Workshop Series Summary Report

Ethical Data Governance in Agriculture

May 10 to June 14, 2023

A workshop series hosted by the British Columbia Agricultural Climate Action Research Network (BC ACARN) and the Centre for Sustainable Food Systems at the University of British Columbia (CSFS UBC)

BC Agricultural Climate Action Research Network

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Acknowledgments

Land Acknowledgement

The University of British Columbia's Vancouver campus is located on the traditional, ancestral, and unceded territory of the hən̓q̓əmin̓əm̓-speaking xʷməθkʷəy̓əm (Musqueam) people, for whom this place has been a place to live, learn, and gather for thousands of years.

The workshop series welcomed speakers and participants from across many Indigenous territories. Both the topics of agriculture and data governance have important implications for relationships to Indigenous Peoples and Lands. We encourage you to reflect on your relationship to the peoples and land where you are situated (https://native-land.ca/).

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ABOUT THIS DOCUMENT

The report shares key lessons and resources from a 4-part online workshop series about ethical data governance in agriculture [May 10 to June 14, 2023]. The workshops feature experts from around the world, including speakers from farmer- and Indigenous-led data governance initiatives. The content is widely applicable, with speakers, moderators, and participants representing farmers, agricultural organizations, researchers, government, and industry.

This document is part of the **Toolkit for Ethical Data Governance in Agriculture**. You might also like to use the **Discussion Guide** and **Glossary**.

Document content: This document summarizes the comments of speakers and moderators in a workshop series, listed in the frontmatter. Dr. Sarah-Louise Ruder, Delaine Austin, Catalina Garcia, and Shauna MacKinnon produced the content.

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Note: Highlighted terms in the document are defined in the Glossary from the Toolkit for Ethical Data Governance in Agriculture.

Workshop #1: Global Agricultural Data Governance: Lessons from International Initiatives

May 10, 2023 – Recording: https://youtu.be/lpDt6nUQFuI

Speakers:

Vineet Singh, Vice-President of Products, *Digital Green* (India)
Dr. Isabelle Piot-Lepetit, Research Director, *#DigitAg, Institut national de la recherche pour l'agriculture, l'alimentation et l'environnement* (France)
Luc Lapointe, CEO & Founder, *TheBC.lab* (Colombia)

Moderator:

Greg Rekken, Team Lead for Mitigation and Soil Health, *British Columbia's Ministry of Agriculture and Food* (Canada)

Resources:

- → Digital Green, global not-for-profit organization with offices in Ethiopia, India, Kenya, and the US, and their product, FarmStack https://www.digitalgreen.org https://farmstack.co
- → Ag Data Hub, a reference platform for the circulation of agricultural data by and for the farming community https://agdatahub.eu/en/
- → Agri Dataspace https://agridataspace-csa.eu/
- → Data4Food2030, a project aiming to improve the data economy for food systems in Europe https://data4food2030.eu/

Overview

Three international experts discussed what is driving the need for more agricultural data collection and sharing, as well as the associated data governance challenges and opportunities. Our first moderator, Greg Rekken, fields questions from the audience and shares his perspective working in the government of British Columbia's Ministry of Agriculture and Food.

- There are similar challenges for agricultural data governance across different contexts.
- Farmer organizations or farmer collectives seem key to ethical data governance.
- The discussion period addressed the roles of governments in data governance.

NOTE: All questions from the webinar are listed at the end of the document.

Panel Summary

Vineet Singh

How can farmers use technology and data to build prosperous communities? Data about farmers and farms can be used to raise awareness about their operations and needs (e.g., policy, advocacy). Digitizing information and services, as well as collectivizing among farming communities, can make services more accessible and affordable. Data sharing and digital services for farmers should be accessible and intuitive in format. The "chat bot" https://farmer.chat for agricultural best practices and farm advising is a great example. Data use agreements and consent mechanisms must be accessible and legible for farmers (e.g., video consent summary instead of lengthy legal document)

Agricultural data governance challenges: For farmers, collecting data on farms is challenging, error-prone, and costly. For data collections by others and data sharing, trust must be carefully developed. For governments and other organizations who want to use agricultural data, the quality and validity of data, as well as the format and assumptions of information, are important concerns.

Dr. Isabelle Piot-Lepetit

Policy & responsible data management: It is important to acknowledge to whom the data belongs when shaping policies for effective data management. In Europe, the data ownership belongs to the data subjects. European data strategies prioritize facilitating data flow within and across sectors and ensuring fair, accessible, and high-quality data in compliance with regulations, especially regarding data ownership and privacy. The objective of having common European data spaces is to establish robust data infrastructure and governmental frameworks to facilitate effective and fair data sharing across Europe. Policies have been implemented to make publicly funded information accessible for use as well as to increase trust in the sharing of both personal information and non-personal data. Platforms that facilitate agricultural data exchanges by engaging both public and private sectors, while promoting transparency in data sharing and centralizing farmers' concerns, can provide valuable insights for policymakers.

Luc Lapointe

Data demands in Colombian cacao industry: The Colombian cacao sector faces growing data demands from farmers, lacking transparency guidelines on usage. The push for digital wallet adoption, like the *Movii* app, urges financial data sharing without clear implications. This mirrors a broader trend of technology integration in agriculture without defined guidelines. Smaller, older farmers feel burdened by the increased demand for data without receiving clear benefits and information about what comes out of it, raising questions about accountability, transparency, and the true impact of data-driven initiatives on their livelihoods. There is a crucial need to address the context and ethical implications of data collection, especially in emerging economies.

Workshop #2: Agricultural Data Governance in Canada

May 24, 2023 – Recording: https://youtu.be/1nQp1pFDsD0

Speakers:

Élise Legendre, Chief Data Officer, *Agriculture and Agri-Food Canada* (Canada)
Dr. Kelly Bronson, Assistant Professor, *University of Ottawa* (Canada)

Moderator:

Serena Black, General Manager, *British Columbia Forage Council* (Canada)

Overview

Building on the global overview from the first workshop, we focus on Canada. Watch the recording to witness an engaging and informative conversation across farmer, researcher, and government perspectives on agricultural data governance in Canada. As a moderator for the panel, Serena Black shared several practical examples of data management and governance challenges for farmers in BC.

- Ethical data governance requires paying attention to the relationships between farmers, governments, and corporations and considering how these entities are sharing the benefits and burdens associated with data collection, management, and use.
- Agricultural data governance is a relatively new area of focus within the federal department of Agriculture and Agri-Food Canada (AAFC), so their work in this area is still emerging and evolving, mirroring the rapid ongoing evolution of agritechnology.

Resources:

- → Farmer Centric Data Governance: Towards a New Paradigm project https://developmentgateway.org/publication_landing/farmer-centric-data-governance-towards-a-new-paradigm/
- → Ag Data Transparent, a non-profit aiming to bring transparency, simplicity, and trust to ag tech contracts https://www.agdatatransparent.com
- → Canada's Sustainable Agriculture Strategy. Including Canada's net zero emission targets https://agriculture.canada.ca/en/environment/sustainable-agriculture-strategy
- → Canada's Data Strategy for the Federal Public Service https://www.canada.ca/en/treasury-board-secretariat/corporate/reports/2023-2026-data-strategy.html
- → Kelly Bronson's book: The Immaculate Conception of Data: Agribusiness, Activists, and Their Shared Politics of the Future https://www.mqup.ca/immaculate-conception-of-data--the-products-9780228011224.php
- → Science and Society Collective and read their article on emergent agricultural technologies for small-scale farming http://scienceandsocietycollective.com/diversity-by-design-emergent-agricultural-technologies-for-small-scale-farming/
- → Development Gateway, a global data and digital solutions venture https://developmentgateway.org/

Panel Summary

Élise Legendre

How is the federal department of Agriculture and Agri-Food Canada (AAFC) engaging with ethical data governance in agriculture? Following the establishment of the Federal Data Strategy in 2018, the AAFC created the Chief Data Officer (CDO) position in 2021 to improve internal data management organization and access within the department. Currently, the department is facilitating a network of data stewards to build relationships with and learn from subject matter experts as well as identify challenges and opportunities with respect to agricultural data governance that they may be able to support/engage in. As a national organization, they are especially interested in helping to advocate and upholding best practices for fair and equitable data governance across the agricultural sector.

Dr. Kelly Bronson

There is potential value for the food system in big (agricultural) data, but questions regarding data control and who benefits or may be harmed shouldn't be overlooked in favour of capitalizing on this potential. While accessible agricultural data may support producers in making better management decisions, wealthy and powerful agribusiness companies may use data analytics to set prices to the disadvantage of farmers. There is currently a lack of transparency in the collection and use of farm data by corporations, representing the need and opportunity for regulatory interventions in data governance. Other legal measures should also be implemented to ensure equity in data use, such as using competition law to address the lack of competition among input suppliers who now sell digital platform use. Agriculture and Agri-Food Canada should take a leadership role in agricultural data governance. Deliberative democratic consultations can and should be conducted to determine priorities and develop institutional frameworks for just and equitable data use in the agriculture sector. Alternative governance tools like data trusts and data fiduciary arrangements can also be explored to compensate farmers for their data.

Workshop #3: Community-Led Data Governance and Farmer-Controlled Data

June 7, 2023 – Recording: https://youtu.be/Mva9c83FWlw

Speakers:

Dr. Dorn Cox, Project Lead, *OpenTEAM* & Director, *Wolfe's Neck Center* (US)

Greg Austic, Co-Founder, *Our-Sci.net* & *PhotosynQ* (US)

Moderator:

Dr. Hannah Wittman, Professor, *UBC IRES & Land & Food Systems* & Co-Founder, *LiteFarm* (Canada)

Resources:

- → OpenTeam and tools https://openteam.community https://openteam.community/access-tools-and-support/#
- → Our-Sci.net and Farmer's Coffeeshop https://www.our-sci.net/ https://coffee-shop.onrender.com/
- → FarmOS, a web-based farm management, planning and record keeping application https://farmos.org/
- → Read Dorn Cox's recent book, *The Great Regeneration: Ecological Agriculture, Open-Source Technology, and a Radical Vision of Hope*: https://www.barnesandnoble.com/w/the-great-regeneration-dorn-cox/1142641204
- → LiteFarm, a free open-source farm management tool for sustainable farming https://www.litefarm.org/
- → Cool Farm Alliance and Cool Farm tool: https://coolfarmtool.org/cool-farm-alliance/ https://coolfarmtool.org/coolfarmtool/
- → Pennsylvania Sustainable Ag group, an agricultural group with a history of collecting and sharing soil data https://pasafarming.org/

Overview

Next, we learn from two farmer- and community-based data governance experts. Both Dorn Cox and Greg Austic talk about the rights and concerns of farmers and farm workers regarding agricultural data collection and use and how they are envisioning and enacting grassroots agricultural data governance. Hannah Wittman, the panel moderator, asks questions based on her work with farmers in Canada and Latin America.

- There needs to be a focus on "Building Technology of Trust": trust between people and organizations and trust in the tools helps create credible data.
- It is ideal for farmers to be able to enter their data once and then use it many times themselves and/or share with trusted partners for use with their consent.

Panel Summary

Dorn Cox

Why is agricultural data collection and sharing so critical? Consumers, governments, and other groups are asking more of agriculture now than ever before: not only to feed a growing global population, but also adapt to and help mitigate climate change and environmental problems. Agricultural data can be translated into actionable knowledge to support producers in making the best management decisions for people and the planet. However, the creation and maintenance of these datasets require robust data collection technologies and large scale collaboration.

Key factors for supporting producer data collection and large-scale collaboration*:* Interoperability is the most crucial building block for data governance at both local and macro scales. Co-creation processes that address not only the technical but also the social, business, and legal elements of data systems are essential for building trust and supporting farmers' data sovereignty. Other important issues are: data rights, data ownership, access, privacy, and consent.

Greg Austic

What does a farmer-centered data governance look like? Farmer's Coffeeshop is a peer-to-peer benchmarking system that aims to facilitate data sharing and collaboration among farmers while prioritizing their autonomy and privacy. It allows farmers to upload and anonymize their own data within an open repository and compare it with others. Filters can be applied to identify high or low performers, and data on management practices can be explored to find correlations with outcomes of interest. The tool also integrates with another open source platform for a chat feature that enables producers to ask questions about the data to an online community.

Approaching producers about agricultural data: It's crucial to recognize that by asking farmers to engage in data collection and sharing for broader purposes (e.g. environmental monitoring), we are asking them for their help. Be gracious. Rather than confronting producers with jargon and already finished, rigid, complex software tools, we need to engage them in the early stages of software design and development. This way, we can acknowledge and honour their expertise and perspectives, while shaping the software to better address their specific challenges and requirements. Seek engagement early to help build trust and ethical data governance models. Farmers want to know that their data will be securely managed and that their privacy will be protected. Other factors that can increase farmers' willingness to participate are: data ownership, user-friendly interfaces, and evidence of how the project can improve their productivity, efficiency, profitability, or sustainability.

Workshop #4: Indigenous Data Sovereignty

June 14, 2023 – [This session was intentionally not recorded]

Speakers:

Dr. Tabitha Robin Martens, Assistant Professor, *University of British Columbia*

Dr. Robyn K Rowe, Postdoctoral Fellow, *Queen's University*

Moderator:

Dr. Dana James, Postdoctoral Researcher, *UBC Centre for Sustainable Food Systems & Working Group on Indigenous Food Sovereignty* (Canada)

Overview

Indigenous Peoples and organizations have led by example in ethical data governance for several decades. This session facilitated a conversation about the responsibilities of settlers (or other non-Indigenous people's organizations) collecting agricultural data on Indigenous territories.

- Even if you are not working with an Indigenous organization, your research or data governance project *may involve Indigenous data* (which includes but is not limited to information, knowledge, species, and belongings relating to Indigenous Peoples' lives and cultures).
- Indigenous data can be sensitive information.
- Each Indigenous community has its own protocols and processes for knowledge sharing and research. Context and relationships matter.

Resources:

Open Access Books and Articles

- → Indigenous Data Sovereignty: Toward an agenda [Open Access Book] https://library.oapen.org/handle/20.500.12657/31875
- → Indigenous Data Sovereignty and Policy [Open Access Book]: https://library.oapen.org/handle/20.500.12657/42782
- → The State of Open Data Histories and Horizons [Open Access Book] https://library.oapen.org/handle/20.500.12657/42782
- → Good Data [Open Access Book] https://networkcultures.org/wp-content/uploads/2019/01/Good_Data.pdf
- → "Indigenous Peoples' Rights in Data: a contribution toward Indigenous Research Sovereignty" [Open Access Article] https://doi.org/10.3389/frma.2023.1173805
- → "A New Era of Indigenous Research: Community-based Indigenous research ethics protocols in Canada" https://doi.org/10.1177/15562646211023705

Principles and Frameworks:

- → First Nations Principles of OCAP®: https://fnigc.ca/ocap-training/
- → CARE Principles: https://www.gida-global.org/care
- → Manitoba Métis Principles of OCAS: https://www.cihi.ca/sites/default/files/document/path-toward-respectful-governance-fnim-2020-report-en.pdf
- → USAI Research Framework: https://ofifc.org/wp-content/uploads/2020/03/USAI-Research-Framework-Second-Edition.pdf
- → National Inuit Strategy on Research: https://www.itk.ca/wp-content/uploads/2018/04/ITK_NISR-Report_English_low_res.pdf
- → Chapter 9 of the "Tri-Council Policy Statement: Ethical Conduct for Research Involving Humans" (TCPS2): Research Involving the First Nations, Inuit and Metis Peoples of Canada: https://ethics.gc.ca/eng/tcps2-eptc2_2022_chapter9-chapitre9.html

- Fundamentally, Indigenous data sovereignty is about upholding Indigenous People's rights to self-determination.
- Although technology can be involved in establishing ethical data governance with Indigenous Peoples and Indigenous data, the solutions will not be merely technological.

Overview

In the Canadian context, "OCAP®" is an increasingly well-known approach to data governance when Indigenous Peoples and Indigenous data are involved. The First Nations Principles of OCAP® – Ownership, Control, Access, and Possession – were first outlined by the Assembly of First Nations in 1998. Today, First Nation Information Governance Centre stewards the First Nations Principles of OCAP® and offers a training and certification program. Here is a short video explaining First Nations Principles of OCAP®: https://youtu.be/y32aUFVfCM0. Dr. Tabitha Robin Martens and Dr. Robyn K. Rowe explained how "OCAP" is a starting point, *not the end goal of ethical data governance*. It is possible to follow First Nations Principles of OCAP® and still not be conducting culturally responsive or ethical research. The same is true for research or data sharing with "good intentions."

The stories told by data and research that represents Indigenous peoples have real life (often negative) implications for Indigenous Peoples. Researchers need to be cognizant of the history of Indigenous research so harms and mistakes are not repeated. For example, *The Fundamentals of OCAP®* presents examples of when academic, government, and private actors collected or used Indigenous data in ways that resulted in enduring harms for Indigenous peoples and nations. Even today, Indigenous data is used by non-Indigenous people or organizations in ways that put the lives and livelihoods of Indigenous Peoples at risk.

There is no universal or "cookie cutter" approach for ethical data governance because each Indigenous community has its own protocols and processes for knowledge sharing and research. There are several examples of Indigenous-led principles or protocols:

- **Manitoba Metis Federation's Principles of OCAS**: Ownership, Control, Access, Stewardship
- **Inuit Tapirit Kanatami's National Inuit Strategy on Research (NISR)**: 1. Advance Inuit governance in research, 2. Enhance the ethical conduct of research, 3. Align funding with Inuit research priorities, 4. Ensure Inuit access, ownership, and control over data and information, 5. Build capacity in Inuit Nunangat research.
- **Ontario's Federation of Indigenous Friendship Centres USAI Research**: Utility, Self-Voicing, Access, and Inter-Relationality
- Global Indigenous Data Alliance's **CARE Principles of Indigenous Data Governance**, in response to the **FAIR Principles**.

Fundamentally, ethical Indigenous data governance or Indigenous data sovereignty is about upholding Indigenous People's rights to self-determination. **Indigenous Data Sovereignty** is a global movement to uphold and (re)affirm the rights of Indigenous Peoples to control the collection, access, analysis, interpretation, management, dissemination, and (re)use of Indigenous data (which includes but is not limited to information, knowledge, species, and belongings relating to Indigenous Peoples' lives and cultures), aligned with the rights outlined in the United Nations Declaration on the Rights of Indigenous Peoples.

Working toward ethical data governance with Indigenous Peoples and Indigenous data demands engagement with Indigenous sovereignty and self-determination, as well as the settler colonial context in Canada. To learn more, read: United Nations Declaration on the Rights of Indigenous Peoples, the Report of the Royal Commission on Aboriginal Peoples, the Truth & Reconciliation Calls to Action, and the Missing and Murdered Indigenous Women and Girls Final Report.

Full list of questions from the Q&A portion of each webinar

Watch the recording to hear the experts engage with the questions below!

Workshop 1:

Recording: https://youtu.be/lpDt6nUQFuI

1. What is the role of **governments and state authorities** in ensuring ethical implementation of data in agriculture?
2. It seems like there must be a high level of **trust** between producers and government. **Can this work where producers wish to keep their data private?**
3. Which are the states in **India** where this app is being used? What are the bottlenecks, if any?
4. How do you handle **personal information such geolocalized data** when sharing data? Do you explain to the farmers how the data will used thereafter?
5. If a producer engages with this app for a few years and then decides to break ties, does this app allow them to **take their data with them and delete it** within the app?
6. What can Israel **and other Middle East countries** learn from experience of data governance in the **European Union**?
7. Are the **Common European Data Spaces** simply a repository of open data by sector?
8. Can you give some examples of gatekeeping that the **Digital Market Act** tried to restrict?
9. When it comes to sharing data, can farmers provide info for **how data was collected and standardized**?
10. Is **consent** on the use of **remotely sensed farm-scale data** addressed by your work? How is this managed?
11. Is there any concern or evidence that data collection is being **leveraged by investors to guide agriculture real estate** acquisitions? How are the **interests of individual producers/contributors** protected?
12. Many equipment companies with **modern sensors and data connectivity** have the capacity to build private repositories of field data. How is this data collection regulated? monitored? democratized?
13. What considerations are being undertaken re: **growing AI capacity to conduct data collection**? Can regulation prevent gleaning land use or sales data by remote sensing or through web traffic? Is **consent** an enforceable barrier to data collection?
14. **Right to repair** re: farm equipment demonstrates a lack of control by producers over an essential aspect of production. How is this dialogue translated to use of digital technology? Is there risk that **non-participation will disadvantage producers**? Do future **subscriptions or fee-for-access** business models common in tech pose a risk to fair participation?

Workshop 2:

Recording: https://youtu.be/1nQp1pFDsD0

1. Do you have a sense that **federal departments** are in lock-step regarding **data governance** or are some taking the lead?
2. Given the **need for trust from producers**, as well as the department and sector's environmental goals, what **role will AAFC play** in enabling data collection from producers to monitor GHG emissions and other environmental metrics?
3. Agree with the previous question and the need to **navigate data privacy and trust issues with** the more **collaborative research** being done between AAFC and the public, like in the Living Labs.
4. How, according to you, **AI technologies** and technologies of agritech can support adopting agriculture in the BC region to effectively tackle **climate changes**?
5. How can we **empower small and medium sized growers** in this context? Is this type of **data collection feasible**?
6. **How safe is this data** that is being collected in the first place? We are seeing hackers holding IT systems hostage in many organizations. Can **AAFC** make any **promises around data protection**?
7. Evolution of the data sharing landscape is evolving faster than our best practices to manage. Broad scale challenges are **bringing government, NGO's, industry, Indigenous and producer data** in different iterations with **different expectations**. Any **tips** for trying to navigate the development of **formal data sharing relationship**s in these cases?
8. Is AAFC working on **infrastructur**e to facilitate **connection of researchers to farmers** such as through panels?
9. Is the data that is being collected and informing guidance leading to the **right advice for producers**? For me it relates to the **need for baseline data** and across B.C where we are working with really complex geographies and microclimates and if all the data for these **algorithms are coming from** the prairies or **other regions** then are we even getting to the point of **providing the right suggestions** to the producers and is it going to make economic sense?

Workshop 3:

Recording: https://youtu.be/Mva9c83FWlw

1. How can **open access** to technology **support development** of agriculture in poor and **low-socioeconomic countries** of Africa, Asia and Latin America?
2. How can the **open source community** address the challenge of **digital inclusion**?
3. What is **open source** vs **open access**?
4. An interoperability concern we have heard from farmers who are using proprietary tools who would be happy to share their data with their neighbours is that they don't know how to do that, so **how do producers get their data into coffeeshop**? Does the tool allow **transferring data** from precision ag equipment or is it still **requiring farmers to retype in their data**?

5. Do you think **farmers** are more interested in **pushing their existing data out** or are they more interested in making it easier to **fill the many requests they get** for data?
6. Relating to the **data sovereignty** piece, if a **farmer** was interested in being part of a benchmarking project, how do they go about **deciding to share their data and who to share it with** in a tool like the coffeeshop?
7. How do we explain the **value proposition** of an **open source or open access ecosystem versus a private monetized ecosystem** oriented towards the same **objectives of resilient, regenerative, sustainable agriculture**?
8. What has **changed for farmers** themselves by **contributing to/participatin**g in these **open data networks**? Can you share a concrete example of how a **producer has benefitted** from engaging in the data pipeline in a new way?
9. What's the difference between an **open access product** and **open data sets**? How would an open data set that might be emerging form a project respect the **privacy concerns** of producers? How do **farmers opt in and out** of different data sharing opportunities?
10. Can you speak to **data stewardship** at a **temporal scale**? Specifically, what is the long term horizon for making **community led open source projects** (that maybe aren't going down the road of privatization or venture capital investment) **sustainable**?
11. Can good **open technology tools** in agriculture help ensure **food security**?

Workshop 4:

1. Could you unpack the **concept of 'data'**. What is and isn't 'data' in your view, and how do you think about the term itself?
2. How does the **definition of data** figure into conversations about **ethical engagement with Indigenous Peoples and communities and reconciliation**?
3. The definition of Indigenous Data as '**data that affects Indigenous lives' includes agricultural data** collected by governments or farmers that is not usually characterized or acknowledged as "Indigenous Data." How then do we start to frame the **responsibilities or obligations of settler researchers and institutions** in the collection and stewardship of agricultural data?
4. This webinar series has been broadly focused on **(ethical) agricultural data governance** in particular. Can you speak to the need to **think beyond "agriculture"** in this context?