

# FEEDING THE FUTURE WITH CANADIAN TECHNOLOGY

## Policy Brief for Producers

### The Opportunity: Advancing Canadian Ag-tech

The climate crisis, COVID, and conflict have upended food systems. But technology - designed, chosen, and used wisely - can provide solutions. As global citizens, Canada needs a national strategy on how to develop and deploy agri-food innovation to build a carbon neutral food system. Additionally, technology and innovation must be backed up with good policies – policies that ensure producers benefit as valued partners in a sustainable agri-food revolution, policies that maintain the highest food quality, safety and nutritional standards, and policies to ensure not only that Canadian farms and ranches are leaders in sustainability, but that Canada is doing its part to foster the global transformation of food systems.

As our agricultural productivity is projected to decline through 2030<sup>1</sup>, and as businesses in the Canadian agri-food sector grapple with global market upheavals, cybersecurity challenges, disruptive technologies, and evolving environmental and business conditions, it is imperative that advancements in Canadian agriculture are supported through forward-thinking policy and investments in infrastructure, human resources, and the development of advanced technologies.

*Ag-tech could unlock up to \$30 billion of economic opportunity for Canada.<sup>2</sup>*

Canada's unique position, with its arable land resources, diverse climate zones, and advanced farming practices, makes it an ideal leader in ag-tech innovation. However, to realize this economic opportunity, we must ensure all partners are working together to address critical barriers that hinder productivity, innovation, and adoption in the sector.

### Examples of ag-tech:

**Digital Agriculture:** Digital devices that gather, process, and analyze data to promote efficiency, productivity and sustainability in agricultural operations.

**Precision Agriculture:** Technologies such as GPS-guided equipment, drones, and sensors that transform and optimize farming practices, increasing efficiency and yield.

**Automated Farming:** Technologies such as drones, automated tractors, and robotics that automate the crop and livestock production cycle.

**Biotechnology:** Innovations in genetics, plant breeding, and bioengineering that improve crop resistance, yield, and nutritional value.

**Artificial Intelligence:** AI's data analysis and automation capabilities can be used across the value chain in diverse applications in food production, processing and distribution.

# Working Together

Canadian farmers, fishers, and ranchers know that our agri-food system is a critical component of the country's economy, culture, international reputation, and national security, as well as a key player in reaching Canada's global climate action commitments.

This report lays out numerous strategies for Canadian agriculture to seize the opportunity for global ag-tech leadership.

## 1. Ag-Tech Innovation and Adoption

Researchers and entrepreneurs can benefit from connecting with agricultural producers early in the R&D process. **With input from end-users in design, development, testing, through to commercialization, ideas can move from concept and research to adoption more quickly and with a higher success rate.**

This report calls for researchers, entrepreneurs, government, and the agriculture industry to refine and enhance their ways of working together. Recommendations include developing programs to incentivize early ag-tech adopters to test new technologies emerging from academia and industry and involve them early in the development process. Government can also strengthen supports for mitigating the risk of adoption for producers, as early adopters play a strong role in facilitating wider technology uptake and in testing economic viability.

It also calls for government to invest in **rebuilding publicly funded agricultural and rural advisory services**. In our consultations, we heard from stakeholders across the agri-food system that we need stronger public extension support. The time is right for producer organizations, academia, the agri-food industry, and policymakers to rally around this call. Extension staff have a long history of providing knowledge and connections to support ag-tech research, development, and adoption - strengthening connections between researchers, entrepreneurs, and end-users. Agricultural advisory services also play a role in strengthening rural enterprises and the rural economy. This can catalyze local research and development, assisting with close collaboration between entrepreneurs and end-users throughout development and adoption.

## 2. The Regulatory System

Canada's agri-food regulatory system is globally trusted, providing confidence in the quality of Canada's agriculture and food products. This can, however, be a significant barrier or deterrent for producers who need access to new technology and for businesses and early-stage innovators, who may lack the resources to endure through Canada's rigorous data requirements and approval processes.

This report does not suggest that Canada should reduce the quality or rigor of our regulatory system, as our global agri-food reputation is fundamental to our national values, market success and economy. We do encourage government and industry stakeholders to continue with the work of the Treasury Board's External Advisory Committee on Regulatory Competitiveness and Agriculture and Agri-food Canada's Sector Engagement Tables (one of which specifically targets Agile Regulations), which take a collaborative approach to ensure Canada's regulatory system is positioned for continual improvement and outcome-driven results. **Government, at all levels, needs to build on this work to shorten the path to commercial viability for companies, support Canadian businesses through the often expensive and time-consuming regulatory process, and increase the rate at which Canadian innovations reach the domestic and export markets.** Efforts are also needed across jurisdictions to reduce interprovincial barriers.

### 3. Labour and Training

By 2030, there are projected to be over 100,000 vacant jobs in the Canadian agriculture sector.<sup>3</sup> Canada's Economic Strategy Tables found that top reasons for labour shortages in agri-food include a lack of availability of skilled talent, a lack of awareness of the opportunities in the agri-food sector, and negative perceptions about working in the agri-food industry.<sup>4</sup> **Education and recruitment programs are needed to raise awareness about the fulfilling and rewarding business, research, and career opportunities in Canada's agriculture and food system.** Initiatives targeted at youth and at underrepresented groups are especially needed for the sector to avoid missing out on the diverse talent, experience, and ideas that will drive innovation.

This report suggests that Canada has a key opportunity to build on our strong post-secondary system, creating interdisciplinary programming around agriculture. As the agri-food landscape changes, new graduates will need expertise not only in traditional agricultural disciplines, but also tech skills and "systems thinking" skills such as project management, critical thinking, communications, and conflict resolution. Likewise, graduates in other programs require an awareness of where their expertise could be deployed in agriculture. **Involving producer organizations and other industry stakeholders as advisors and partners within academic programs can provide valuable insights** into job market needs and help guide program development, ensuring that graduates have strong competencies to take up the challenges of a rapidly changing ag sector.

At the same time, ag-tech advancements also offer solutions for Canada's changing agri-food workforce, allowing for more automation and autonomous operations. Support to spur adoption of new technology, as mentioned above, will be critical in allowing Canadian agribusinesses to participate in the ag-tech revolution.

### 4. Expansion of Value-Added Capacity

Canada is currently the fifth largest exporter of agri-food and seafood in the world.<sup>5</sup> However, many raw Canadian commodities are sold abroad, only to be processed and then sold back to Canadian markets, representing lost domestic economic opportunities and business efficiencies.<sup>6</sup>

**Canada has an opportunity to scale innovative, sustainable, value-added, export-oriented food, beverage, and ingredient businesses.** Programs and policies supporting business development for "the missing middle" in agri-food systems – mid-stream processors, distributors, and value-added businesses – will increase the market for Canadian commodities while making our food system more internationally competitive and domestically secure; producers and commodity associations can add their voices to the call for these programs. Additionally, more value-added capacity will spur Canadian innovation and economic growth.

### 5. Agri-Innovation Working Group

While private investment in Canadian ag-tech is strong, there remains a need for greater collaboration and coordination among stakeholders to build investment direction and confidence. The Standing Senate Committee on Agriculture and Forestry found lack of cooperation and coordination among government, academic, research institution, and industry stakeholders to be a key barrier in advancing agri-food innovation across the country.<sup>7</sup>

**A standing team representing academia, industry, and government should be established to shape private and government investment directions** that are in line with market trends as well as the public good. A model for such a group could be the Netherland's Top Team approach to their Top Sector Agri-Food strategy, aiming to make the country "a world leader in successful solutions for global challenges in the fields of agriculture and food".<sup>8</sup> The Top Team includes representatives from the country's business sector, science, and government.

## Conclusion

Canada's agri-food and innovation sectors have the expertise and the resources to join with our global partners in fundamentally transforming our food systems. A collaborative approach coupled with bold action will allow Canada to seize this opportunity. And in leading by example, our innovation will drive the green economy, create jobs, and deliver a carbon neutral food system.

*To ensure Canada's leadership in agricultural technology, environmental sustainability, productivity, and food security, it is crucial to remove barriers, invest in critical infrastructure, and implement policies that support innovation and sustainability. By adopting these recommendations, producers can drive growth in the agri-food sector, reinforcing its role as a vital component of Canada's economy, environment, and society.*

For more information:

[Feeding the Future with Canadian Technology Final Report](#)



## References

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