

Living in an Agroecosystem Living Lab: Participant Reflections and Experiences From Canada's Living Laboratories Initiative

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Abstract

Since 2018, Agriculture and Agri-Food Canada's (AAFC) has been building a network of agroecosystem living labs to accelerate the development and adoption of beneficial management practices that will address urgent agri-environmental issues, such as climate change. With the Living Laboratories Initiative sunsetting in 2023, this study is a follow-up to an earlier study (Bancercz, 2021) exploring the initial experiences of the first two living labs. This study focuses on the original four living labs implemented under AAFC's 5-year Living Laboratories Initiative: Atlantic, Eastern Prairies, Ontario and Québec.

Similar to the previous study, using semi-structured interviews, this qualitative study explores participant experiences of using living labs for innovating environment-oriented beneficial management practices on Canadian farms, while comparing the opportunities and challenges participants have faced throughout the evolution of their respective living labs.

Our preliminary findings identify "time" as a key factor affecting the co-production process and overall innovation process in living labs. Agroecosystem living labs as defined by McPhee et al. (2021) add additional challenges to undertaking a co-production process, seemingly exasperating the limitation of time needed to reach the "co-production" stage of living labs.

Objectives & Research Questions

The objective of this study is to better understand the experiences of participants, processes of implementation, and impacts of agroecosystem LLs from the Living Laboratories Initiative. Ultimately, our study gives insights into improving and supporting the iterative process in open innovation in future agroecosystem LLs, including the expansion of Canada's agroecosystem LL network under AAFC's Agricultural Climate Solutions program.

Our study is exploring the following questions:

- What can agroecosystem LLs reveal about the processes of open innovation in the public sector?
- What has changed in the experiences of LL participants over the course of the Living Laboratories Initiative?
- What are some opportunities and challenges of using the LL approach as a co-production tool to accelerate the development and adoption of agri-environmental practices on farms?

Methodology

This qualitative case study conducted 34 virtual and phone semi-structured interviews to date. Participants were identified using purposeful sampling methods. Two main groups of interview participants involved in the Living Laboratories Initiative were approached:

1. **Canadian public servants**: AAFC management, AAFC key informants, and AAFC and Environment and Climate Change Canada scientists.
2. **Partners outside of government involved in the Living Laboratories Initiative**: farmers, provincial governments, non-governmental organizations, academia and private sector.



Preliminary Results

LIVING LAB – EASTERN PRAIRIES

- **General location**: Lake Erie basin
- **Location of activities**: Across four watersheds in Manitoba: Upper Oak River, Swan Lake, North Shannon Creek, and Main Drain
- **Priorities**: Soil health, water management, habitat conservation and climate change

"I think there is a lot more project and relationship management involved, and effort has to be placed in developing good working relationships and trust-making...If we don't start with a well-defined shared objective or issue, it can be pretty ineffective or very hard to move forward quickly or focus the work we have to spend a lot of time just defining those [objectives and issues]." (AAFC scientist)

[referring to conducting research in living labs] "I guess some of it relates back to the nature of working on a farm and with producers and weather and climate variability year to year. You're not gonna have the same control spatially, whether it's, as I say, control plots or replicates that make something strong statistically or scientifically. And so, you trade space for time and that time part will take time. If you need multiple years of measurements of something from the same farm, you know you're gonna walk three wet years, three dry years...you're still getting good data on the social and agri-economics and what drives producers...but I think it can be slower on the actual science [referring to physical science]." (AAFC scientist)

LIVING LAB – ONTARIO

- **General location**: Lake Erie basin
- **Location of activities**: Multiple locations in the Lake Erie basin.
- **Priorities**: soil quality, water quality, watershed management and biodiversity

"Three years did seem a little short. It seems like everybody just got familiar with one another, familiar with the sites and then all of a sudden, the project seems to disappear, so that was a little frustrating." (producer)

"I think my experience would say that true co-development takes time because it requires relationships. To really be able to get each other, in order for co-development to really click and for those research questions to be truly codeveloped, you have to understand each other and where you're coming from." (non-governmental organization partner)

LIVING LAB – QUÉBEC

- **General location**: In the middle of the large watershed of Lac Saint-Pierre
- **Location of activities**: Rivière du Bois-Blanc watershed, the Rivière Pot au Beurre watershed, and a region comprising of small watersheds flowing directly into Lac Saint-Pierre
- **Activities**: Soil management, water quality, and biodiversity

[translated] "We were beginning to get to know each other, to understand each other, to know who we were working with. The 'electrical cable' between us was connected! After that [connection], going from 220kW to 550kW would have been easy, the connection was made. So, we could have gone one step further if we had a few more years." (producer)

[translated] "Establishing effective communication and coordinating between researchers and producers is very important. It's one of the challenges we've had to face. Why? Because many things had not been anticipated. We thought it would be easy synchronize the needs of the researchers and the producers. But the language of the producer and the language of the researcher, the reality of the producer and the reality of the researcher, are different. We needed time to get to know each other, to learn to understand each other's realities." (external partner)

LIVING LAB – ATLANTIC

- **General location**: Prince Edward Island
- **Location of activities**: Dunk River, Kensington North, and Souris watersheds, as well as at the AAFC Harrington Research Farm
- **Priorities**: Soil health and water quality

"I think it's definitely opened up that way, not that there was any barrier to it just I think again it's that familiarity where we weren't really sure about you know not that we distrusted each other, just that it's a big table full of unfamiliar people initially and now it's everybody's so comfortable together that I definitely think it's more the contributions to the project design and management and drive are much more widely spread across all the participants versus kind of the few key members who are integral to keeping everything on course." (non-governmental organization partner)

"Just getting going, the momentum, I feel like we're there now and it's [the living lab] ended. When we're hoping that we get Living Labs 2.0 or ACS [Agricultural Climate Solutions]...because it's like we just got here and then there was so many hiccups [in the first living lab] and there was a variety of reasons. COVID certainly didn't help things." (government partner)

Preliminary Discussion

- Participants in all four LLs identified **time** as an obstacle to the co-production process. They noted that developing relationships and engaging in collaboration took several years before they could get to a point where co-innovation and co-production could truly begin.
- This challenge was more pronounced in the Ontario and Québec LLs that had 2-3 years of activities which largely overlapped with the COVID-19 pandemic and lockdowns that prevented in-person collaboration.
- Rycroft-Malone et al (2016) describe three key challenges in the collaboration and co-production of knowledge in the healthcare industry: having **multiple communities involved** (working together with partners who have different interests and values which requires time to develop trust, understanding and mutual learning), having **architectures to support collaborative action** (the development of relationships and rapport between partners within a governance arrangement), and have the **capability and capacity** (collaborating with partners with the skillsets, creativity, flexibility required in a co-productive environment).
- These challenges correspond to the components found in Ansell & Gash's (2007) model of the collaborative process used in Bancercz (2021) to better understand the early days of AAFC's Living Laboratories Initiative which can now help us learn more about the collaborative process leading to co-production throughout the entire Initiative.
- This study will continue to explore the concept of time in the co-production process of living labs as it impacts the key building blocks of collaboration, and as it relates to the unique temporal complexities of agroecosystem living labs embedded in social, economic, and environmental systems (McPhee et al, 2021).

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