Canadian farmers fight climate change

Vertical farming, artificial intelligence, and technologies like drones and robotics are being used to optimize Canadian agriculture.

From large-scale farms to the smallest backyard gardens, agriculture and agri-businesses depend on climate at every stage of the production cycle. We know that our climate is changing. What some Canadians may not know is that the agricultural sector often sees these changes first due to the nature of their work.

2021 was a particularly tough year for agriculture. Many farmers lost their livelihoods during the extreme heat, droughts, flooding, and wildfires that ravaged agricultural and rural communities. With that in mind, it's no surprise that the Canadian agricultural community is leading the way in finding solutions to climate change.

Across the country, farmers are changing the way they farm by adopting more sustainable approaches to the way they seed, till and prepare their land, and control weeds. Practices such as crop rotation or the use of cover crops help to improve soil health, slow erosion, and increase soil organic matter, all which promote healthy crops and livestock, as well as contribute to a healthy ecosystem.

In fact, the Canadian Agricultural Policy Institute highlighted that cover crops could help Canada meet its Strengthened Climate Plan targets by reducing reliance on nitrogen fertilizer production and reducing direct greenhouse gas emissions, as well as creating sinks for greenhouse gases in the soil. Canada has 384 billion tonnes of carbon stored in its soils. It is imperative that we continue protecting and conserving our land through sustainable practices to avoid releasing even more carbon into the atmosphere and further exacerbating global warming.

Many farmers are also changing the way they approach agri-tech. While agri-tech represents a wide variety of technology that can be applied to nearly every step of the food production process, a great example is indoor and vertical farming. This past autumn, I visited The Growcer in Ottawa, a company that manufactures modular hydroponic growing systems. Their containers grow hyper-local produce through a soil-free method, regardless of the weather.

Not only do vertical farms present an opportunity for farmers to use significantly fewer resources, such as using less water, than traditional farms, they also present an opportunity for farmers to produce a much higher quantity and quality of food on a smaller area of land. This is critical, as the world's population is expected to reach up to 9.7 billion people by 2050. This intense growth in population will increase food consumption, and our agricultural community will need to be ready to meet that demand.

However, vertical farming is just one way that farmers have adapted to new technology that can strengthen and enhance their operations. Other aspects, such as precision agriculture, artificial intelligence, and the use of technologies like drones and robotics are being used to optimize Canadian agriculture. Area X.O's Ottawa Smart Farm and Olds College in Alberta are examples of the Canadian agricultural community partnering with other sectors to develop, test, and innovate smart solutions that will drive efforts to make agriculture more environmentally sustainable.

As a longstanding member of the agricultural community, I know how important it is to understand and protect our land. Farmers can't successfully farm their land in a way that will guarantee its long-term viability without adopting and adapting to innovative technologies that will help support Canada's fight against climate change.

I am hopeful that the public and private sectors, as well as everyday Canadians, will continue working alongside and supporting the agricultural industry as they work to adapt to a changing environment and seek to strengthen and enhance their practices. It is not enough to tell farmers what needs to be done to

make their operations "greener" and more sustainable. It must be a collaborative effort that will keep Canada's food supply chain strong for generations to come.

Senator Rob Black represents Ontario and is chair of the Canadian Senators Group and chair of the Standing Senate Committee on Agriculture and Forestry.

Originally published in The Hill Times