

Innovation Strategy Consultation Session: Agriculture and Agri-Food Sector

Introduction

The Canadian Science Policy Centre (CSPC) hosted an industry consultation session with the agriculture and agrifood sector as part of its National Conversation on Canada's Innovation Strategy initiative. The consultation aimed to gather insights for shaping a flexible and adaptive innovation strategy that addresses both current and future needs of the sector. The discussion focused on three core topics:

- Emerging trends and challenges in the sectors
- Designing an innovation strategy to adapt to the emerging trends and challenges
- Priorities for a national innovation strategy

Emerging Trends and Challenges

Technological Trends

Sustainable practices such as 4R Nutrient Stewardship (choosing the right source, time, place, and rate for fertilizer use) are gaining traction. However, despite increased awareness of best practices, a small percentage of farmers have fully adopted them, largely due to economic pressures.

Plant-based proteins and value-added processing present significant opportunities. By focusing on domestic processing of crops Canada could add substantial value to its agricultural output, which is currently diminished by outsourcing processing to other countries. The integration of technology in processing could enhance productivity and contribute significantly to the national GDP.

Gene editing, biostimulants, and precision farming are promising technological advancements that could improve yields and sustainability, particularly in regions with strong potential despite climate challenges.

Carbon reduction and **sustainability** have become central themes in agricultural innovation. With increasing pressure on farmers to reduce their carbon footprint, more

actionable frameworks are needed to integrate sustainable practices effectively across regions.

Challenges

The **regulatory burden** in Canada is seen as a major obstacle to innovation. Current regulations often lack a balance between risk management, productivity and innovation. This has resulted in many innovations being commercialized abroad, in countries with more agile regulatory environments.

Economic pressures on farmers, particularly in small and medium-sized operations, make it difficult to adopt new technologies due to the high costs and risks involved.

The **inconsistent definition of innovation** in policy has caused confusion. Innovation is often defined too broadly, making it difficult to distinguish between meaningful advancements and incremental improvements. There is also a concern that some technologies, such as renewable energy solutions, are being pushed without adequate local testing, making them ineffective in certain contexts.

Canada is struggling with the **implementation of innovative policies**. While there is no shortage of ideas, translating them into practice and measuring their success remains a challenge.

Access to capital and scale-up infrastructure is a persistent barrier, particularly for SMEs. Many innovative solutions developed in Canada end up being commercialized elsewhere due to a lack of local support.

Designing an Innovation Strategy to Address Challenges

Sector-specific and regional approaches are essential. Given the diversity of agriculture across Canada, a one-size-fits-all strategy will not work. Using a "sandbox" approach, where innovations can be tested and tailored regionally before scaling nationally, was recommended.

Private-sector leadership in R&D is crucial. While public funding should support basic research, the private sector is better positioned to lead commercialization and adapt quickly to market changes.

Better **coordination between stakeholders** is needed. Collaboration between the private sector, government, and research institutions must improve to ensure that academic

research aligns with industry needs and that there is a whole-of-sector strategy for innovation.

A **clearer division of roles** between the public and private sectors is required to ensure that each takes responsibility for different aspects of innovation, with the private sector leading commercialization efforts.

Accountability and Project Management. Canada has been good at drafting innovation strategies, but execution has often failed due to a lack of accountability. Any future strategy should include a strong framework for oversight and enforcement, ensuring that government departments and agencies deliver results.

De-Risking Innovation for Farmers: Pilot and demonstration sites are needed, where farmers can observe new technologies without risking their livelihoods. This would help them better understand the return on investment before adopting new practices.

Data-driven decision-making frameworks are also needed, ensuring that farmers have the digital literacy and cybersecurity awareness to fully engage with new technologies and protect their operations.

Priorities for a National Innovation Strategy

Strengthening public-private partnerships is vital for fostering innovation. Collaboration between research institutions and private companies is essential to create ecosystems that support both technological advancements and commercialization.

Innovation-driven regulatory frameworks must be developed to encourage innovation, while addressing risk. Faster, more transparent processes are needed, along with regulatory sandboxes that allow companies to test technologies in controlled environments before full commercialization.

Investment in critical infrastructure, both physical and digital, is a core priority. Scaling up domestic processing capabilities would capture more value for Canada, while improved digital infrastructure would support data-driven farming practices, especially in rural areas.

Supporting SMEs and startups should be a central focus, as these businesses are often the drivers of technological advancements but face significant challenges in accessing funding and market opportunities. Targeted government support in the form of grants, tax incentives, and mentorship programs is needed.

Climate change and sustainability must be central pillars of any future innovation strategy. While farmers are looking for solutions that help them manage operations sustainably, economic realities make it difficult to prioritize these changes. Policies should focus on productivity-enhancing technologies that also meet sustainability goals.

A **long-term vision** will position Canada as a global leader in agricultural innovation. This will require sustained investment, regulatory modernization, and stronger public-private partnerships to create an inclusive innovation ecosystem that engages all stakeholders, from small farmers to large corporations.

Conclusions and Recommendations

Regulatory Modernization: Streamline regulatory processes to foster innovation and mitigate risk.

Sector-Specific Strategies: Tailor strategies to the needs of different agricultural sectors and regions, using sandbox models to test innovations locally before scaling.

Public-Private Collaboration: Encourage the private sector to lead commercialization efforts, with public funding focused on foundational research.

Accountability in Project Management: Ensure that projects have strong oversight and that results are measured and enforced.

Support for SMEs and Farmers: Provide targeted support to SMEs and farmers through access to capital, infrastructure, and risk-mitigation tools.

By focusing on these strategic elements, Canada can strengthen its position as a leader in agricultural innovation, addressing the sector's future needs while capitalizing on its strengths.