

FEEDING THE FUTURE WITH CANADIAN TECHNOLOGY

Case Study Summary - The Netherlands

The Netherlands is one of the most agriculturally productive countries in the world – ranking second after the United States in terms of agricultural product export, with over \$100 billion USD of products exported per year – impressive given the relative size of the country. Approximately two thirds of the country's land is dedicated to agricultural production.

Agricultural production in the Netherlands has become more efficient and sustainable over time – agricultural emissions have decreased steadily over the last three decades, while yield rates have increased. This is largely due to the development and adoption of technology, which is a priority for the Dutch government. Key factors in the success of technology development and adoption have included incentives for research and development, as well as the Netherlands' unique triple-helix model of collaboration between government, industry and academia.

Incentives for R&D

Dutch investment into research and development (R&D) outpaces the rest of the European Union as of 2021. The business sector leads research and development spending in the Netherlands, which is incentivized by government through tax policies such as the Research and Development Work Promotion Act, which provides payroll tax and national insurance contributions for R&D personnel. The government also provides direct funding, such as their investment of over \$60 million USD to develop cellular agriculture capacity in 2022. Further, the government is quick to act when they identify gaps in the innovation pipeline, such as their investment in policy instruments (i.e. subsidies) to support adoption of new technologies.

Triple-Helix Innovation Agendas

The Netherlands is well known for their triple-helix model, which involves meaningful and reciprocal collaboration between academia, industry and government to inform policy and set innovation agendas, improve cross-sector collaboration and strengthen the pipeline between education and the workforce. Each sector in the country is governed by a "Top Team" that sets research priorities, agendas and allocates funding. This model can be highly effective, but needs to ensure full representation from across academia, government and industry – within agri-food, the system has been criticized for too much focus on research creation and too little integration of farmers in the innovation ecosystem to ensure uptake and innovation of products.

The "Top Team" on agri-food involves government, academia, and industry – particularly drawing on expertise from the Topsector Agri & Food and the Top Consortium for Knowledge and Innovation. The agri-food agenda identifies a series of priorities, which include circular agriculture, climate-neutral production, healthy and safe food, and protected land and water ecosystems.

Interaction between Academia and Industry

Academia is highly involved in setting the innovation agenda, and also supports collaboration and knowledge exchange in various ways. Wageningen University, the top-ranked agricultural university in the Netherlands, specializes in agricultural innovation. It offers opportunities for other researchers, government and industry to share lab equipment and connect with their researchers and students, while also piloting a program that allows researchers and other institutions to share data. The University's strategic plans are aligned with the country's

innovation agendas to ensure that research on campus matches the needs of industry and government, and demonstration initiatives such as “Farm of the Future” bring researchers together with farmers to discuss applied research and new technologies.

Conclusion

The Netherlands is an agricultural powerhouse, with several lessons to offer Canada in terms of finding alignment across sectors and ensuring the country makes progress towards environmental and economic goals.

- Alignment across industry, government and academia is crucial to identify shared goals and drive progress. The triple-helix governance model is an exemplar for Canada to explore.
- Strong applied research and opportunities for interaction between academia and industry help to keep innovations grounded in real world needs and move them from laboratory to practice.
- Infrastructure that supports sharing of data and technology will support collaboration and knowledge exchange.
- Governments can support business-led investment into new technologies.

Relevant Policies

Topsectors

Topsector, Agri & Food

For more information:

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

