Land, Food, and Work in Conversations with Cellular Agriculture

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The Social Implications of Agri-Genomics: Ensuring a Just Transition to Climate- Resilient Agricultural and Food Systems in Canada

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INTRODUCTION

Emerging agri-genomic technologies, such as cellular agriculture, are positioned as key technologies to achieve **Canada's 2030/2050 emission targets in food systems**. By producing novel "meat-like" proteins, cellular agriculture offers an alternative to animal-based production and its socio-ecological impacts. This raises distinct questions for those who currently labour or base their livelihoods within the animal production supply chain. Canada's agriculture and **agri-food system employs over 2.3 million people** across the value chain, from primary production to foodservice providers, representing **1-in-9 jobs nationwide**. Today, the agricultural workforce remains diverse, including domestic workers, asylum seekers, incarcerated individuals, international students, undocumented workers, and temporary guest workers. Yet the sector faces pervasive and persistent **labour shortages driven by a range of structural factors**, including:

- Industry consolidation and intensification
- Rural-urban migration
- The devaluation of agricultural labour; characterized as "low-skill" work
- The decades-long stopgap measure of the Temporary Foreign Workers Program

While Canada has yet to approve of the commercial production of alternative novel proteins, **New Harvest Canada** anticipates that by 2030 the first products will move from lab to shelf. Our research approaches the development of this industry from the framework of a Just Transition to ask: ***How will these emerging agri-production systems engage with existing agricultural labour regimes?*** In this poster, we focus on three prominent themes emerging from the conversations: **land, food, and work.**

METHODOLOGY

We draw from two virtual workshops that brought together 17 participants—including project members, industry representatives, and Stó:lō First Nation members (on whose traditional unceded territory UFV is located) of our Indigenous Community Advisory Council—to exchange knowledge on cellular agriculture. This poster highlights insights from these sessions.

TRANSITIONING CELLULAR AGRICULTURE INTO FOOD SYSTEMS: CASE STUDIES

Urban Agricultural Development

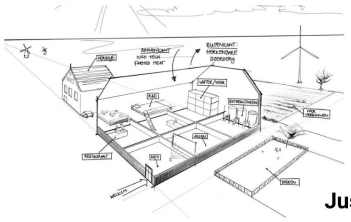
Case study: UPSIDE Foods, USA

Amazon-like warehouses

Revitalizing Rural Development

Case study: RESPECTFarms, Netherlands

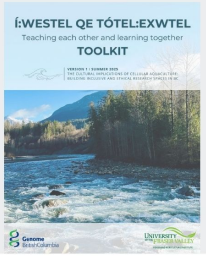
Repurposing existing agricultural infrastructure



Including Indigenous Rightsholders in Dialogues

Í:westel qe tótel:exwtel (Teaching Eachother & Learning Together) Toolkit

Transitioning agri-genomics into food systems has unique cultural, socioeconomic and legal implications for First Nations, highlighting restorative and recognition justice and commitments to UNDRIP and the Truth and Reconciliation Calls to Action.



TOWARDS A JUST FOOD SYSTEMS TRANSITION FRAMEWORK CONSIDERING CELLULAR AGRICULTURE

The International Labour Organization defines a Just Transition as: **Greening the economy in a way that is as fair and inclusive as possible to everyone concerned, creating decent work opportunities and leaving no one behind.**

Just Transition frameworks have been articulated for the energy sector, but distinct questions emerge when applied to the food and agricultural sector:

- Indigenous rights holders: what cultural, socioeconomic and legal concerns are foremost for First Nations?
- What does "leaving no one behind" mean when for guest workers who are displaced from their own livelihoods in their home country, often because of the climate crisis?
- What protections and supports are in place to protect farmers invested in the conventional agricultural sector?
- How will cellular agriculture impact rural and urban spatial development and livelihoods?

CONVERSATION THEMES	**OPPORTUNITIES:** RURAL	**OPPORTUNITIES:** URBAN	**CHALLENGES:** RURAL	**CHALLENGES:** URBAN
LAND: CELLULAR AGRICULTURE WILL IMPACT DEVELOPMENT PATTERNS	**Reduce** pasture and feed crop demand; **repurpose** infrastructure (e.g., logistics networks, barns, processing facilities); **integrate** with rural systems; reduce agricultural expansion; honor Indigenous rights and title; **inclusive planning**.	Multiple **scales of production** from commercial facilities to DIY; **repurpose** industrial infrastucture; **integrate** with urban systems; **honour Indigenous rights and title;** inclusive planning.	Resource substitution (i.e. **higher energy inputs**); conversion of farm land for industrial production; new forms of **dispossession** for Indigenous communities due to **exclusion** from opportunity and risk assessment.	Urban-rural **disconnect** by alienating rural producers; **concentration** of industrial production in urban spaces; mismatch with existing zoning categories (i.e. biomanufacturing = new category); green **gentrification** risks.
FOOD: HOW DIMENSIONS OF FOOD SECURITY WILL BE IMPACTED	**Diversify** protein systems; enhance resilience by **decoupling** protein from livestock production; **resilience** to climate shocks; socially responsive innovation pathways; enhanced **food sovereignty.**	Multiple scales of production can **enhance food security**; enable local/regional supply resilience; potential to **democratize** protein access; enhanced food sovereignty.	**Nutrition and food safety** issues; reliance on energy infrastructure; colonial continuity through "innovation;" **accessibility, availability** and **cultural appropriateness** of technology and food products.	Availability and accessibility of 'premium' or 'niche' products; techno-solutionist framing obscures **structural roots of food insecurity;** cultural appropriateness of technology and products.
WORK: SKILLS AND TRAINING, JOB SECURITY, EQUITY AND OPPORTUNITIES	Producers diversify and/or leave conventional production through **re-skilling;** a new generation of agri-tech producers emerges; decentralized production generates new rural jobs; livelihoods **protected from climate shocks.**	Entrepreneurial and **cooperative** systems; opportunities to **transition out of slaughter** processing; improved working conditions; new **livelihood opportunities** across the value chain.	Relocation or decommissioning farms causes **local job losses**; loss of rural autonomy; **unequal access** to training opportunities; overreliance on STEM credentials vs. life experience; disrupted intergenerational knowledge.	Exclusion of traditional food workers; **segmentation** of labour force; concentration of corprate power; **precarity** of innovation jobs; STEM **credentials valued over vocational/technical skills** and experience and intergenerational knowledge.