

# FEEDING THE FUTURE WITH CANADIAN TECHNOLOGY

## Case Study Summary - Singapore

Singapore is becoming a global leader in technology and innovation in agriculture and beyond – ranking 1st in the 2023 Global Innovation Index within the region (Southeast Asia, East Asia, and Oceania) and 5th in the world, with very high scores for institutional environment, investment, and knowledge impact (WIPO, 2023).

Singapore is a small city-state of approximately 73,4000 ha - 1.2 times the size of Toronto, Ontario. Due to finite land availability, they have very limited agricultural land and import 90% of their food. This leaves them vulnerable to supply chain issues and food price fluctuations; as a result, they have turned to innovation to produce more food on less land. Technologies of note include:

- Urban farming – producing leafy greens, fish and eggs using controlled environment systems, vertical farming, aquaponics and hen keeping.
- Processing technology – using smart packaging, preservatives and food waste diversion to reduce and prevent food waste.
- Novel food sources – developing alternative protein sources such as insect-based protein and cellular meat.

Singapore's 30 by 30 strategy aims to increase domestic food production to meet 30% of their nutrition needs by 2030. The strategy defines three primary mechanisms to achieve this goal: (1) providing financial support to farmers and researchers, (2) promoting public engagement, and (3) training and support for the agri-food workforce. In what follows, we review some of the mechanisms through which Singapore is advancing ag-tech and innovation.

### ***Financial Incentives***

Singapore has invested significant capital to develop and scale ag-tech innovations. Singapore's Agri-Cluster Transformation (ACT) Fund is an investment of \$60 million available to producers for upgrading, innovation and upscaling, while the Singapore Food Story Research and Development Programme provides \$309 million for research projects in ag-tech innovation. Often, technology development is limited by companies' ability to commercialize and upscale – a challenge impacting urban farming, food processing, novel foods, and other technologies. Where Singapore excels is in providing significant funding for development and upscaling, with an entire section of the ACT Fund dedicated to upscaling.

### ***Remove Regulatory Red Tape***

The regulatory ecosystem in Singapore is designed to be highly conducive to business growth. They ensure that businesses can find accessible markets for their innovative products, having been the first in the world to approve a cultured meat product for human consumption. In 2019, the government developed comprehensive, detailed and clear legal regulations that encourage the safe production of cultured meat products, with regulations based solely on food safety research. Additionally, the government works closely with startup companies to ensure their products can be approved and get to market.

Flexible land use policies have allowed the development of innovative urban and non-traditional farms. By allowing for mixed commercial and residential land uses and by creating clear and specific guidelines for entrepreneurs specifically working in agriculture, Singapore saw a 20% jump in urban agriculture in 2023.

## **Stakeholder Engagement**

Singapore also recognizes the importance of involving various groups from government, academia, local and global investors, industry, and civil society to understand their key challenges. This allows for development of a cooperative, collaborative solution that can meet multiple needs – increasing productivity, meeting food safety regulations, responding to consumer demand, and supporting other societal and environmental goals.

Public engagement and communication is another key focus of Singapore’s strategy, with significant focus on promoting local food consumption and on promoting agrotourism.

Finally, to grow their ag-tech innovation workforce, Singapore has developed a suite of training programs that encourage young people to enter the agri-food industry, as well as programs for adult learners who wish to re-skill or up-skill within the industry. Programs are flexible, with offerings ranging from short courses to work-study programs to degrees and diplomas. A career advisor is also available to meet with people interested in a career in agri-food.

## **Conclusion**

Singapore has become a global leader in food production through innovative solutions and technology, with a clear plan, significant investment, and actionable steps to support this goal. Some key lessons that Canada could learn from Singapore include:

Financial support for launching and upscaling new businesses is critical

Reduce regulatory red tape that hinders the growth of businesses.

Co-design food system strategies across government, academic, private sector, and community stakeholders.

Provide clear, accessible, and data-driven goals for ag-tech and innovation that respond to social needs.

## **Relevant Policies**

[30 by 30 Initiative](#)

For more information:

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

