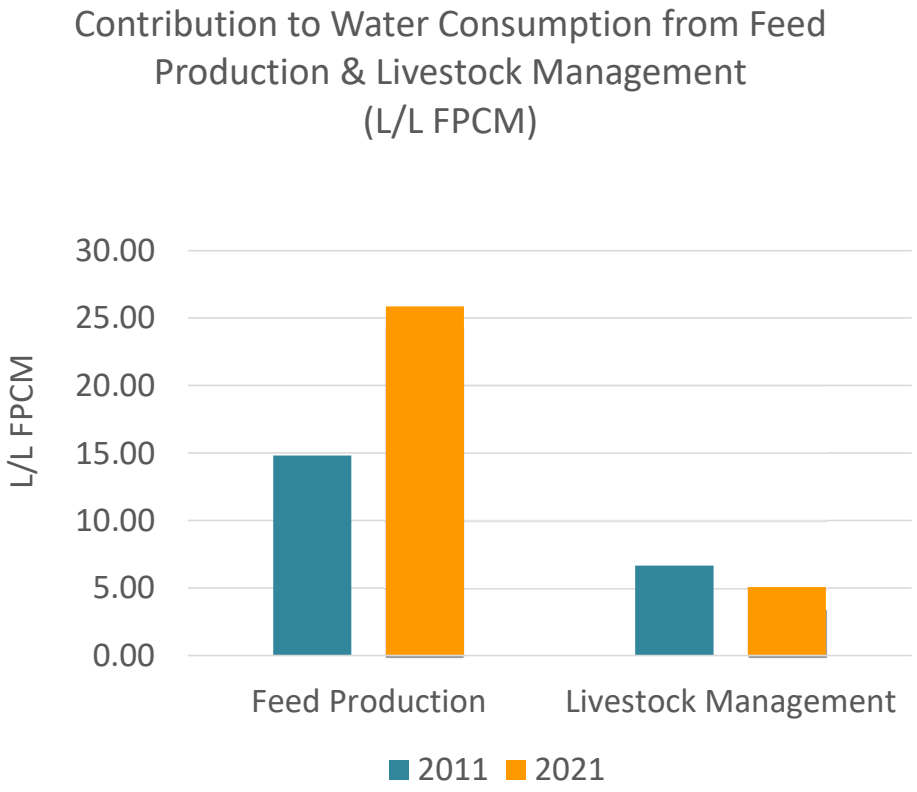


Main Findings – Carbon Footprint



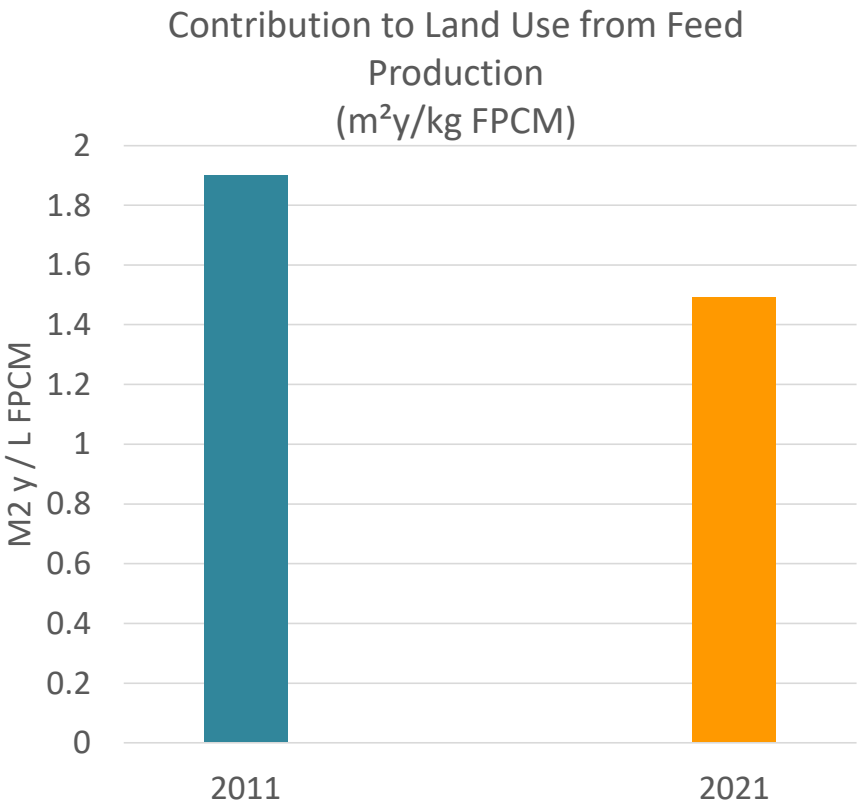
- Enteric emissions has decreased by 13% since 2011 because of increased milk productivity.
- An increase in manure management emissions is the main factor explaining the plateau of the carbon footprint since 2016.
  - A higher proportion of dairy farmers are using a liquid manure management systems versus solid manure systems.
- Feed production remains the second largest source of emissions in both 2011 and 2021, representing 26% of the 2021 carbon footprint.

Main Findings – Water Consumption



- Higher irrigation volumes is the primary factor causing the increase in total water consumption.
- The 2021 increase is due to significantly larger irrigation volumes in Western Canada in recent years.
- Animal drinking water per litre of milk decreased by 27% and water used for in-barn cleaning per litre of milk has decreased by 17% since 2011.

Main Findings – Land Use



- Efficiency improvements (e.g., improved forage management and feeding strategies to optimize cows' rations) and increased milk productivity have resulted in reductions to land-use impacts.
- Haylage, hay and barley are the largest contributors to land use in 2021.

Next Steps

- The Sustainability Scientific Advisory Committee has reviewed the 2021 LCA results and will be providing recommendations for the 2026 LCA
- Update the Dairy Farmers of Canada's (DFC's) national sustainability strategy with 2021 LCA data (e.g., net zero model and the Best Management Practices Guide)

Sustainability Scientific Advisory Committee

Committee Purpose

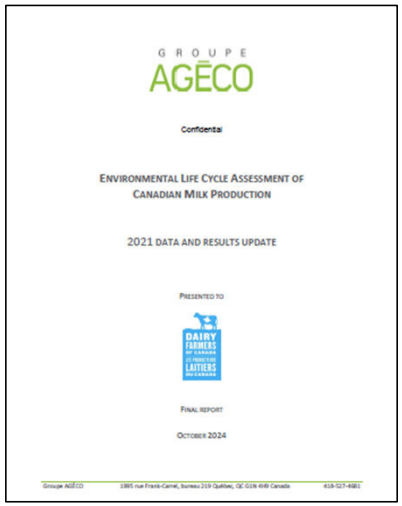
- Provide scientific expertise during the implementation of DFC's national sustainability strategy.
- Review new and existing projects, reports and modelling and provide recommendations
- Provide recommendations on how to better collect and utilize data for sustainability reporting for DFC and its value chain partners
- Reports to the Sustainability Committee

Committee Composition

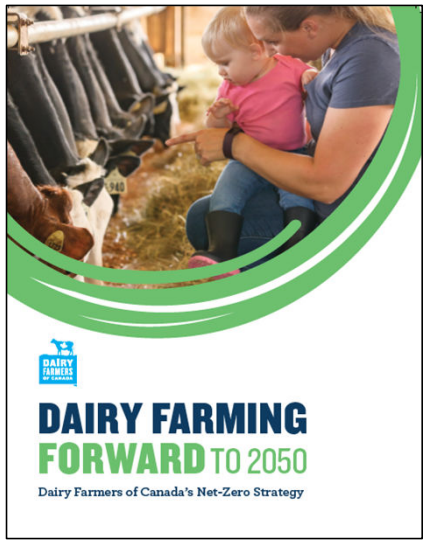
- 8 Canadian dairy research experts
- 2 representatives from provincial dairy organizations
- 1 representative from the Dairy Processors Association of Canada
- 1 representative from Lactanet
- 1 DFC researcher as an observer
- 4 DFC staff members (Sustainability Team members)

Current and Upcoming Projects

- Review of 2021 Life Cycle Assessment (LCA) and determine best approach for 2026 LCA



- Update Net Zero Modelling

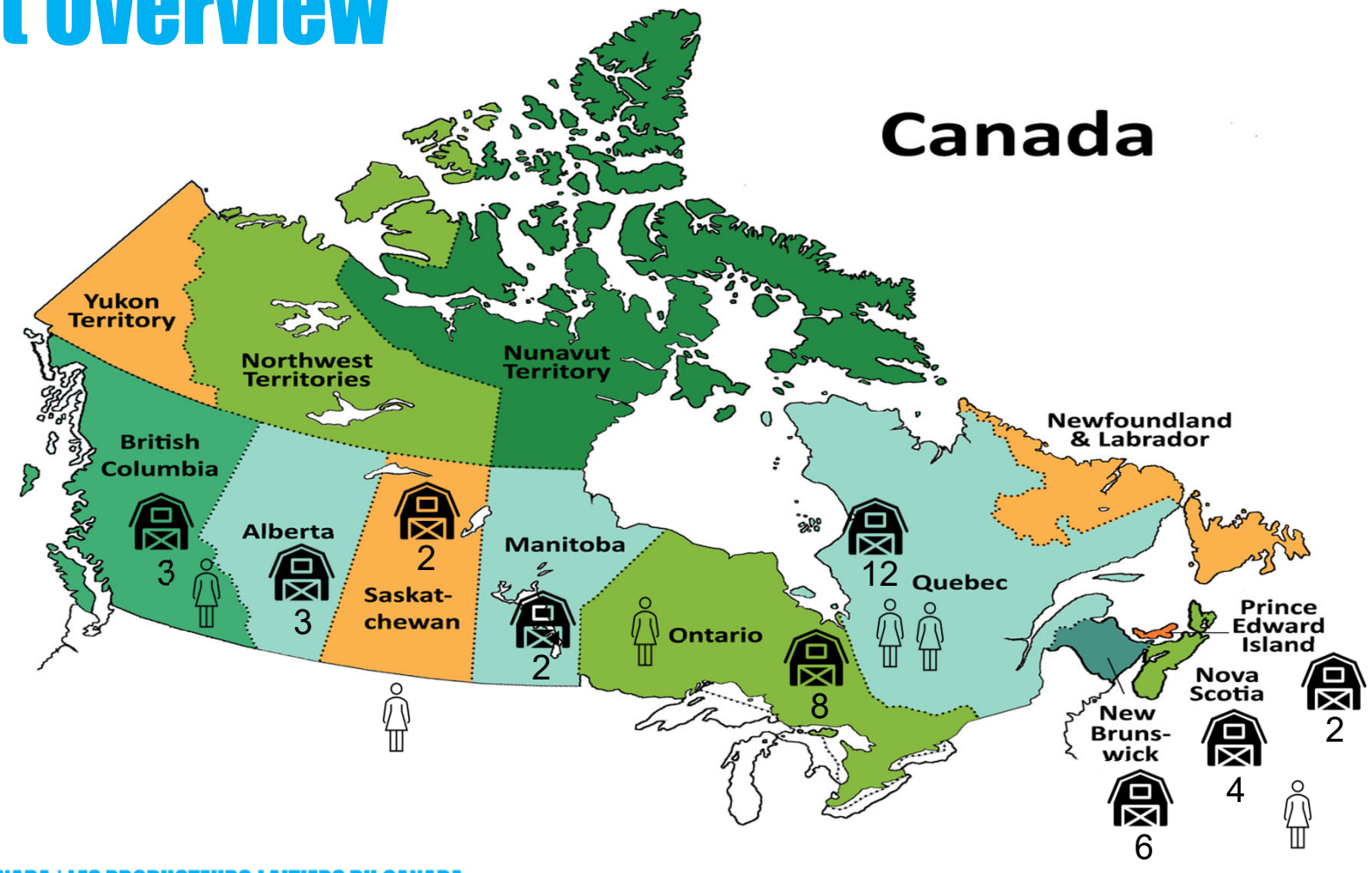


- Consider processors request for information needed for reporting

DPAC ATLC
Dairy Processors Association of Canada
Association des transformateurs laitiers du Canada

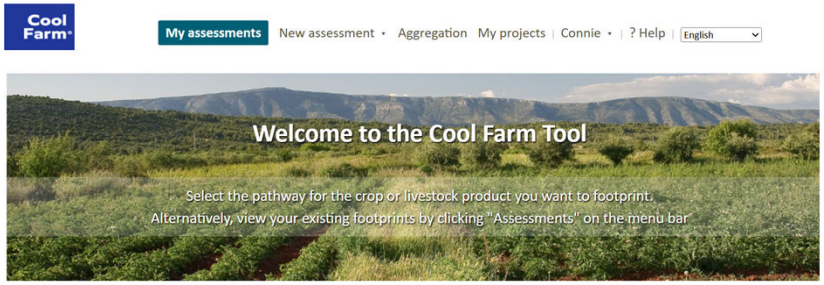
On-Farm Greenhouse Gas Calculator Pilot Project

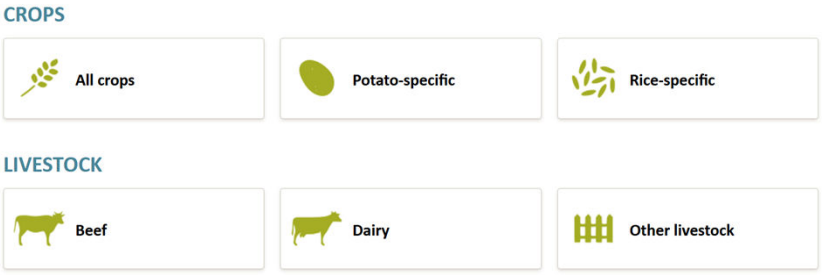
Project Overview



Project Deliverables

- Determine the accuracy of Cool Farm Tool for use in Canada (soil types, climates, crop information, etc.)
- Compare the carbon footprint results of the pilot project to the 2021 Life Cycle Assessment carbon footprint
- Determine if Cool Farm Tool is user friendly, identify tool strengths and weaknesses and compare to other tools in Living Lab projects



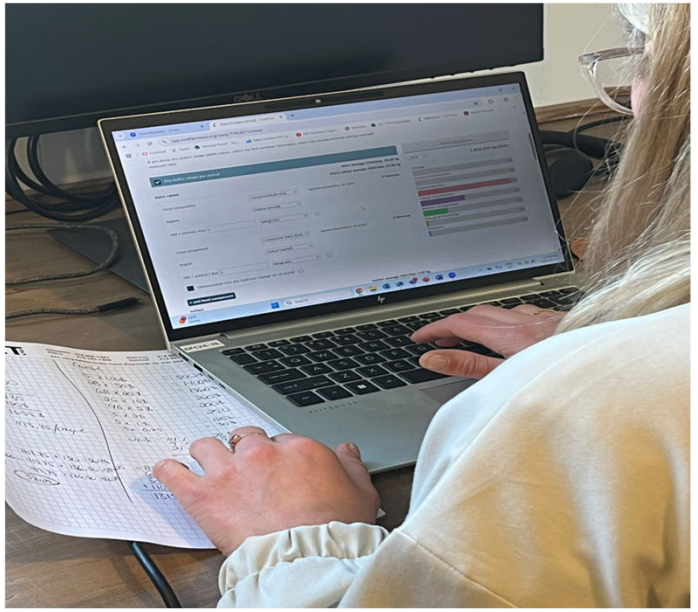


Project Deliverables

- Determine if using an on-farm GHG calculator is an effective way to provide an annual national carbon footprint
- Increase farmer interest and knowledge about their individual carbon footprint and identify areas to reduce on-farm GHG emissions
- Provide farmers with a tool to help meet individual sustainability goals

Step 1: Data Collection/Assessments

- Advisors met with farmers virtually, by phone or in person to aid in the collection of data
- Advisors entered all data into Cool Farm Tool to ensure uniformity across the project
- Shared completed assessment results with farmers
- Shared all completed assessments with DFC for data aggregation



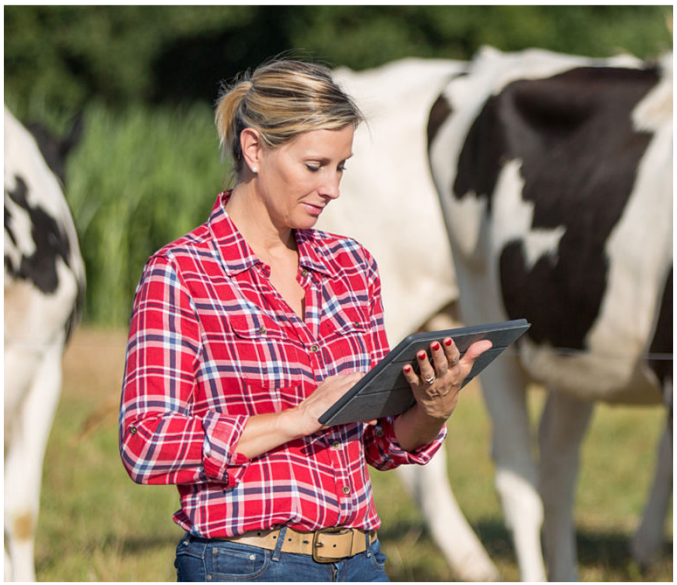
Step 2: Continuity Plan

- **Objective:** The continuity plan identifies the highest emission sources on farm and provides suggestions of how to reduce emissions.

- **Advisor responsibilities include:**
  - Analyze finished Cool Farm Tool assessments and use the results to create a continuity plan
  - Identify Best Management Practices (BMPs) which farmers could implement to lower on farm emissions
  - Provide the final continuity plan document to farmers which includes Cool Farm Tool assessment results and suggested BMPs

Step 3: Participant Feedback

- Hold virtual roundtables with farmer participants in each region to collect feedback on their project experience (e.g. data collection, usefulness of results, etc.)
- Hold virtual roundtables with advisors to collect their feedback on the project design and process, data collection, and use of Cool Farm Tool
- Summarize feedback and create recommendations for future greenhouse gas calculator use



Step 4: Data Aggregation

- Carried out in conjunction with an LCA expert
- Aggregate carbon emissions per kg of milk for all Cool Farm Tool assessments to create national and regional carbon footprints to compare to the 2021 Life Cycle Assessment (LCA)
- Identify the three highest GHG emission sources from all Cool Farm Tool assessments and compare to three highest GHG emissions sources as reported in 2021 LCA results
- Analyze Cool Farm Tool assessments to determine data weaknesses and strengths
- Sustainability Scientific Advisory Committee to review project results


THANK YOU
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