

Canadian Agri-Food Data Initiative: Building the Data Governance Capacity in the Canadian Agriculture and Food Sector

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Outline


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About EMILI

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EMILI Data Initiative

Overview of activities since 2021.

05 
Questions + Discussion

03 
**Building the Canadian
Agri-Food Data Initiative**

Look forward to next steps.

Who is EMILI ?



- + Founded in 2016
- + Industry-led, non-profit organization based in Winnipeg, Manitoba, Canada
- + Supporting the development and adoption of digital agriculture technologies.
- + Startups, applied research, smart farm test facility, career awareness for youth, public policy, training, etc.

Strategic Projects



5,500 acre smart farm with leading-edge equipment, technology, production practices used for technology demonstration, ROI verification and education.



Facilitate work-integrated learning (WIL) opportunities to engage undergraduate students from across academic disciplines including students from underrepresented groups including women, Indigenous peoples and inner-city youth.



Provide a unique annual conference where digital innovation is discussed and connections are made across the agri-food value chain in Western Canada.



Supports startups in the Canadian Prairies (MB and SK) with non-financial resources and connections to experts in marketing, fundraising, market identifications etc.



EMILI
ENTERPRISE MACHINE INTELLIGENCE
& LEARNING INITIATIVE

EMILI

Manitoba Water Management
Strategy Recommendations Report

Digital Agriculture Plans announced for a SMARTFARM — a digital agriculture accelerator to grow cutting-edge farm technology

Strategic Road



By: [Martin Cash](#)
Posted: 2:24 PM CDT Friday, Oct. 21, 2022



EMILI

Partners Organizations and Funders



JOHN DEERE



EMILI

EMILI Data Initiative

Setting the Stage

- Growers (and other users) often ask questions, or are uncertain about privacy, contracts, or the business model related to digital agtech and ag data.
- **Beyond excellent technology, what else is needed to support growers and other end users of digital technology and data across the value chain?**
- Data governance is a useful frame to bring together different parts of the issue: risk management, data management, business decision making, etc.



The screenshot shows a webpage from the USDA Economic Research Service. The top navigation bar includes links for Knowledge, Financing, Resources, Community, Software, and Sign In. The main article title is "Canadian producers increasingly confident in use of digital data: survey", dated April 06, 2023. Below the title is a photo of a man in a blue shirt driving a tractor. The article is part of the "Economic Information Bulletin No. (EIB-248) 52 pp" for February 2023. The main heading of the article is "Precision Agriculture in the Digital Era: Recent Adoption on U.S. Farms" by Jonathan McFadden, Eric Njuki, and Terry Griffin. The text discusses the ongoing transformation of farming, including digitalization and automation, and mentions the adoption of technologies like yield maps and VRT.

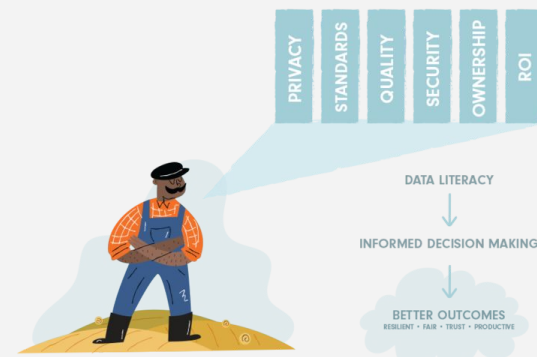
EMILI / Data Initiative

The EMILI Data Initiative is **strengthening the data governance capacity of the agri-food sector** through a unique combination of projects:

Policy & Practices - Applied research projects investigating business practices and public policy issues.

Data Literacy - Developing a purpose-built training program for primary producers.

Technology Demonstration - Proof of concept project that show how farm data can be put to use.



In November 2022, EMILI joined [Ag Data Transparent \(ADT\)](#) as its first supporting member.



Funding

EMILI would also like to recognize the co-investment made by [Protein Industries Canada](#) through its [Capacity Building Program](#).

Protein Industries Canada is one of five [Global Innovation Clusters](#) funded by the Government of Canada in 2017 and 2022.

It is focused on making Canada a global leader in plant protein through investments in innovation and competitiveness across the value chain.



Advisory Board



Cornelia Kreplin,
CAAIN



Dan Kraft,
Merit Functional Foods



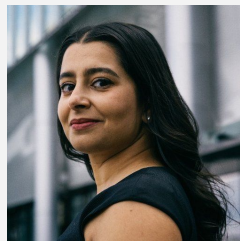
Darcy Herauf,
FCC Ag Expert



Maureen Kineear,
G3 Canada



Jeff Bradshaw,
TELUS Agriculture



Shelly Sohi ,
Alberta Innovates



Ray Bouchard,
Enns Brothers



Greg Northey,
Pulse Canada



David Stirling,
Protein Industries Canada

Policies & Practices

Policies and Practices **applied research** projects are designed to respond to gaps in foundational knowledge related to data-intensive technologies in agriculture.

Legal Landscape for Canadian Agri-Food Data

What are the important legal questions that impact the use of data in Canadian agriculture and food?

Project working group built from combination of legal academics and practising lawyers.



Policies & Practices

Legal Landscape for Canadian Agri-Food Data

Outline

1. *Privacy*
2. *Ownership*
3. *Contracts*
4. *Data Institutions*
5. *Competition and Right to Repair*

Report expected in Summer 2023. Target audience is people working in the Canadian agri-food sector with an interest in legal issues related to agriculture data.

Critical to engage stakeholders from across beyond the report via social media, webinars, in-person events, traditional media, etc.

Policies & Practices

The State of Play of Interoperability in Canadian Agriculture & Food

How do agri-food stakeholders define interoperability?

What are the biggest barriers to delivering interoperability to growers and across the value chain?

What is being done to advance data interoperability in agtech?

Interviews with 30+ stakeholders: Startups, technology providers, standardization organizations, academics.

Interviewee Affiliations

Telus Agriculture and Consumer Goods
Honey Bee Manufacturing
Farm Credit Canada
AgGateway
Purdue University/OATS
Semios
École de technologie supérieure
Leaf Agriculture
i-Open
TheoryMesh
OpenTEAM
Standards Council of Canada
Agricultural Manufacturers of Canada
Griffith University
CSA Group
GODAN
IEEE
ISO
AgStack
Ag Data Transparent
AgriRouter
Syngenta

Policies & Practices

The State of Play of Interoperability in Canadian Ag & Food

Early observations based on interviews to date:

- Optimism driven by new technology and data integration successes.
- Challenging and even muddled standards landscape.
- Collaboration is essential but challenging, even between non-competing organizations.
- Identifying valuable and manageable problems, or opportunities, to solve is important.

Report to be published in Summer 2023.

Interviewee Affiliations

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Honey Bee Manufacturing
Farm Credit Canada
AgGateway
Purdue University
Semios
École de technologie supérieure
Leaf Agriculture
i-Open
TheoryMesh
OpenTEAM
Standards Council of Canada
Agricultural Manufacturers of Canada
Griffith University
CSA Group
GODAN
IEEE
ISO
AgStack
Ag Data Transparent
Syngenta

Data Literacy

Knowledge translation is essential for creating a long term impact and building the capacity of people working in the agriculture and food sector to fully participate in the data-driven economy.

The EMILI Data Initiative is creating an introductory course for growers will be published online free of charge. This course will feature the following **ten modules**:

The Fundamentals:

1. Data 101
2. Data in Agriculture and Food
3. Working with Data

Key Considerations:

- 4.. Ownership
5. Privacy
6. Cybersecurity
7. Interoperability

Next Steps:

8. Data Governance
9. Open Data
10. AI and Machine Learning

Curriculum does not include content on data analysis, data manipulation, data science techniques, etc.

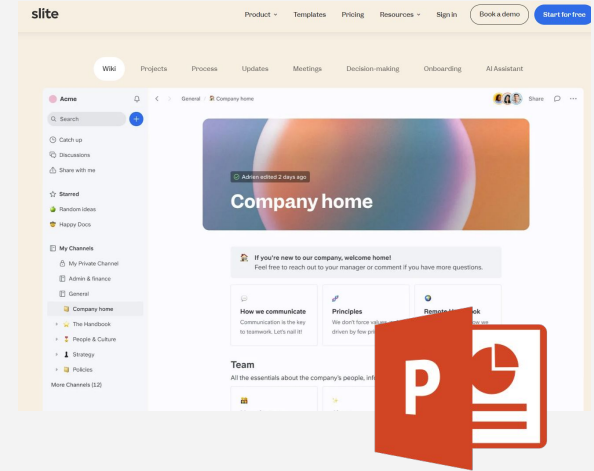


Data Literacy

Long-form content to be published online under open Creative Commons license using the [Slite](#) knowledge management platform.

PowerPoint versions will also be available to support in-person or webinar delivery of content.

First set of introductory modules will be published Spring 2023.



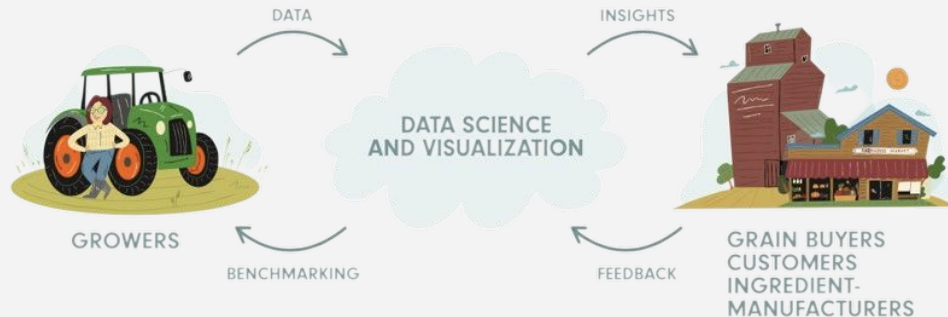
Technology Demonstration

Environmental Performance of Farm Operations Using Data

The rise of digital record keeping and the increasing use of precision agriculture equipment has created the potential for data that growers are already collecting to be part of the solution.

This project brings together data science experts, a small group of grains and oilseed producers, along with grain buyers G3 Canada and Merit Functional Foods.

Based on the experience gained through the project we will produce a series of case studies and lessons learned reports.





Observations and Learnings

- **Unique Expectations:** Producers have a personal, historical or family connection to their land and farm business. Farming and food draw interest from the general public.
- **Trust and Fairness:** Trust, fairness, and risk management remain critical issues. Need a trusted and consolidated sources of solid actionable information.
- **Small Business Lens:** This is the most common business form in the agri-food sector. Small businesses are generally price-takers and end-users of technology.
- **Food Value Chain and Data Ecosystem:** Moving data and information along value chain remains a challenge. Important to identify all data relationships.

Observations and Learnings

- **Priorities:** Other sector challenges (trade, drought, labour, sustainability) often become higher priorities. Digital technology can enable solutions.
- **Knowledge Translation:** Training and knowledge mobilization have to be end point for all activities. Publishing reports and papers is not enough. Do not need to reach expert level to be effective.
- **Beyond Agriculture:** Opportunities exist to engage and learn from outside of the agri-food sector (consumer Internet and Industry 4.0).
- **Cybersecurity:** Growing recognition of cyber vulnerabilities given recent high-profile incidents in processing and retail. Resourcing a challenge for small businesses.
- **Artificial Intelligence and Machine Learning:** Already present in many agtech tools and data is used to create AI/ML models. Growing interest in AI governance, responsible AI (eg. errors, bias and explainability) due to rapid developments in the field (e.g. ChatGPT)

Canadian Agri-Food Data Initiative



Canadian Agri-Food Data Initiative

The seed activities undertaken by the EMILI Data Initiative have set the foundations for an innovative research and collaboration platform focused on agri-food data governance.

That's why in 2023, the EMILI Data Initiative will transition into the Canadian Agri-Food Data Initiative (CADi).

This will be a national project that will create a platform to drive collaboration and coordination on data governance across the whole of the agri-food sector.

Focused on knowledge translation and training as the essential activity to create lasting impact with the **users** of digital technology/data.

Recognition that data governance and data management is essential to successful adoption of digital technologies and digitization.

Canadian Agri-Food Data Initiative

Provide value to growers regardless of location, production type, etc. through engagement with producer associations and post-secondary institutions.

Empower subject matter experts inside and beyond the agri-food sector through access to funding, opportunities to mobilize research results while driving independent research agendas.

Areas of Activity

- **Proof of Concept Demonstrators**
- **Basic and Applied Research**
- **Data Literacy Training: Delivery and Development**
- **Public Policy**
- **Industry Engagement and Outreach**

Canadian Policy Landscape

Agriculture

- **East - West:** Broadly organize Canada into two major regions for crop production. Observe different cropping systems, farm sizes, etc.
- **NAFTA 2.0 (aka USMCA):** Highly integrated market for agricultural products and technology.
- **Farm Bill:** No Farm Bill. Instead a five year policy framework agreed to between the federal government and 13 provinces and territories. Current policy framework - [the Sustainable Canadian Agricultural Partnership](#) - launched April 2023.

Agriculture and Agri-Food Canada (AAFC) has recently published its [Strategic Plan for AAFC Science](#) and completed a consultation to develop its [Sustainable Agriculture Strategy](#), which may also be of interest.

Digital Technology

- **Privacy Legislation:** Federal privacy legislation (PIPEDA) and provincial legislation in three provinces (QC, AB, BC). Bill C-27 before Parliament proposing significant modernization.
- **Artificial Intelligence (AI):** Bill C-27 also includes a framework for the regulation of artificial intelligence. Details needed to operationalize this framework to be provided through regulation.
- **Competition:** Federal government launched review of Competition Act in late 2022.
- **Right to Repair:** Commitments to support the right to repair for consumer electronics/home appliances and to launch a consultation related to farm equipment in 2023 federal budget.

Thank You.



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Further Listening | Upcoming Event

Agtech... So What Podcast: Interesting discussion on data ownership

- [The Three Fears of Farm Data \(11 May 2022\)](#)
- [Audience Responses \(3 Aug 2022\)](#)

Conference on Digital Innovation in Agri-Food*

University of Guelph, 8 June 2023

<https://www.agtechatguelph.com/>

* I am not an organizer of the event, but planning to attend.



The image shows a screenshot of a website for the '1st Conference on Digital Innovation in Agri-Food'. The website has a dark green header with navigation links: Home, Speakers and Participating Organizations, Program, Sponsors, Registration, and Venue. The main content area is white and features the conference title, the tagline '- paving the way ahead', the date 'June 8, 2023', and the location 'University of Guelph'. There is also a circular logo with a green plant-like design.

Questions + Discussion

How can we encourage more Canada-US collaboration related to agtech and ag data? What are current barriers to cross-border collaboration?

What types of projects would be most interesting?

Are there other international examples look for best practices?

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