

Executive Summary



The Annapolis Valley of Nova Scotia, Canada has a rich history of abundance and dependence on a resource-based economy.

However, just as rail and road made sailcloth ship transportation obsolete, various new technologies have displaced the region's historic comparative advantages of low cost labour and accessible, abundant resources. Because of climate change and habitat loss, forest lands, crop productivity and fish stocks are no longer as reliable as they once were. Owing to high retirement levels, the number of farms across the region have declined dramatically at a time when there is an increased demand for local, quality food and food products. As well, traditional supply chains have been called into question as a result of global geopolitical challenges and new pandemic-associated uncertainties. Through a review of the region's traditional economic base, the Valley MIT REAP Team identified that while the region is growing, unrealized potential can be tapped. Data showed that growth for the Valley is not only measured in monetary terms, the region is home to a remarkably high quality of life as measured by the University of Waterloo's comparative analyses using the Canadian Wellbeing Index, while the province's residents enjoy a time balance that is 3.5 times better than the rest of Canada.¹

Annapolis Valley



Annapolis Valley REAP Strategy

Vision

Establish an agricultural technology testing, demonstration and advancement accelerator for sustainably produced quality foods and beverages.

The Annapolis Valley's comparative advantages:

- An experienced existing agriculture sector
- A micro-climate and unique cold climate 'Champenoise'-like terroir
- A quality local craft food and drink culture

"Must Win Battle" Justification

Agricultural practices have evolved worldwide, and the use of technology has been the most efficient and practical method of increasing agricultural productivity, growth and input cost reduction.

In the face of pressures on producers from the effects of climate change and the decline in the number of farms in our region, demand for reliable supplies of local, high quality food has increased in our region and across Canada. Fewer farms in contrast with greater food requirements has placed added importance on using technology to make up for increased production demands.

Statistics Canada's "Census of Agriculture Report"² shows that between the period of the previous census (2016) and this current one (2021), the number of farms in Nova Scotia have declined by 21.2 percent, while the number of farms across Canada have also declined, but by much less. This reduction in the number of producers has come at a time when demand for food and food products has increased substantially, a circumstance made worse by choked or inoperative supply chains due to the pandemic or geopolitical events.



1 https://uwaterloo.ca/canadian-index-wellbeing/sites/ca.canadian-index-wellbeing/files/uploads/files/nsqolindex-pdfreport_0.pdf

2 <https://www150.statcan.gc.ca/n1/daily-quotidien/220511/dq220511a-eng.htm?indid=22863-1&indgeo=0>

Project Purpose, Aims and Objectives

Our aim is to establish an Agricultural Technology (Ag-Tech) Accelerator that will test, demonstrate and advance technologies within our region and ultimately, through the geographic agricultural backbone of our province, resulting in an Ag-Tech Corridor.

The purpose of the Valley Ag-Tech Accelerator is to improve farming by providing solutions for local producers. It will provide a forum for collaboration between the local producers, agricultural experts, and technology entrepreneurs. This network of relationships will facilitate a shift towards a more resilient, sustainable, diverse, and economically viable Nova Scotia agricultural industry to attract corporations and talented entrepreneurs in both agriculture and technology to the Valley's high quality of life. In other global jurisdictions, agricultural technologies have increased productivity and farm growth while reducing input costs. Agricultural technologies also attract expertise from related start-ups and support service enterprises. We have identified five existing and emerging technologies that seem to be most relevant for the Annapolis Valley producer ecosystem with significant potential to achieve the goals of increased productivity, reduced input costs, saving labour and attracting young new farmers.

Through the accelerator's community education approach, the Valley Ag-Tech Accelerator will also promote understanding of new technology 'products' and serve as a trial site to test products for export to large scale agricultural markets, especially in colder climate and agriculturally intensive environments around the world. The Accelerator will also connect participants with access to networks of expertise in provincial economic development entities and peer communities of practice that they can learn from. Our research shows that Valley stakeholders are seeking advice and eventually interaction and participation from the agriculture, technology and entrepreneurship (related businesses) sectors. The planned Ag-Tech Accelerator will test agriculture solutions, demonstrate existing and emerging technologies and advance their use for local producer benefit and technology developer export. It will provide Ag-Tech companies in the Valley with access to mentorship, investors and other supports that help them become even more stable, self-sufficient businesses.

The main aims of the Accelerator are to:

- 1- Help agricultural technology entrepreneurs establish themselves in their target market
- 2- Demonstrate and advance relevant agricultural technologies in the Valley to help save costs and increase profits for local producers and eventually throughout a provincial Ag-Tech Corridor
- 3- Create export channels in high demand countries for Valley-developed technologies
- 4- Build a network made up of communities of practice, service resource navigators, producers, mentors/mentees, researchers and entrepreneurs founded on the community education model

Ag-Tech Accelerator Characteristics and Operating Model Traits

Membership

Open to all / inclusive — informal, accessible, resident knowledge and expertise, easy to do business with, pays attention to both small and big operators, ongoing updates and information flow.

Business Style

Solve for one, share with many; potential (CO-OP) cooperative-style membership; open data approach — public domain and widely shared with sector.

Cooperative Versus Competitive Ethos

Collaborative across Nova Scotia and integrated with provincial agriculture agencies and other innovation centres; coordinates with other 'like' — accelerators across Canada.

“Must Win Battle” Validation and Support

Our Team hosted an Ag Tech Forum on November 30, 2021 to introduce the MIT REAP initiative to local stakeholders and entrepreneurs, gain insights into our ‘draft’ identified technologies and gather data through focus group discussion tables. The conference validated the proposed Must Win Battle concept of establishing an Agricultural Technology Accelerator. The buy-in from entrepreneurs was overwhelmingly positive. They confirmed the need to establish on-going work to support and resource future collaboration and catalyzing events to more deeply define producer technology needs and supports as well as test the Ag-Tech Accelerator operating model. Corporate and risk capital stakeholders have stepped up with funding support and technology support and several Ag-Tech companies (local and global) have expressed interest in using and contributing to the planned Accelerator services.

The [Valley Regional Enterprise Network](#) (Valley REN) has been the project manager for the [MIT REAP Annapolis Valley Team](#) and will continue to help support the initiative. The Town of Berwick has agreed in principle to host the Ag-Tech Accelerator at a location in the Annapolis Valley adjacent to its planned 25-acre solar farm which has access to its fiber-optic network. The Accelerator will draw on the network of stakeholders to connect participants with access to expertise in business development supports, research and development support, talent attraction, business capital and peer communities of practice that they can learn from. There are three [Nova Scotia Community College](#) (NSCC) campuses and [Acadia University](#) in the Valley that are active in agri-food technologies increasing the level of support and network potential. Provincial Crown Corporations like [Perennia](#), Nova Scotia’s premiere agricultural innovation agency and Invest Nova Scotia, the economic development Crown Corporation handling investment attraction and export development, along with the Valley REN, offer the necessary organizational infrastructure to cultivate long-term strategic collaborative partnerships.

Next Steps

Our emphasis is to now turn our concepts into actions and outcomes. Seed funding from our [provincial MIT REAP coordinating agency](#) will aid in contracting an individual dedicated to forging necessary stakeholder relations and identifying sustainable operations models. We will build on identified support from key Valley Ag-Tech Network members who have agreed in principle to host a land location for the Accelerator, act as a technology platform provider as well as supports from the regional post-secondary community for industry engagement and applied research. Over the next months, we will be planning industry collaboration events in partnership with [Springboard Atlantic](#), an organization made up of post-secondary institutions across Atlantic Canada whose collaborative network helps innovation thrive across the wider region. The immediate work ahead will be focused on activities aimed at galvanizing interest in a project-based funding drive to solicit the necessary capital to stand up the Ag-Tech Accelerator and bring our ideas to life.

Key Technologies

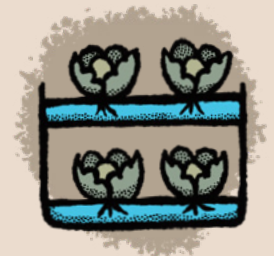
Decision Support

Software and data analytics to help save time, costs and labour.



Vertical Farming

Automated greenhouse systems for vapour management, plant nutrition, amendments and lighting.



Sensors and Tracking

Machine-to-machine communication, optical and in-situ sensors, blockchain tracability and progeny validation.



Drones

Unmanned aerial vehicle (UAV) monitoring, data collection, processing and efficiency capabilities.



Energy

Solar, wind and biomass renewable energies, and greenhouse gas reductions.



Moving Towards an Annapolis Valley Value Proposition

What is a 'must win battle'?

Ideas compatible with regional comparative advantages

Intentional collaboration to support the agriculture sector through ways that ease the challenges of seasonality, provide options to protect against traditional risk, and foster an environment for local growth, export and future-focused employment gains.

What compatible concept do we have that utilizes our region's comparative advantages?

Agricultural Technology Accelerator

Local and export-focused, highlighting sensors and data to boost productivity, mitigate climate change and enhance food security.

How could this be accomplished?



Growing under glass



Ag unique terroir for wine and food



Drones and other data gathering sources



Manufacturing - value add



Valley Ag-Tech Aim:

Testing, demonstration and advancement accelerator for local and global agri-business technologies.

Agriculture Technologies

Agriculture technologies are a major source of growth and innovation for the agriculture and agri-food sectors in Canada. These technologies help farmers increase profits and production while reducing costs and greenhouse emissions.

