Mapping the Greenhouse Innovation Policy Delivery Ecosystem in Canada: Ontario Case Study

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Project Context

Significance of Greenhouse Production

The greenhouse sector is a vital part of Canada’s agri-food system, especially in Ontario, amid climate and food security challenges.

Greenhouse Production Trends

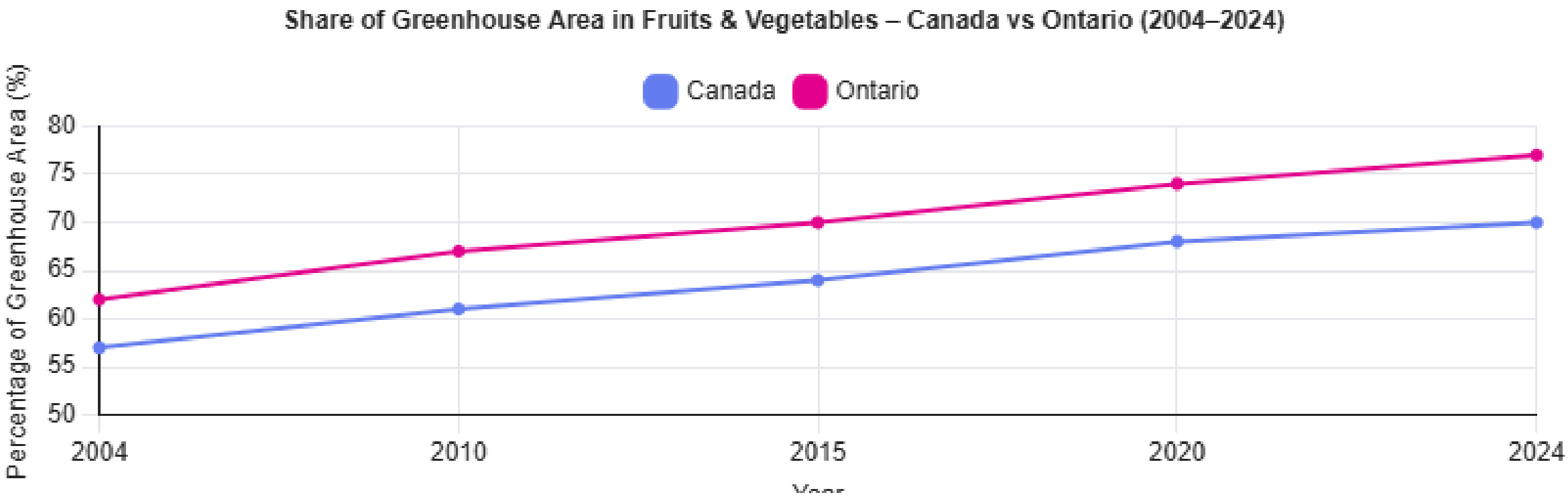
20-Year Shift Toward Food-Focused Greenhouse Production

YEAR	CANADA: % OF GREENHOUSE AREA IN F&V	ONTARIO: % OF GREENHOUSE AREA IN F&V	KEY PATTERN
~2004–2005	~55–58%	~60–63%	Ornamentals still dominant; Ontario already more food-focused
~2010	~60–62%	~65–68%	Vegetable expansion accelerates post-2008
~2014–2015	~63–65%	~68–72%	Clear structural shift toward food crops
~2020	~67–68%	~72–75%	Rapid expansion in Southwestern Ontario
2024	70.0%	~75–78%	Ontario leads national food-greenhouse transition

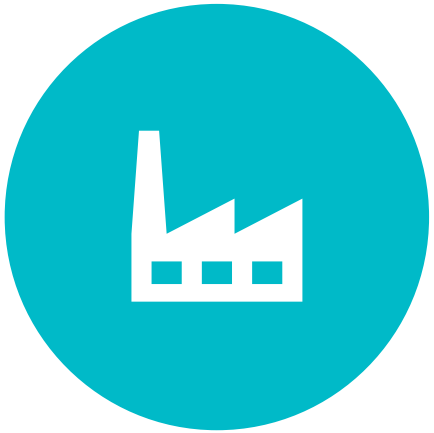
Source: Statistics Canada

20-Year Shift Toward Food-Focused Greenhouse Production

Statistics Canada



Project Objectives



MAP THE GREENHOUSE TECHNOLOGY SERVICE DELIVERY ECOSYSTEM

FOCUS ON INNOVATION INTERMEDIARIES AS SERVICE-DELIVERY ACTORS

EXAMINE SOUTHERN ONTARIO AS A LEADING CASE

Research Questions

What is the network structure of the greenhouse innovation ecosystem?

What strengths and weaknesses affect innovation program delivery within the ecosystem?

Greenhouse Innovation Programs and Services

- Supporting or conducting upstream R&D or early-stage research
- Validating and prototyping new or improved technologies
- Mobilizing or commercializing new or improved technologies
- Supporting technology adoption by farmers and businesses
- Regulation and safety & technology interoperability standards promotion
- Technology interoperability standards promotion
- Facilitating linkages among tech developers and end users in the network
- Policy advocacy on behalf of the network
- Public education and public relations on behalf of the network.

Methodology

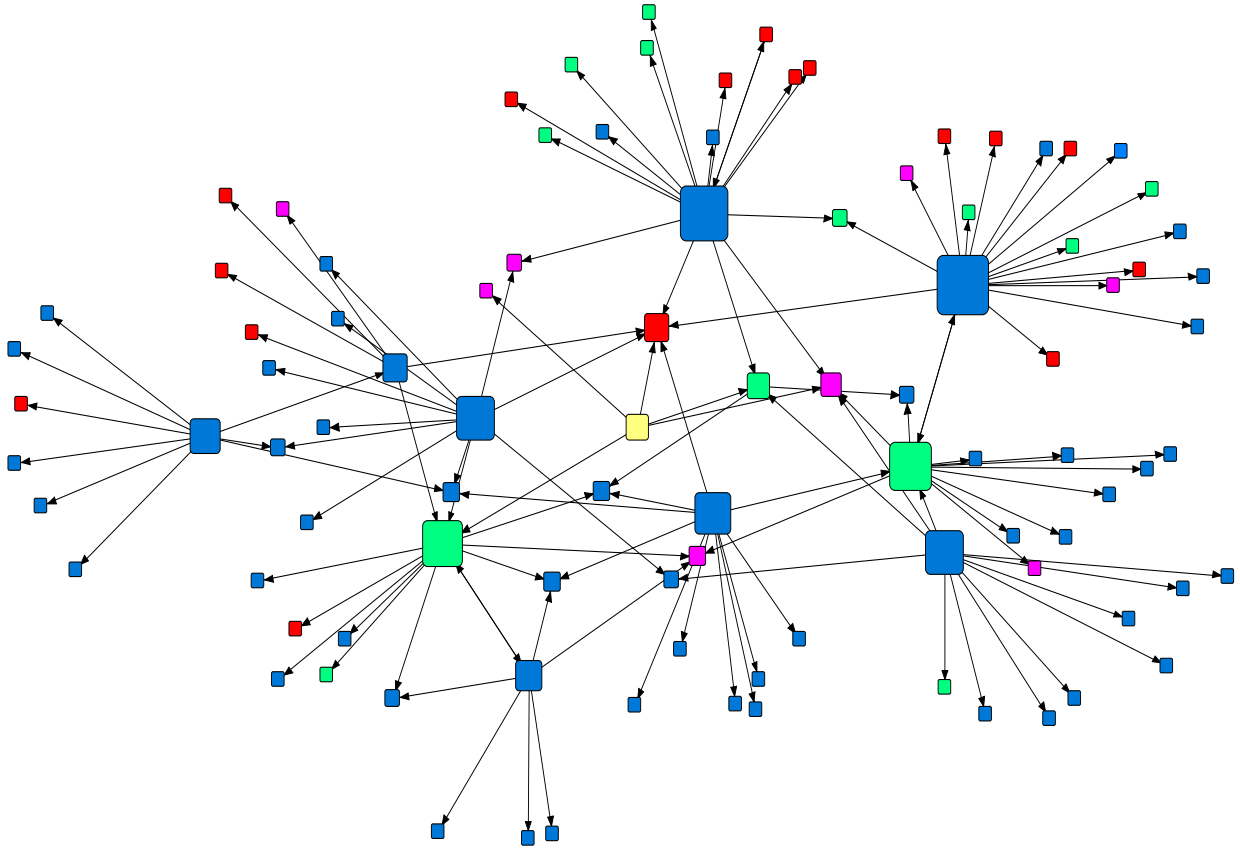
Focus on Southern Ontario greenhouse ecosystem

Social Network Analysis (SNA)

- Online survey of organizations (Fall 2025)

Semi-structured interviews (Fall 2025 to Winter 2026)

Sociogram



- Blue – Private Sector
- Red – Non-profit
- Green – Post Secondary Institute/ Centre
- Pink – Public Sector
- Yellow - Hybrid

Sector Distribution of Actors

SECTOR & SOCIOGRAM COLOUR	NUMBER OF ACTORS IDENTIFIED
Public Sector (Pink)	9
Non-Profit Sector (Red)	16
Private Sector (Blue)	57
Hybrid (Yellow)	1
Postsecondary Institute/Centre (Green)	13

Connectivity Across Types of Innovation Links

TYPE OF INNOVATION LINK	# OF NODES	# OF TIES	AVERAGE DEGREE	CENTRALIZATION
All links	102	120	1.176	0.159
Upstream R&D	52	47	0.904	0.128
Validation & prototyping	52	43	0.827	0.151
Commercialization	42	30	0.714	0.143
Technology adoption support	28	15	0.536	0.197
Regulation & standards	28	7	0.250	0.100
Facilitating linkages	27	8	0.296	0.100
Public education	31	11	0.355	0.082

Enabling Conditions for Greenhouse Innovation Ecosystem

Strong Greenhouse Sector

Southern Ontario has a large, technologically advanced greenhouse sector driving global competitiveness and innovation demand.

Robust Research Capacity

Universities, colleges and research centres provide expertise and infrastructure supporting upstream R&D and applied experiments.

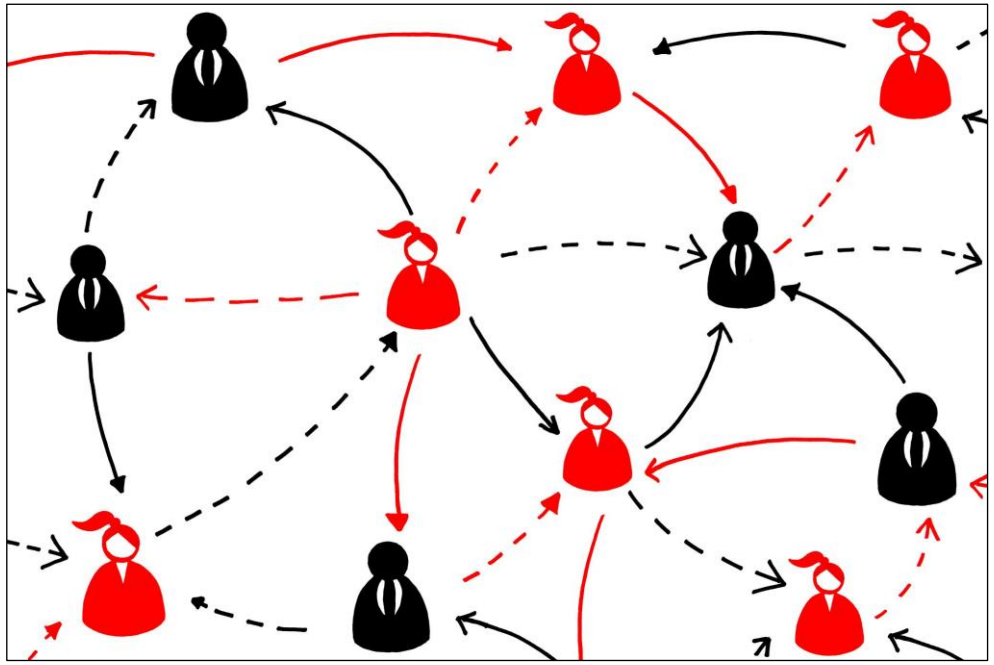
Innovation Adoption by Growers

Ontario growers embrace new technologies driven by competitive pressures and a culture of continuous improvement.

Technology Transfer and Support

Ecosystem includes commercialization and de-risking supports bridging research breakthroughs to market applications.

Structural and Institutional Constraints



Siloed Structures and Collaboration

Weak collaboration and siloed structures across agencies increase transaction costs and hinder program alignment.

Funding Instability

Short funding cycles and underinvestment disrupt innovation commercialization and adoption processes.

Communication and Relationship Strain

Communication difficulties and managing multiple relationships add strain to intermediary organizations.

Regulatory and Intellectual Property Barriers

Weak IP frameworks and regulatory constraints limit commercialization and scaling potential.

Strategies for Strengthening the Innovation Ecosystem

Streamline Institutional Processes

Improve speed, clarity, and efficiency of processes to reduce delays in research and commercialization activities.

Enhance Outreach and Funding

Increase awareness of resources and expand public funding and risk capital for technology piloting and scaling.

Strengthen Academic-Industry Links

Build research capacity and deepen collaboration between universities, colleges, and industry for better knowledge transfer.

Regulatory Reform for Growth

Implement targeted reforms in intellectual property and land-use to remove commercialization barriers.