AGRICULTURAL
TECHNOLOGY

In the face of climate change and rising demand for food, agricultural innovation has the potential to help transform global food systems and make them more sustainable. Using technologies such as robotics, advanced data mining, and genomics can help producers grow more food on less land, enhancing efficiency and productivity while reducing their carbon footprints as they feed an expanding global population.

Canada is well-positioned to become a leader in this space by harnessing our abundant natural resources, exceptional research community, forward-thinking growers, thought-leading technologists and thriving tech start-up ecosystems.

Still, there is a need for more collaboration, greater investment, better understanding among stakeholders, and a focus on developing practical technologies that solve real-world problems.

What pressures must agricultural technology address?

Many observers believe we're in the midst of a fourth agricultural revolution, where technology and data analysis are the keys to developing carbon-neutral food systems; however, we face a series of challenges on the path to sustainability.

The United Nations has predicted climate change will decrease global crop yields by as much as 25 per cent by 2050. Innovative solutions are needed for adaptation to this change, even as the food system must move towards more sustainable production systems.

At the same time, the existing farm labour shortage is expected to worsen. Fewer young Canadians than ever before are entering agriculture, and 110,000 farmers are projected to retire over the next 10 years. Automation, robotics and artificial intelligence-driven technologies have the potential to help address these challenges sustainably.

What role might Canada play?

Canada has the infrastructure, human capital and natural resources needed to become a global leader in agricultural technology.

Today, we lag behind countries like The Netherlands, an agricultural technology giant despite its relatively small land mass and dense population. Singapore, Japan and Silicon Valley have also become major players in the space, becoming global leaders in agricultural innovations in sustainability and productivity.

But there's no reason we can't catch up. Through strategic investment, bold action, prudent collaboration and a pragmatic mindset, Canada can position itself at the vanguard of the next tech-driven agricultural revolution.

Where do we stand today?

Climate change, biodiversity loss, political conflicts and zoonotic disease are motivating the development of game-changing innovations in robotics, artificial intelligence, genomics and other technologies.

While Canadian researchers see this inflection point as an exciting opportunity, some have acknowledged significant policy and knowledge gaps and point to the need for a national strategy for developing and adopting relevant technologies.

What would a national agricultural technology strategy look like?

Based on conversations we've had with stakeholders across the agri-food system during the summer and fall of 2023, we propose 5 key action areas with high potential for impact:

Support entrepreneurs

Train the next generation

Reduce risks of innovation

Establish policy leadership

Fund applied research and innovation

Read more about this proposal to help build a strategy that will move Canada forward on the path to leadership in sustainable agri-food innovation.

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