



Feasibility Study for an **Okanagan Agriculture Innovation Centre**



Prepared for:
Summerland Chamber of Commerce
June 27, 2017

Disclaimer

The purpose and scope of the Feasibility Study for an Okanagan Agriculture Innovation Centre (OAIC) is:

- To determine whether there is a need for an agriculture innovation centre for the Okanagan region;
- To provide information on the structure, programs and services of other agriculture/agri-tech incubators or accelerator programs; and
- Once deemed feasible:
 - Identify potential locations and space requirements;
 - Provide options for an organizational structure for the OAIC;
 - Create a profile for the potential participants for the Centre; and
 - Identify preliminary, high level costs associated with the Centre.

All the material included in this document is based on information gathered from:

- Interviews with select agriculture/agri-tech accelerator/incubator programs;
- Focus groups with entrepreneurs that have been successful in the agri-food industry and stakeholders, including municipal, provincial and federal government representatives; academic institutions; scientists and researchers; economic development offices; and industry associations; and
- The MDB Insights: South Okanagan-Similkameen Economic Development Group (SOSEDS) Foreign Direct Investment Strategy Final Report (October 7, 2016).

Budget and financial information from the SOSEDS Investment Attraction Strategy Business Plan and Metallurgical Industrial Development Acceleration and Studies (MIDAS) helped provide a preliminary budget estimate for the space and start-up activities for this project.

The budget estimate as of June 2017 for the projected period (Fiscal 2018-2020) is subject to the organization's ability to sustain interest and commitment from the directors and partners of this study in addition to favourable economic conditions within the region. Many other factors may affect the results of this analysis, such as shifting market demands.

Due care has been taken to compile the information in this feasibility study. Recommendations for further study or next steps are not a part of the scope of this project. The consultant who assisted in this project does not assume any liability for any financial or other loss resulting from this report in consequence of undertaking this activity. The prospective user of this report is encouraged to carry out additional diligence and gather any information he/she feels necessary for making an informed decision. Investors and lenders are encouraged to conduct in-depth analysis of their own to ensure they obtain the highest returns or meet their lending requirements.

Acknowledgements

Engage, Business & People Solutions would like to acknowledge the thoughtful insights of community members, farmers, entrepreneurs, regional, provincial and federal government agencies, industry associations, accelerator and incubator programs and members of the South Okanagan Similkameen Economic Development (SOSEDS) group who have shared their enthusiasm, creativity, knowledge and experiences in farming, technological developments and innovations in the sector, as well as in community, business and economic development and growth. Engage would also like to thank her business partner in this project, **Thürst Marketing**, for the dedication, wisdom and experiences brought to this project.

Engage, Business & People Solutions would also like to acknowledge the partners in this project, the District of Summerland, the Rural Dividend Fund and the Summerland Chamber of Commerce for funding this project and for their enthusiasm and desire to steer this project through to completion.

Finally, a special thank you to the Summerland Chamber of Commerce, Community Futures Okanagan-Similkameen and Okanagan College for accommodating the meetings and the focus groups.

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1 Executive Summary

In recent years, the Summerland Chamber of Commerce and the District of Summerland have worked together in exploring ways to leverage the community assets in agriculture and accelerate growth and innovations within the agri-food and agri-tech sectors. They extended a contract to **Engage, Business & People Solutions** to conduct a feasibility study for an Okanagan Agriculture Innovation Centre (OAIC) in Summerland.

What is Agri-tech? Agri-tech is the use of technology in agriculture, horticulture, and aquaculture with the aim of improving yield, efficiency, processes and profitability.

Background. Stakeholder discussions amongst the Summerland Chamber of Commerce, District of Summerland and provincial government representatives began in 2013 with interest in the concept of precision agriculture and the opportunities to develop the high value added agriculture/agri-tech sector within the Okanagan-Similkameen region. Please see **Figure 1: Timeline of Milestones in the Value-added Agriculture and Agri-tech Sector.**

This feasibility study follows stakeholder discussions/consultation that began in 2013; MDB Insights Labour Market Partnership (LMP, 2015) and Foreign Direct Investment (FDI, 2016) reports for SOSEDS; and the Investment Attraction Strategy (IAS) Business Plan (Dec 2016) for the South Okanagan-Similkameen region.

The purpose and scope of the feasibility study for an OAIC is:

- To determine whether there is a need for an agriculture innovation centre for the Okanagan region;
- To provide information on the structure, programs and services of other agriculture/agri-tech incubators or accelerator programs; and
- Once deemed feasible:
 - Identify potential locations and space requirements;
 - Describe options for an organizational structure for the OAIC;
 - Profile potential participants for the Centre; and
 - Identify preliminary, high level costs associated with the Centre.

Best practices. This feasibility study identifies best practices of other accelerators/incubators including those specific to agriculture and agri-tech. This information was used to determine the options for structure and programming for the OAIC, potential funding models, including both private and government, and key metrics for measuring and evaluating the performance of the Centre.

Objectives and Goals. Stakeholders and entrepreneurs canvassed in this study have endorsed the concept of an OAIC. Six goals of the Centre were created using the best practises research informed by stakeholder input and are designed to be sustainable and generate real and direct benefits to individual communities within the region. **The overall vision of the OAIC is to foster and advance innovation and technologies within the agriculture industry to achieve a sustainable, resilient and prosperous regional economy.**

Industry support. Critical to success is the ability to obtain industry buy in and support for the Centre through financial contributions. Many respondents emphasized the importance of industry driving this initiative. In addition, project champions are vital as ambassadors for the OAIC and for their ability to attract potential participants and investors using their networks. They ensure everyone involved is on board and behind the ultimate success of the project.

OAIC Model. The OAIC has the opportunity to leverage the contributions of three successful and relevant accelerators who can meet the needs of the local community with their agriculture, agri-food and agri-tech network and expertise:

- Bioenterprise (national presence with their head office in Guelph);
- Sumas Regional Consortium for High Tech (SRCTec) in the Lower Mainland; and
- Accelerate Okanagan (AO) in Kelowna.

See **Section 5** for more information about these organizations.

For efficiency and expediting the operations of this Centre, a possible option is for OAIC to become a satellite office for one of these partners. The structure will need to be determined and formalized during the business plan stage. For example, one option is be a satellite office of Bioenterprise BC as they have the most experience in agri-tech and have a blend of advisory services at a national level along with the national network and agriculture expertise. Please see **Section 5.5 and 6.4** for further details on the each accelerator's potential contribution for the Centre.

For success of the Centre, the administrative partner's Advisory Committee must include members of the agri-food and agri-tech businesses and key stakeholders within the Okanagan-Similkameen-Kootenay region (OSK) to ensure regional interest is supported and represented. The Centre would also require a highly-respected Director dedicated to and focussed on the success of the Centre.

Partnerships. Similar to the MIDAS model, other partners should include the Summerland Research and Development Centre (SRDC), UBC-O and Okanagan College (OC). Moreover, partnerships will need to be formalized with other stakeholders, such as Kwantlen Polytechnic University (KPU) and funding and business support agencies (e.g. NRC-IRAP, Investment Agriculture Fund (IAF) Growing Forward, Business Development Corporation (BDC) and Community Futures Okanagan Similkameen (CFOS).

Location. Over 90% of the interviewees and focus group participants stated that Summerland is the best option for the location of the Centre. Three potential locations in Summerland were identified and match the respective space and equipment requirements specified. Five other locations were considered but did not meet the desired requirements. Two promising locations include a 6,300 sqft space (3 units each 2,100 sqft) on Bentley Road and a 6,000 sqft facility on Hwy 97. Both would be able to accommodate a pilot food processing facility/commissary kitchen, which was identified as an important feature currently not available within the region. In North America, no other accelerator offers programs and services for both innovative food processing and agri-tech. Ongoing search for the ideal site is recommended during the business plan phase.

Programs and Services. Focus group members and interviewees identified desired programs and services and the need for a hands-on and practical approaches for agri-food and agri-tech businesses, such as:

- Mentoring from seasoned agribusiness entrepreneurs;
- Market intelligence;
- Centralized on-line portal that has a database of resources to connect agri-businesses;
- Courses and training in cash flow/business management specific to agriculture;
- Sustainable farm programs that offer hands-on/practical farm experience;
- Product development, food testing and food safety quality control;
- Conferences, events, keynote speakers, demo days, networking opportunities;
- Private investment program for start-up agri-businesses.

Opportunities. As identified in the MDB Insights Report and the IAS Plan, the opportunity to attract agri-food, agri-tech, and agriculture-focused businesses to the region is significant. The region has a strong agricultural foundation, which helps to bring in innovative agri-entrepreneurs. During Interviews and focus groups, participants identified numerous regional challenges and opportunities along the value chain which could set the foundation for sessions where these challenges are cast out to tech providers who in turn pitch their ideas to farmers, processors, distributors, and others along the value chain. The Centre could also consider partnering with other agri-tech accelerators to create an agriculture private investment fund.

Geographical Scope. In order to bring in new ideas and innovations to the region, international applicants should be considered. However, to test the efficacy of the model, participants should be regional and national in the first 1 to 2 years. Expansion across Canada and internationally will occur through the connections with agri-business experts within the expansive partner network.

Target Participants. The target participant profile was formalized using the best practices research, interviews with successful OSK agriculture and tech entrepreneurs, and analysis of community assets. Target participants include entrepreneurs, specialty/niche crop farmers and small growth-oriented businesses, all of which are important in agri-tech cluster growth and complementary to the economic development objectives in the region.

OAIC's Focus on the Agriculture Value Chain. Given the importance of tree fruits and viticulture within the Okanagan-Similkameen, and to a lesser extent, the Kootenay region, respondents identified and prioritized the following four areas on the agriculture value chain:

1. Waste management;
2. Value-added food processing and innovation;
3. Precision farming technologies; and
4. Transportation and infrastructure.

Funding Potential. The analysis of primary funding sources for near-term next steps identified three possible funding options:

1. Rural Dividend Fund (RDF);
2. Western Economic Diversification (WED); and
3. Southern Interior Development Initiative Trust (SIDIT).

The federal/provincial Growing Forward fund is no longer accepting applications under the Agri-Innovation or Market Development programs for 2018 onwards but is listed as a potential funding source should the program be renewed in 2018. There are other potential funding sources, such as private sector contributions, municipalities and regional districts.

Project Budget. The total OAIC project budget for the three years is **\$1.5 million**, where \$1.13 million is requested from government funding sources. There are opportunities to supplement this budget with secondary funding programs (Invest Canada-Community Initiatives, Real Estate Foundation and GenomeBC).

Next steps. Feedback received from participants in this study was in favour of the development of an agriculture innovation centre in the Okanagan. It is recommended that the next steps include a facilitated session to establish the vision, mission and goals for the Centre, followed up with the development of a business plan. Moreover, further stakeholder engagement is needed with:

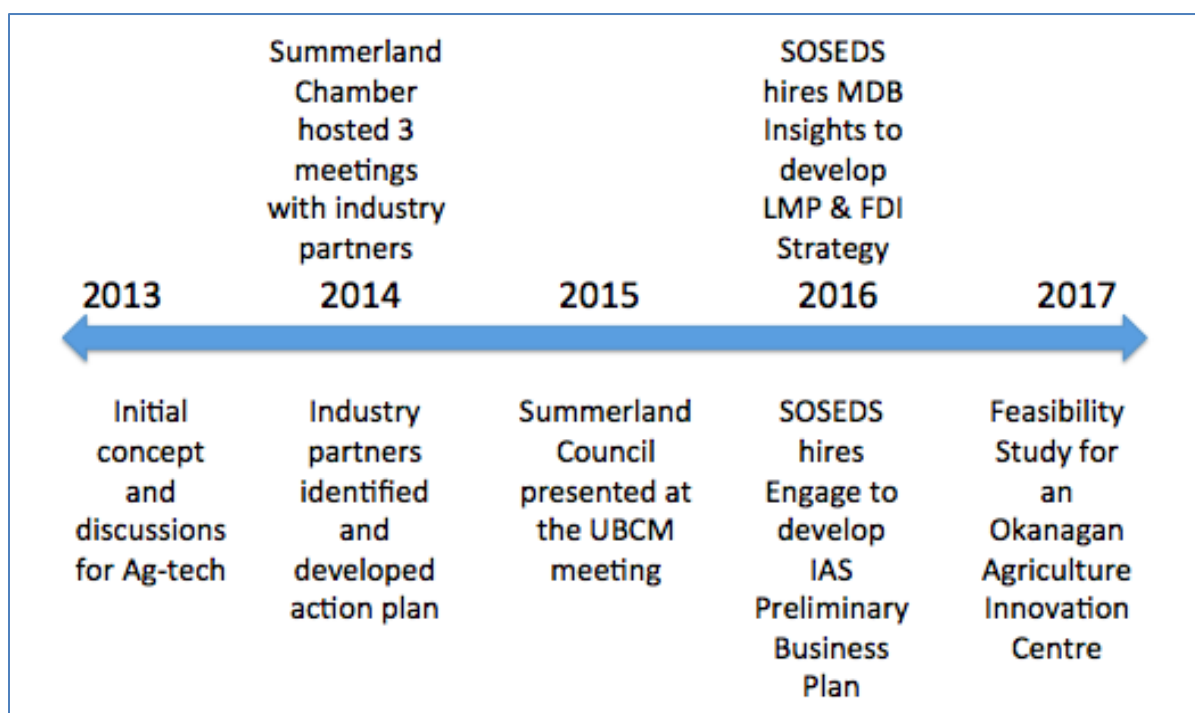
- Proposed OAIC partners (to explore formal working relationships/collaborations); and
- Agri-businesses in the Oliver, Osoyoos, Similkameen and Kootenay region to expand representation in these geographic areas.

2 Introduction

In recent years, the Summerland Chamber of Commerce and the District of Summerland have worked together to leverage the community assets in agriculture and accelerate growth and innovations within the agri-food and agri-tech sectors. They extended a contract to **Engage, Business & People Solutions** to conduct a feasibility study for an Okanagan Agriculture Innovation Centre (OAIC) in Summerland.

Stakeholder discussions amongst the Summerland Chamber of Commerce, District of Summerland and provincial government representatives began in 2013 with interest in the concept of precision agriculture and the opportunities to develop the value-added agriculture/agri-tech sector within the Okanagan-Similkameen region. Please see timeline below for the various milestones:

Figure 1: Timeline of Milestones in the Value-added Agriculture and Agri-tech Sector



In 2014, the Chamber of Commerce hosted three gatherings with industry stakeholders to determine the opportunities for the biotech and agri-tech sector in Summerland:

1. Several agriculture businesses, the Director of Development Services for the District of Summerland and SRDC participated in the first gathering. The Regional Manager of the Ministry of Jobs, Tourism and Skills Training, Economic Development (JTST) facilitated this session.
2. Later in 2014, the Regional Manager of JTST facilitated a second session with the Summerland Chamber of Commerce, District of Summerland, UBC-O and the Ministry of Agriculture to identify the action items necessary to drive forward the concept of a precision agriculture hub.

3. A third meeting was held between private investment funders, such as the Summerland Credit Union, local government and the Summerland Chamber to determine potential interest in the development of a private investment fund.

In 2015, at the UBCM Conference, the Summerland Council presented the idea of building a food biotechnology and precision agriculture hub to the Honourable Norm Letnick, Minister of Agriculture.

In 2015-2016, MDB Insights investigated the skills gaps and sectors worth pursuing in the South Okanagan region. Value-added agriculture and agri-tech were deemed priority sectors to focus on.

In December 2016, Engage, Business & People Solutions developed a preliminary business plan for an Investment Attraction Strategy (IAS) which validated the opportunities in these sector.

Report Structure

This feasibility study begins with a description of the methodology used to collect feedback from community stakeholders. This is followed by:

- The benefits of having an agriculture innovation centre;
- A definition for agri-tech and several examples;
- An overview of the region's agriculture industry; and
- A summary of best practices of a select group of agri-food/agri-tech accelerators/incubators.

The best practices from these organizations were used to determine the appropriate model for the OAIC.

The report then provides a summary of the results from the focus group and interviews conducted for this study, and covers the following topics:

- Benefits, goals, objectives and purpose of the OAIC;
- OAIC structure and partnerships;
- Support of having the Centre;
- Whether Summerland is a feasible location;
- Space and equipment requirements;
- Programs and services that could be offered by the OAIC;
- Where on the agriculture value chain the Centre should focus;
- Geographic scope for selecting OAIC participants;
- Description of the target participants;
- Potential funding sources for the Centre;
- Selection criteria for screening applicants;
- Suggested performance measures for the Centre; and
- Preliminary 'high level' project budget.

3 Methodology

This study involved extensive primary research with agriculture and agri-tech entrepreneurs and stakeholders, including academia, government and funding agencies, researchers, and industry associations.

A list of agriculture stakeholders was created using directories from industry associations, white pages, government and business support agencies, media and word of mouth. Each person received an invitation to participate in this study via email, in-person meetings and telephone. Over 3,500 invites were sent out using a variety of methods including the region's Chambers of Commerce and economic development offices, personal referrals, academic institutions, government agencies, and word of mouth. Follow up calls and emails were used to increase the response rate. Overall feedback for the study included 82 telephone or in-person interviews and 30 focus group attendees (See Figure 1).

1. *In-person and telephone interviews were conducted April - June of 2017 with:*

- Successful agriculture, agri-food, agri-tech entrepreneurs;
- Regional and national accelerator/food innovation program directors/managers, such as: AO, Bioenterprise BC, Agrivalve Processing Business Incubator Leduc AB, Saskatchewan Food Innovation Centre, SRCTec, and Bio Food Tech;
- Several economic development professionals, and industry associations;
- Economic development agencies/offices, such as BC Trade and Invest, NRC-IRAP and several other industry/trade professionals; and
- Provincial and federal funding agencies.

Interview questions were developed and included the following topics:

(Note, not all these questions were asked with each interviewee)

- Problems and opportunities in the industry that haven't been addressed;
- Value/benefit of having a centre focused on commercializing innovative agriculture products and services;
- Feasibility of having Summerland as the location;
- Purpose of the Centre;
- Potential structure, programs, services and delivery format;
- Potential contribution for mentoring and providing expertise in areas needed by participants;
- Focus area along the agriculture value chain;
- Geographical scope to attract participants;
- Sustainability over the long term;
- Market channel to attract potential participants;
- Key criteria for selecting participants;
- Performance metrics that could be used;
- Recommendations for potential advisory committee members, participants and project champions.

2. *Two focus group meetings were held: 1) agriculture and agri-tech entrepreneurs on May 30th and 2) industry stakeholders on June 1st 2017.*

Focus group questions were developed after preliminary interviews were conducted. Key topics that were explored included:

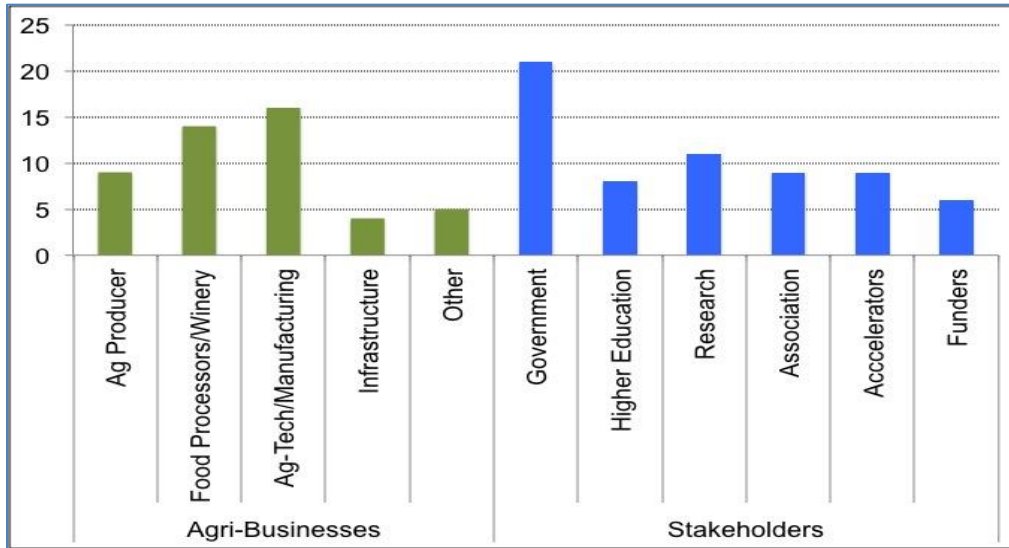
Entrepreneur Session:

- Problems and opportunities in the industry that haven't been addressed;
- Value/benefit of having a centre focused on commercializing innovative agriculture products and services;
- Feasibility of having Summerland as the location;
- Purpose of the Centre;
- Potential programs and services;
- Focus area along the agriculture value chain;
- Geographical scope to attract participants; and
- Recommendations for potential participants and project champion.

Stakeholder Session:

- Value/benefit of having an OAIC focused on commercializing innovative agriculture products and services;
- Feasibility of having Summerland as the location;
- Purpose of the Centre;
- Potential contribution for mentoring and providing expertise in areas needed by participants;
- Performance metrics that should be used;
- Sustainability over the long term;
- Focus area along the agriculture value chain;
- Geographical scope to attract participants; and
- Recommendations for potential advisory committee members, participants and project champion.

Figure 2: Breakdown of the people who participated in the study



3. *Secondary research was also conducted to provide background information on agri-tech trends, statistics, key stakeholders and agri-businesses such as:*
 - A comprehensive literature review and analyses of agri-food and agri-tech accelerators/incubators/innovation centres across Canada, the US and the world;
 - Secondary literature review of business and key stakeholder websites, government publications and industry association publications;
 - Secondary research and interviews with government agents that have had direct contact with THRIVE AgTech Innovation Centre.
4. *Meetings with the District of Summerland and the Summerland Chamber of Commerce, as well as the SOSEDS Steering Committee were conducted to clarify the desired outcomes and to gain an understanding of the needs within the community.*
5. *Engage Business & People Solutions and partner, Thürost Marketing, also attended the “Valuing Agriculture as an Economic Driver” Forum in Grand Forks and the R.I.P.E. Research and Innovation Expo at Okanagan College in May 2017.*

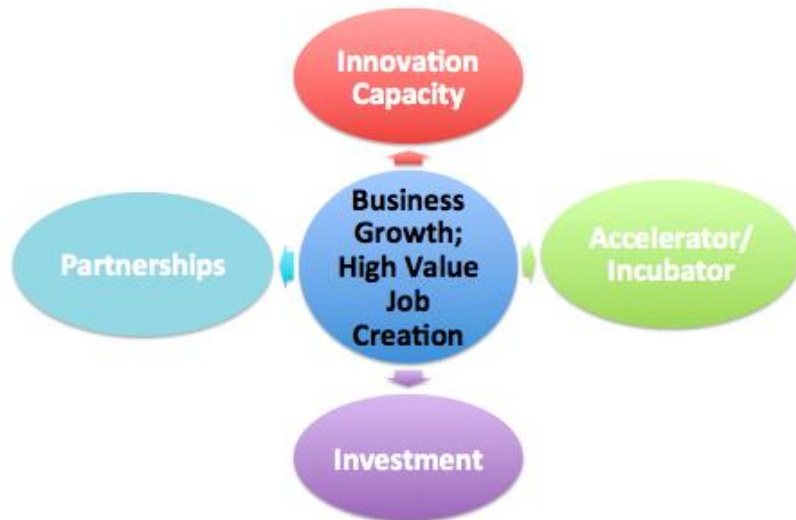
Valuable discussions and follow-up interviews took place with a food scientist, researchers and professionals providing their perspective and expertise in the value of local agriculture economies and sustainable food systems.

4 Benefit of Having an OAIC

A common space for technology, innovation, research, academia, industry and entrepreneurs is needed to accelerate ideas for commercialization (See Figure 2). An agriculture innovation centre would allow for the ‘cross-pollination’ of ideas with its interdisciplinary approach (e.g. life sciences, engineering, tech and IT). In order to build

innovative capacity, agriculture, agri-food and agri-tech programming needs to be integrated with advanced research and all levels of education and training.

Figure 3: OAIC Pillars for Success



*Source: Adapted From
Ryerson University:
AgTech The Intersection of
Technology, Venture
Capital and Agriculture¹*

Accelerators play an increasing role in start-up communities

throughout Canada and globally. Early evidence demonstrates the significant potential of accelerators to improve the outcome for start-ups and a positive effect on the broader community.¹ The infrastructure for acceleration includes a start-up incubation with mentorship, professional services, such as accounting, law and intellectual property, networking and access to funding and investors.

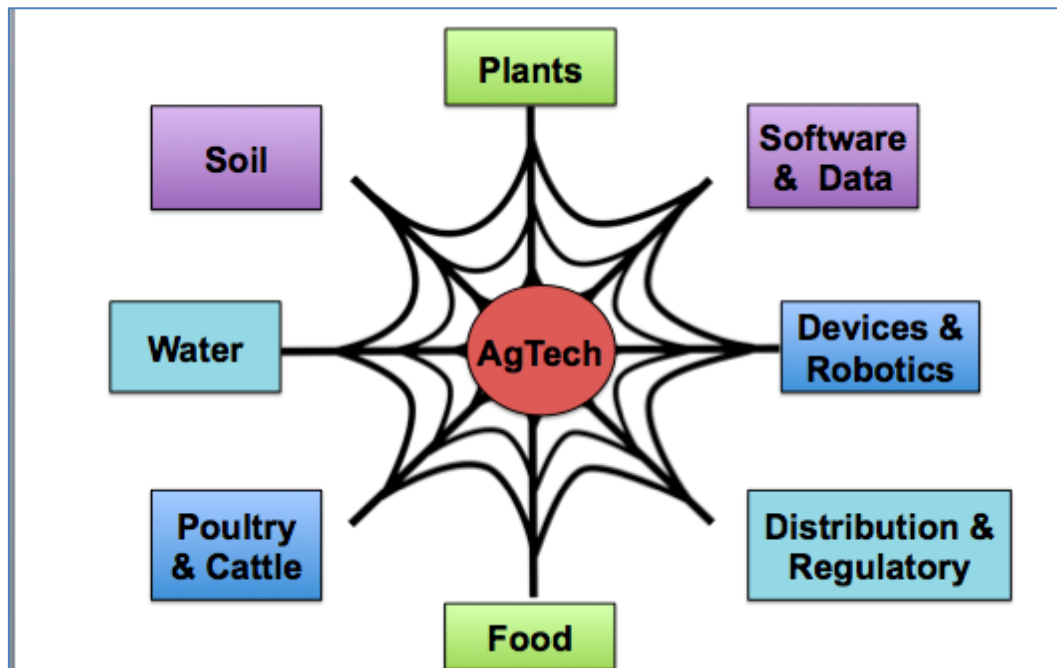
It is important to bring expertise for those start-up agri-businesses who have great ideas but often lack the access to good markets and networks in which to scale their businesses. Some entrepreneurs don't have imminent knowledge of agriculture production. There is also value in bringing cohorts together around specific challenges and convene in a place where they can empower innovations to build scalable and relevant solutions to current challenges.

4.1 What is Agri-Tech?

Agri-tech is the use of technology in agriculture, horticulture, and aquaculture with the aim of improving yield, efficiency, processes and profitability. It is anything that improves the agriculture industry. Market demand is there for all kinds of agri-tech and value-added food-based products. Technologies can be applied throughout the value chain, as shown below in Figure 3:

Figure 4: The Myriad of Agri-tech Opportunities Throughout the Value Chain

¹ Source: Harvard Business Review. What Startup Accelerators Really Do. Ian Hathaway. MARCH 01, 2016 <https://hbr.org/2016/03/what-startup-accelerators-really-do>



Source: Adapted from Royse Law Firm - AgTech – The Intersection of Technology, Venture Capital and Agriculture and discussions with industry stakeholders.²

- **Soil and Water:** food traceability, ‘intelligent’ environmental control sensing platforms, predictive forecasting models for flooding, drought and volatile weather, composting ‘bugs’.
- **Plants** (Crop Science): Vines, seed technology, biotechnology, botanical extracts, cosmeceuticals and nutricosmetics.
- **Poultry and Cattle:** Traceability, testing instruments, UAV surveillance monitoring, waste disposal.
- **Culinary:** Organic, functional foods, waste control, composting, advanced food (and by-products) manufacturing, and shared use facilities.
- **Distribution:** Supply chain platform, packaging, logistics, security, regulatory requirements for food, beverage and farm inputs.
- **Software and Data:** Big data, machine learning, farm management, metrics/sales, e-commerce, agricultural management tools and cloud applications.
- **Devices and Robotics:** Precision farming, machinery and equipment, GPS, GIS, drones, sensors, automation and indoor cultivation system.
- **Sustainable environmental applications:** agriculture waste management, biomass and clean energy.

According to the report, Bungle in the Ag Tech Jungle – Cracking the Code on Precision Farming and Digital Agriculture, “precision agriculture was born during the 1980s and 1990s, along with innovations in plant breeding and other biotechnology-focused tools such as genetic modifications.”³ Today’s wave of agriculture innovation includes digital

² Source: Royse Law Firm: The Intersection of Technology, Venture Capital and Agriculture, published on YouTube July 18, 2013. <https://www.youtube.com/watch?v=Vuk2BlqVOBc>

³ Source: <https://research.rabobank.com/far/en/sectors/farm-inputs/cracking-the-code-on-precision-farming-and-digital-ag.html>

agriculture tools ranging from cloud-based software tools to ‘smart’ hardware and software tools that can communicate with other connected devices wirelessly and digitally.⁴

However, there has been low adoption of these new innovations by farmers within the region because the:

- Farmers don’t understand the economics and ROI of such investments
- Technologies are not financially viable;
- Farmers do not have the infrastructure to support the technologies; or
- Value proposition has not been communicated effectively by the suppliers.⁵

Moreover, farmers may not have the technical skills or computer capabilities to run these tools for their business. There is an opportunity for the OAIC to identify and leverage early adopter farmers that are known to be ‘ahead of the curve’ in their communities, as this will accelerate the pace for others to follow their lead.

4.2 Opportunities Identified in Secondary Research

The Okanagan’s agri-business sectors are well positioned for growth and investment in both existing and new markets, within Canada and abroad. Both provincial and federal governments are committed to working with these sectors to make sure workers have access to training, and businesses have access to incentives that encourage innovation and investment.

Agriculture. The Okanagan Valley is significant in agriculture, as shown in **Appendix 1**. According to the Okanagan Inter-Regional Monitoring & Evaluation Framework Report, farm income is up in all 3 Okanagan regional districts (RDs) and profitability has increased in 2 out of 3 RDs (RDNO & RDCO)⁶. In 2016, 9.6% (72,133 ha) and 8.23% (27,217 ha) of the total area of the RDNO and the South Okanagan, respectively, was actively farmed.⁷

The South Okanagan-Similkameen region in particular leads the production of fruits and vegetables in the region where the warmer temperatures and drier growing climate are more conducive to crops than the Northern and Central Okanagan and Kootenay regions. The largest number of farms in the Thompson-Nicola and North Okanagan region is focused on cattle and ranching.⁸

⁴ Source: <https://research.rabobank.com/far/en/sectors/farm-inputs/cracking-the-code-on-precision-farming-and-digital-ag.html>

⁵ Source: Interviews with key stakeholders and validated by the Cracking the Code on Precision Farming Report. <https://research.rabobank.com/far/en/sectors/farm-inputs/cracking-the-code-on-precision-farming-and-digital-ag.html>

⁶ Framework Report to the Regional Growth Management Advisory Committee – May 8, 2017 Page 3

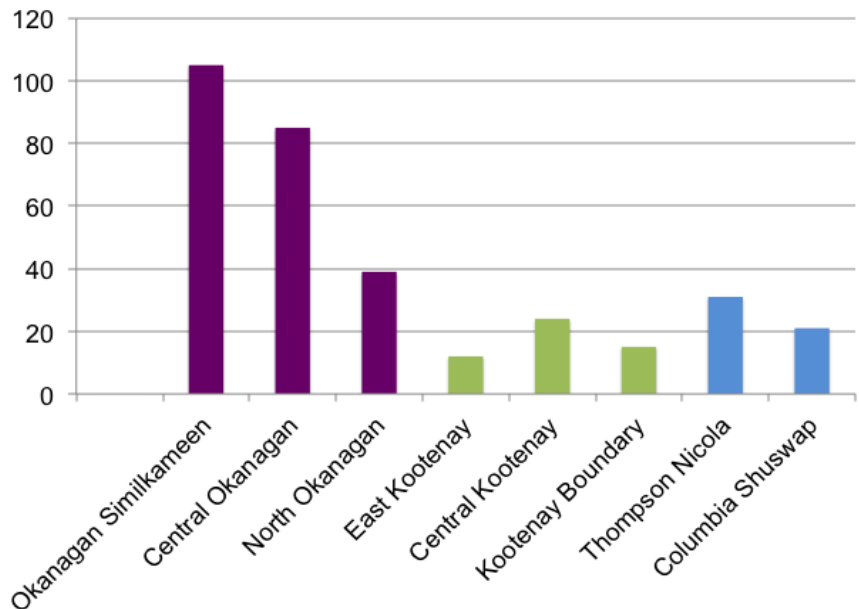
⁷ *State of the Basin Report 2016, Okanagan Valley Interregional Monitoring and Evaluation Framework, Regional Districts of North Okanagan, Central Okanagan, and Okanagan-Similkameen, May 5, 2017, Page 13.*

⁸ Source: OVETS © 2015 Okanagan Valley Economic Development Society – Okanagan Valley Economic Profile. Page 42. Also, Cansim Tables 004-0021 from Stats Canada - <http://www.statcan.gc.ca/daily-quotidien/170510/dq170510a-cansim-eng.htm>.

Food Processing. The BC food and beverage processing industry is a major contributor to the BC economy. About 87% of the 1,108 food and beverage processing establishments were micro and small operations employing between 1 and 49 people.⁹ However, BC is one of the only provinces without a food commercialization centre similar to what is found in Alberta, Saskatchewan, Manitoba, Ontario, Quebec and Prince Edward Island. About 40% of the budget for most food innovation centres is provincial.

The characteristics of the BC agriculture industry were echoed in two studies:

1. In June 2014, the British Columbia Data Catalogue¹⁰ identified 332 food and beverage processors by region as follows:



Please see **Appendix 2** for a breakdown by type of processing.

2. The 2015 Community Futures Development Corporation of Central Okanagan - Central Okanagan Small Scale Food Processing Study¹¹.

This study identified over 175 companies and organizations involved in small-scale food production in the greater Okanagan region (derived from the IHA Food Licenses List)¹². This represents about 15% of the total number of food and beverage processing businesses in BC. Specific to the South Okanagan, there are 70 small-scale food processors (not including wineries) in the region where 68% generate above \$50,000 with 16% generate over \$1,000,000 in revenue. In the region, there are also 143 wineries with revenues that range from \$100,000 to over \$1,000,000.¹³

This study determined that there is a wide range of individuals who operate small-scale food processing businesses. Many of the new entrants to the industry are in their 30's, but there are older entrants as well. A typical emerging processor would start a home-based

⁹ Source: BCFPA's Industry Overview and Economic Impact Study of the BC Food and Beverage Processing Industry. https://www.bcfpa.ca/sites/default/files/bcfpa_factsheet_-_nov_7_2016_final.pdf

¹⁰ BC food and beverage processing establishment counts by type of processing and region (June 2014).

¹¹ Source: The 2015 Community Futures Development Corporation of Central Okanagan - Central Okanagan Small Scale Food Processing Study, page 5. http://www.cfdcco.com/images/Final_Project_Report_-_Central_Okanagan_Small_Scale_Food_Processing.pdf

¹² The respondents for the study included businesses ranging from newly started to 10 years in business. Number of employees also ranged from family only to 10+ employees. Of those who businesses, 38% indicated sales of \$15,000-\$30,000 while the rest ranged from \$50,000 to \$1-\$5 million. Interestingly 88% of the respondents indicated having postsecondary (college or university) education.

¹³ Source: D & B Hoovers Database retrieved on December 15, 2016.

business that is product-driven, often built from a hobby. Owners face challenges with bureaucracy and regulations, finding facilities, and competing for space at markets and shows. Upon popularity of their products, they realize they need to build or expand their production facilities.¹⁴

With growth, food processors were challenges with finding suitable labour and/or they had limited capacity for moving forward. They also expressed the need to move to retail sales but delivery and freight were major costs and have led to more than one business moving to larger centres for production. Many of the established businesses have cycled from home-based facilities to rental or co-pack facilities and back to owned facilities to accommodate jumps in production.¹⁵

Commissary Kitchens. A commissary is a licensed and inspected commercial-grade kitchen facility that is set up for the centralized preparation and storage of food for distribution to many different sites. Food artisans, food truck owners, chefs and others use commercial kitchens or commissaries as a more affordable means to using a professional kitchen. There are a few commissary kitchens within or near the OSK region:

- The Farm Kitchen project is a new incubator commissary kitchen located in Cranbrook (www.farmkitchenconnect.ca);
- Beckman's Fine Foods is a commercial kitchen/commissary in Hedley;

¹⁴ Source: The 2015 Community Futures Development Corporation of Central Okanagan - Central Okanagan Small Scale Food Processing Study, page 8. http://www.cfdcco.com/images/Final_Project_Report_-_Central_Okanagan_Small_Scale_Food_Processing.pdf

¹⁵ Source: The 2015 Community Futures Development Corporation of Central Okanagan - Central Okanagan Small Scale Food Processing Study, page 8. http://www.cfdcco.com/images/Final_Project_Report_-_Central_Okanagan_Small_Scale_Food_Processing.pdf

- Valley Kitchen is a commercial kitchen in Winlaw and has some dehydrators; and
- Saj Common Kitchen is a culinary incubator in Kelowna.

A Kootenay-based food technology consultant said that there are agri-food entrepreneurs in the Kootenays that have not found a commercial kitchen with a kettle and bottling line within the southern interior and have had to drive to Vancouver to use this equipment. This reflects a potential opportunity that can be further explored in the business plan phase.

A survey and/or further focus groups can be conducted in the Slocan Valley, Invermere, Nelson and/or Creston to identify those individuals who would use a flexible bottling line and identify their specific needs. The agri-food businesses can in turn do the research on what equipment is ideal for their multi-use and ideally contribute to the purchase of the specialized equipment so there is real commitment from the businesses.

Wineries. There are 275 licensed grape wineries in British Columbia (341 total licensed wineries)¹⁶, ranging from small family run vineyards to large luxurious facilities. Several wineries have garnered international recognition and awards for quality wines and are widely sought after by locals and tourists for the quality. Vintners in the region continue to innovate with the introduction of major grape varieties,¹⁷ clones and specialty grapes to exploit the terroir and expand the traditional grape growing areas.

The BC wine industry is well supported with industry associations, post secondary programs and custom crush facilities. Okanagan Crush Pad in Summerland is a custom crush winery that assists smaller wineries throughout BC with any step in the process, from the vineyard right through to marketing their products. There are also other wineries providing this ‘incubator’ service.

Agri-tech. Agri-tech is transforming the agricultural sector in radically new ways, such as using biochemistry, drones, electronic sensors and big data analytics.

Agri-tech innovators and entrepreneurs from BC are well known internationally, such as Summerland Varieties Corp, Terramera and Okanagan Specialty Fruit. They benefit from strong sector resources in the region, including SRDC, the new BC Wine Information Centre Sensory Lab, located at the Penticton campus of Okanagan College, and the Sterile Insect Release (SIR) Program. Federal and BC provincial government support research and development activities and facilitate the demonstration, commercialization, and adoption of new technologies as a means to accelerate the pace of innovation.¹⁸

4.3 Competitive Advantage for the Region

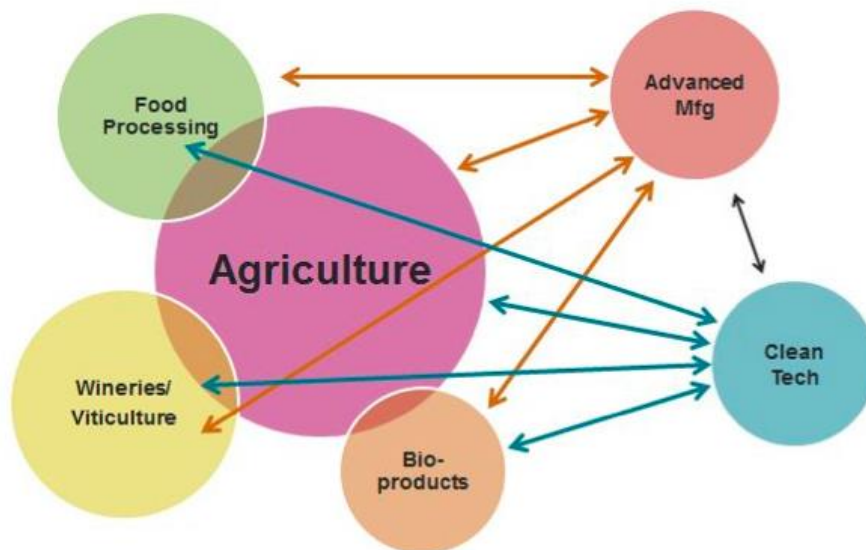
MDB Insight developed an Industry Targeting Decision Tree model that was used to help identify the greatest opportunity within the South Okanagan-Similkameen (SOS) in its MDB Insight: South Okanagan-Similkameen Economic Development Group Foreign Direct Investment Strategy 2016 Report. The sector convergence diagram below that was

¹⁶ Source: BC Wine Institute. http://www.winebc.org/press_room/statistics/

¹⁷ Source: OVEDS © 2015 Okanagan Valley Economic Development Society – Okanagan Valley Economic Profile. Page 42.

¹⁸ MDB Insights: South Okanagan – Similkameen Economic Development Group (SOSEDS) Foreign Direct Investment Strategy 2016.

extracted from this report shows the importance of agriculture. “Where two circles overlap, the region has a competitive advantage at a regional or national level.”



The SWOT analysis from the MDB Insights Foreign Direct Investment report outlines key opportunities for the region and affirms the need for an agriculture innovation centre. Please see **Appendix 3**.

5 Best Practices Incubators & Accelerators

New Concept

The concept of incubators and accelerators primarily focused on agriculture is a new concept in Canada. The province of BC has two accelerators with an agriculture-technology focus; SRCTec and Bioenterprise. Both are part of BC's Acceleration Network and both have programs that solely focus on supporting ag-tech companies.

Bioenterprise is a not-for-profit business accelerator that was started in partnership with the Government of Ontario in 2003. They have recently opened an office in Vancouver and will be accessing space at SRCTec. While SRCTec focuses on providing assistance to innovative start-ups, Bioenterprise focuses on helping existing ag-tech companies expand internationally. SRCTec and Bioenterprise were the only Canadian accelerators at the recent Ag-Tech Venture Forum in Toronto.

5.1 BC Agri-Tech Incubators & Accelerators

5.1.1 SRCTec – Abbotsford, BC

Overview

SRCTec is a non-profit organization that was started from BCIC funding in 2007. As a tech entrepreneur in Abbotsford, Ray Szabada saw an opportunity to include Agri-tech as part of their existing accelerator. Since the region has a heavy agriculture focus, Ray believed technology could assist local farmers. The organization's definition of agri-tech is ***"Anything that measures, automates or improves agriculture is considered agri-tech."***

Funding for SRCTec was \$850k for a 3-year period. The agri-tech program has only been in operation for 2 ½ years and has had approximately 37 program participants. All staff and "Executive in Residences" (EiR's) provide support and guidance on a part-time basis.

The design of SRCTec programs and services follows the initiatives BCIC is offering to BC entrepreneurs. As a means to generate extra revenue and help the organization become self-sustaining, SRCTec has implemented corporate consulting services and partnerships.

The organization believes innovation will come from the younger population and they have since added programming for children in grades 7 & 8. SRCTec also has an informal partnership with the University of the Fraser Valley.

Interest in Partnership

SRCTec is open to a partnership or satellite program with the OAIC. Because BCIC funding for the Ag-Venture program is limited to SRCTec, they are authorized to provide services anywhere in the province. SRCTec also recommends having mentors with a focus on agriculture expertise. SRCTec clients were looking for EiR's with specific knowledge in agriculture and not just standard business advice.

Peter Briscoe, one of the area's premier EiR's, referred advising duties to another EiR with agriculture experience because he realized many of the business principles found in agriculture are not the same as standard business practices. The standards and regulations required in the agriculture industry are extensive and an experienced EiR with agriculture experience will know how to overcome regulatory obstacles.

5.1.2 Bioenterprise BC – Vancouver BC

Overview

Bioenterprise Corporation is a not-for-profit agri-tech business accelerator offering commercialization services to help promote the creation, growth and expansion of businesses engaged in **Agri-Technologies**. Founded in 2003, they work with new agri-technology ventures. The goal of Bioenterprise is to transform cutting-edge ideas into commercial success and connect investors to high-potential opportunities. In 2008, Bioenterprise established the Agri-Technology Commercialization Centre with support and

assistance from Ontario Agri-Food Technologies, Soy 20/20, Ontario Ministry of Agriculture Food and Rural Affairs and Agriculture and Agri-Food Canada. This centre provides a hub of specialized industry knowledge and market expertise.

While they do not offer specific programs, the services and expertise of Bioenterprise includes commercializing agri-businesses, business plan assistance, financial and marketing strategy development, investment preparation, as well as sourcing to a variety of capital funding.

Bioenterprise is supported through **Growing Forward 2**, a federal-provincial-territorial initiative, and the Canada Accelerator and Incubator Program (CAIP) delivered by the National Research Council of Canada's Industrial Research Assistance Program (NRC's IRAP).

In 2010, the organization had a national mandate to start working coast to coast. In 2015 the organization received funding from NRC to expand across the country. In Feb of 2016 an office was set to open in Vancouver. Since November 2016, the office has been officially opened with Jessica Taylor as acting General Manager. In BC, the organization has developed partnerships with BCIC and SRCTec and is currently accessing office space in the SRCTec building.

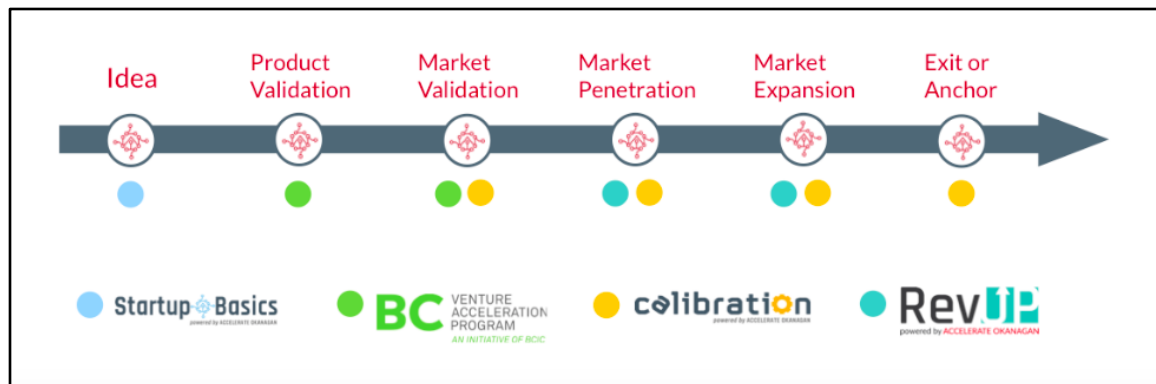
Interest in Partnership

Bioenterprise is very interested in partnering with the OAIC. They would bring in the global network of experts that can be utilized by all OAIC entrepreneurs. A partnership would provide them the opportunity to expand their offering outside of the Lower Mainland and into the heart of the tree fruits and viticulture industry.

5.2 BC Incubators & Accelerators

The BC Acceleration Network drives economic development and job creation by supporting entrepreneurs and tech companies in their growth. The network shares expertise through the EiR model. There are 14 accelerators in the province with AO offering services in the Okanagan Region and the Kootenay Association of Science and Technology (KAST) in the Kootenay region. Except for SRCTec and Bioenterprise, the accelerators across BC do not currently have EiR's focused on Agriculture. As part of our best practices research, we have included an analysis of AO and MIDAS, a metallurgy incubator based in the Kootenay region.

The accelerators in the BCIC Network use the following program model to assist traditional tech companies with growth. These programs are suitable for agri-tech, agri-food or agriculture businesses with the agriculture experience and expertise but are lacking the skills and knowledge on the business side.



Source: Accelerate Okanagan - <https://www.accelerateokanagan.com/programs/>

These programs are suitable for those participants that have the agriculture experience and expertise but need further support and mentoring on the business side.

5.2.1 Accelerate Okanagan (AO) – Kelowna, BC

Overview

AO has been in operation since December 2010. It was formed through the amalgamation of the Okanagan Research and Innovation Centre (ORIC) based in Penticton and the Okanagan Science and Technology Council (OSTEC) based in Kelowna. AO is supported through funding from BCIC, NRC and the province of BC in addition to client and membership fees, and corporate partnerships. The mission of AO is to help increase the number of technology companies that start and grow in the Okanagan. The organization offers services from Salmon Arm to Osoyoos.

AO has recently moved into the Okanagan Innovation Centre, which is a central hub for the Okanagan tech community to help drive connections and thrive. This new building will house other organizations with one full floor dedicated to AO including offices for entrepreneurs to rent.

Interest in Partnership

AO is interested in partnering with OAIC to open up a satellite office. Alex Reid is already responsible for the South Okanagan-Similkameen region and can provide services to any entrepreneurs in the region. They are interested in expanding their current programs to the agri-tech industry and have more representation in the South Okanagan.

5.2.2 MIDAS (Metallurgical Industrial Development Acceleration and Studies) – Trail, BC

Overview

MIDAS is owned by KAST. It focuses on applied research, commercialization and digital fabrication training for the metallurgical sector. MIDAS offers manufacturing technology (including 3D Printing) to West Kootenay companies, entrepreneurs and students. MIDAS

is a partnership between KAST and Fenix Advanced Materials, a tech business that specializes in ultra-high purity metals. The goal of the partnership is to create opportunities for the commercialization of technology.

The initial cost to establish MIDAS was \$2 million dollars, funded by the Government of Canada, WED, Columbia Basin Trust, Community Futures of Greater Trail and BCIC. Training and programming partnership were formed with the Lower Columbia Initiatives Corporation (LCIC), Selkirk College, UBCO Engineering/Business faculties, and MITACS.

There were several best practices used to design the framework for MIDAS:

1. Capitalize on existing resources — an industrial facility with local instructional expertise in digital fabrication (Selkirk College), a strong regional business coaching program (KAST) and a university-based internship program pairing industry with graduate-level R&D (UBCO).
2. Public and private leadership — to bring the various stakeholders together.
3. Attract private investment to use the facility.
4. Local college provides a workforce that can leverage changing technologies.
5. Public-private partnerships are created — to enrich research capacity, develop new ideas, and bring products to market.

5.3 Food Innovation Development Centres

Food Innovation and Development Centres are found in many parts of Canada except for the province of BC. These centres are focused on providing a variety of services to entrepreneurs and companies who sell value-added food products. We have included an analysis of selected food innovation centres in Canada.

5.3.1 Agrivalue Processing Business Incubator (APBI) – Leduc, AB

Overview

The Agrivalue Processing Business Incubator (APBI) is a multi-tenant facility providing the infrastructure and services to support the establishment and growth of new agri-business ventures in Alberta. The APBI is a federally registered establishment enabling resident companies to market their products nationally and internationally.

As a government-run organization with their own scientists, food developers, retail specialists, and business support professionals, the APBI operates on a fee for service model with subsidized rates for some services. Clients are encouraged to apply to the Growing Forward program for financial support. The APBI will only refer to outside scientists if they don't have someone with the knowledge and will often partner with academic institutions and private organizations on shared initiatives or projects.

5.3.2 BIO FOOD TECH – Charlottetown, PEI

Overview

BIO FOOD TECH provides professional technical services to the food and bioprocessing industries from concept to pilot to market through three integrated business divisions:

1. Practical food science and technology expertise for food and bioprocessing sectors.
2. Fermentation, extraction, isolation and purification services at lab and pilot plant scale.
3. Comprehensive, accredited lab analysis, in-plant support and troubleshooting.

Established in 1987, BIO FOOD TECH is a contract research, processing and analytical services company. The team is made up of food and bioprocessing scientists, microbiologists, technologists, engineers and support staff.

BIO FOOD TECH has had clients work with Bioenterprise but the majority of their clients do not sell globally. Very few of their clients produce on a large scale. While there is a lot of processing assistance in Guelph Ontario, the local community appreciates their local expertise.

5.3.3 Saskatchewan Food Industry Development Centre (Food Centre) – Saskatoon, SK

Overview

The Food Centre is a non-profit organization with very little funding from the Saskatchewan Ministry of Agriculture (15% of budget). The organization was started by industry rather than academia or government. In 1998 after the Federal Government terminated the CROW rate program, \$10m was put into the establishment of a food centre. Of that \$10m, \$2m established the facility, while \$8m went into an endowment fund to cover future annual operating costs.

The Food Centre's mandate is to help with the development of new products for corporations and entrepreneurs. They offer a full continuum of agriculture services however tend to sway more on the value-added side with the development of agri-food products. They do not offer any formal programs and work one-on-one with clients. The Food Centre works in collaboration with the University of Saskatchewan and POS Bioscience, a private agri-food research lab.

The Food Centre provides basic research services for food companies looking to develop products. Their clients are entrepreneurs and corporations mainly from Saskatchewan but some do come from outside the province. Their main role is to assist with commercialization and value chain analysis. They do not offer any support with the business side of the venture. However, they will often conduct grocery store tours with entrepreneurs to identify where they see their product sitting on the shelf.

Some of the challenges with the organization is funding for capital items and finding staff with expertise. They also find that the smaller companies don't have the money to hire the organization to do all the research required. Fees are determined based on client's needs and budget available.

5.4 International Ag-Tech and Food Accelerators & Incubators

5.4.1 THRIVE - Los Gatos, CA

Overview

Started by John Harnett of SVG Partners, a technology investment and advisory firm, THRIVE is focused on advancing technologies in the food and agriculture industries. Through its annual Open Innovation and Seed Accelerator programs and its venture and advisory services, THRIVE has been helping innovative technology companies disrupt, scale and lead in the global AgTech market since 2014.

THRIVE connects the expertise of tech companies to on-the-ground knowledge of agricultural companies, the financial backing of investors, and the innovation of entrepreneurs. THRIVE is heavily focused on securing significant investment for innovative ag-tech products and typically invests between \$25K-\$250K on each entrepreneur.

The organization is privately funded through corporate partnerships. Founder John Harnett convinced companies like Driscoll's and other large food producers to be socially responsible and re-invest in local agri-businesses. SVG Partners specializes in helping US firms enter the European market. As a native of Ireland, John has the network to assist US companies with exporting to Europe.

Other international agri-food incubators and accelerators reviewed for the study include:

5.4.2 FOOD-X – New York, NY

Food X is a business accelerator that is focused on launching food-related businesses with a multi-stage evergreen fund SOS ventures. It partners with early-stage food, beverage and health food companies to help them successfully take their products and services to market. The program provides up to \$50,000 in funding in return for 8 percent equity, as well as regular sessions with food and tech luminaries.

5.4.3 The Innovation Institute for Food and Health – Davis CA

Mars Inc. announced a \$40 million, 10-year commitment to develop the World Food Center at the University of California Davis. Since 2013, the objective of the World Food Center has been to help shape strategy and policy. They serve as a focal point for deepening and broadening the university's collaborations with industry partners. They also connect research to society and the marketplace.

5.4.4 Dig Eat All - San Sebastian, Spain

This five-week acceleration program focuses on accelerating start-ups that are innovating the food, agriculture and health value chains. The intensive program offers mentorship, workspace, up to €250,000 in funding and strategic partnership opportunities.

5.4.5 Sprout Agri-Tec Accelerator – New Zealand & Australia

Sprout is the premium accelerator for advancing agri-tech start-ups. Every year Sprout identifies eight start-ups and provides:

- Cash investment of \$25,000 in exchange for equity;
- Expert training and mentorship in all areas of business growth;
- Access to a national and international investor group; and
- Opportunity to raise between \$100,000 - \$1M capital at the Sprout company showcase.

Throughout the program, start-ups and entrepreneurs receive funding and world-class mentorship and training from leaders in technology, research and business growth.

5.5 Conclusions from Best Practices:

- 1. Credible champions.** Passionate champions are required to spearhead the program and develop key relationships. The champions of the other accelerators are often their CEOs and/or directors. OAIC should set aside room in the budget to compensate the Centre's champions (e.g. equity in companies/bonus/fee for service). Champions refer potential participants and investors within their large network and ensure everyone involved is on board and behind the ultimate success of the project.
- 2. Collaborative Partnerships.** The best practices research showed that collaborative partnerships are needed to run an effective accelerator/incubator. OAIC should formalize a partnership, through a MOU, with the following organizations:
 - Bioenterprise BC for later stage agri-businesses that have moved beyond proof of concept and need help with further due diligence, market strategy for export readiness, development, funding application guidance and investment readiness.
 - SRCTec for specific agri-tech mentoring, expertise and programs for the start-up incubation phase;
 - AO for the startup technology-focused mentoring, expertise and programs.

A collaborative effort will extend the network, pool expertise, bolster funding, provide co-marketing, assist with participant recruitment and help build a private investment fund specific to agriculture. At least a 5-year outreach commitment would need to be provided since most accelerators said it took more than 5 years to see any kind of meaningful results. Annual applications to funding sources will be necessary even after the end of this project period.

Collaboration should also include partnerships with other food innovation and agri-tech accelerators and incubators, industry associations and government agencies to ensure sustainable funding for the Centre and programming that does not duplicate services by other jurisdictions.

- 3. Organizational Structure.** To streamline both cost and time to initiate a centre, a possible option is for OAIC to become a satellite office for one of these primary partners: Bioenterprise BC, SRCTec and AO. Funding agencies require that an organization have at least 1 to 2 years of financial statements.

Some of the accelerators researched were based on a social enterprise model. BC in particular has launched an innovative new hybrid corporate model, the community contribution company (C3 or CCC), in response to growing demand for socially focused investment options. These social enterprises are driven primarily by social objectives rather than the need to maximize profits for shareholders.¹⁹ Profits generated are principally reinvested back into the organization or community. They have a different tax structure than not-for-profit organizations and are usually easier to set up. The structure for the Centre will need to be determined and formalized with partnership agreements during the business plan stage.

It is imperative that the Advisory Committee/Board has fair representation of key stakeholders in the OSK region to ensure regional interest is supported and represented. Committee representation should include senior staff from government, elected officials, academia and research, agri-businesses and economic development service providers.

- 4. Differentiation.** To ensure optimal use of government funding, the Centre must distinguish themselves from other agri-food and agri-tech accelerators within BC, and potentially outside of BC, and not duplicate what is already provided within the industry and/or region. At this stage, there are no pilot food processing facilities within the region or BC. In addition, the OSK region offers very different agriculture products than that in the Lower Mainland (e.g. tree fruit and viticulture vs. field crops and dairy). Therefore, the OAIC has the opportunity to meet the local needs for food development, processing, testing and sensory analysis that no other BC accelerator offers. There is also an opportunity to share resources and participant referrals on the agri-tech side with SRCTec as entrepreneurs may benefit from field-testing their products with different crops (e.g. berries and greenhouses vs. tree fruits and vineyards). The business plan phase will need to further develop the Centre's value proposition.
- 5. Staffing.** One OAIC Director with sales and marketing skills is required for the Centre, and reports to the 'parent' agri-tech accelerator, such as Bioenterprise BC or SRCTec. By year 2 and 3, there will be a requirement to add part-time support and advisory staff.
- 6. Education and communication.** Educating the value and importance of agriculture in a community or region is an important element of success. This Centre needs to have allocated resources to do exactly that and leverage the co-marketing opportunities with partners.

¹⁹ Source: <http://www.fin.gov.bc.ca/prs/cccl/>.

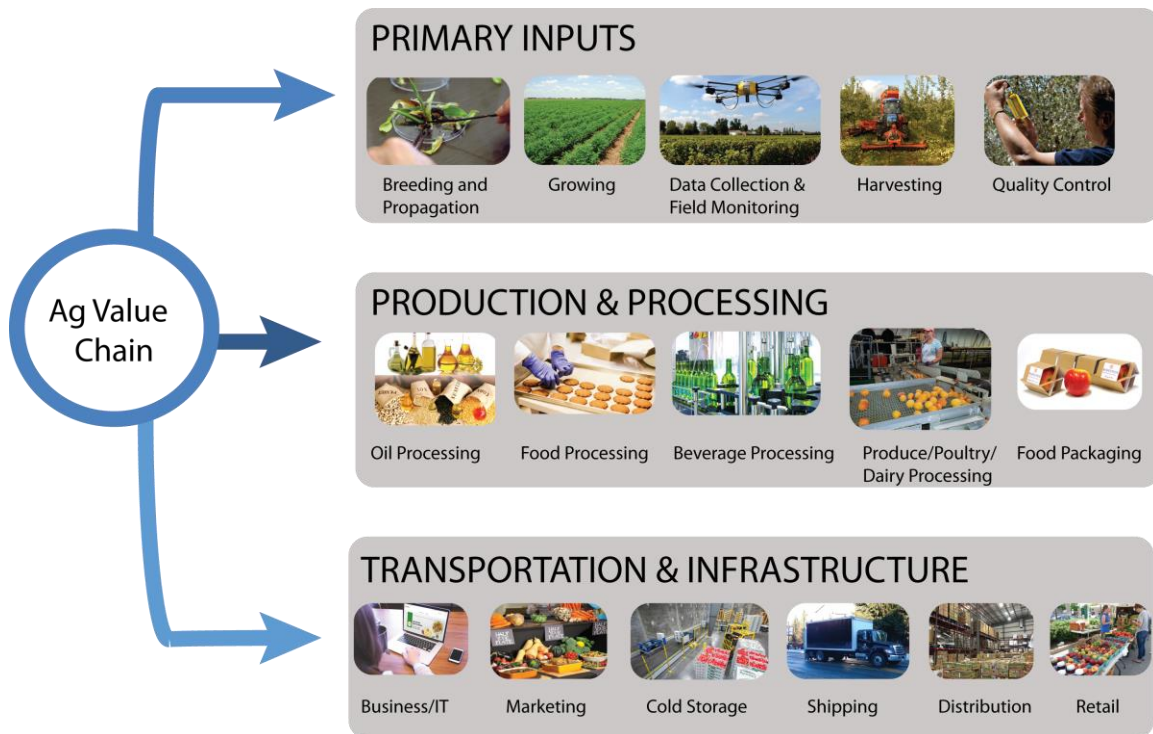
- 7. Attracting start-up entrepreneurs.** The OSK region's agriculture community is characterized by numerous small agricultural businesses and very few medium to large players. OAIC should focus on attracting entrepreneurs and small businesses that are growth-oriented so that there is a willingness to pay for services provided by the Centre. A participant selection process will be required to ensure the most promising businesses are accepted into the Centre.
- 8. Investment Attraction Strategy.** The OAIC should be closely tied in with the IAS for the region, where there are opportunities for co-marketing. The Centre can be used as an anchor to attract new entrepreneurs to the region.

6 Results from Focus Groups and Interviews

Following the best practices analysis, information collected from the focus groups and interviews were reviewed for consistencies and patterns. This section highlights the results of the amalgamated feedback, starting with some of the issues currently being faced by the industry and the respective opportunities.

6.1 Problems and Opportunities

Entrepreneurs and stakeholders have expressed the problems and opportunities that aren't being addressed in the OSK region. A diagram of the agriculture value chain is shown to provide structure to the feedback.



Source: Thurst Marketing, 2017

A 'high-level' summary of the problems and opportunities are provided next. Further elaborations of these examples have been provided in **Appendix 4**.

Primary Inputs:

- 1. Problem:** Growers have difficulty accessing plant material of a premium variety. There are also significant virus issues that have to be addressed within the region, as well as internationally.

 - Opportunity:** Molecular virus testing for orchard fruits. Development of new varieties that are virus free. Establish new agreements with large fruit breeders to access new premium varieties.
- 2. Problem:** Existing orchards have older irrigation infrastructure that does not optimize water usage. Farmers do not see the value in upgrading.

 - Opportunity:** Intelligent' irrigation systems that use advances in wireless sensors and maintains soil profile.
 - Opportunity:** Identifying ways to ensure great innovations get uptake by smaller farms, help them become digitalized and apply these great efficiencies.
- 3. Problem:** Difficulty in assessing, diagnosing and monitoring pests, weeds, soil and plant health issues, particularly in varying microclimates.

- **Opportunity:** Data analytics, drones (with multispectral imaging capabilities), open data sourcing, biosensors and predictive software are being used for monitoring weather, micro-climate conditions, soil moisture, water quality and pathogens. Emerging technologies are electronic/ultrasonic sensors for targeted spraying and weed control.
4. **Problem:** Food safety requirements mandated by CFIA and grocery chains have been getting 'overly stringent'. In addition, farmers are spending too much time on regulatory compliance procedures.
- **Opportunity:** Streamline the regulatory paperwork and standardize data collection and storage across the industry's value chain for easy adoption and reporting.

Production and Processing

1. **Problem:** No accessible pilot food processing facility within BC to use culled fruit for secondary manufacturing or to develop and test food and beverage products and respective packaging.
- **Opportunity:** Build an OAIC pilot food processing facility and/or technology driven commissary kitchen. Commissary Connect (www.commissaryconnect.ca) is an innovative commissary kitchen concept that creates an environment for new and emerging products. They help design the space to suit the uniqueness of the region with the right technologies and are interested in potential franchising.
- BC Ministry of Agriculture would like to build a standard of commissary kitchens that supports all sizes of processors and has the technological and data support similar to the Commissary Connect model. Please see **Appendix 4** (Food Processing Opportunities) for more details.
2. **Problem:** Organic farmers and food processors are concerned with a lack of sanitizing options and have looked into alternatives to chemical sanitizers for preventing food borne illnesses.
- **Opportunity:** Ultra-violet C (UVC) light is being studied at Washington State University and has shown to be effective against foodborne pathogens on the surface of certain fruits, particularly apples, pears and other smooth skinned fruit. Further research identified that UVC has germicidal properties that can be effective against e-coli and other bacteria, mold and viruses.²⁰

Transportation and Infrastructure

1. **Problem:** There is currently no place to get start-up farm support with farm machinery, equipment and technologies in the region. The Ministry of Agriculture Technology Extension is no longer available due to resource constraints. There are also a number of small scale food processors seeking business support for farmers and processors and are "tired of hoping that the government will bring back extension services."

²⁰ Source: <https://phys.org/news/2015-07-uv-foodborne-pathogens-fruits.html#jCp>

- **Opportunity:** Reinstate the technology extension program through the OAIC with a delivery model that suits the changing demographics and primary occupation demands of the farmer.
2. **Problem:** Seasoned farmers managing older, less desirable orchards do not take the time or have the business skills to understand the cash flow/business side of their farm operations.
 - **Opportunity:** Farm business management software tools, education and mentorship.
 3. **Problem:** Entrepreneurs often have difficulty accessing capital or it takes much longer to acquire than anticipated.
 - **Opportunity:** OAIC can provide networking opportunities, pitch sessions to investors and access to finance as one of their services.
 4. **Problem:** The OSK region is made up of many small acreage parcels, which makes it difficult for a producer to warrant the investment required to adopt new technologies in agriculture.
 - **Opportunity:** BC processors/growers can adapt a cooperative model for acquiring agriculture technologies where they collaborate and pool resources so that economies of scale can be captured.
 5. **Problem:** Higher density orchard systems and technologies require significant upfront costs that many of the new younger farmers can't afford. Young farmers want to lease land but the older generation farmers do not want to reinvest in their orchards. Also, the older farmers are not aware of young farmers wanting farmland to lease.
 - **Opportunity:** OAIC can provide education on programs and funding available to help young farmers adopt technologies. Portal and networking events for the sector can connect the younger and older generation farmers.
 6. **Problem:** Farmers consolidations are a trend throughout the region. The spatial requirements of managing these consolidated acres require technology.
 - **Opportunity:** New software, IT and hardware capabilities help manage and track farm assets with multiple sites, machinery maintenance requirements and work teams for multiple sites.
 7. **Problem:** The starch test used to test fruit maturity is not always accurate.
 - **Opportunity:** There are new non-destructive methods for testing fruit maturity, such as measurement of ethylene gas being released by apples and the dry matter weight testing to predict fruit storability.
 8. **Problem:** Monitoring and tracking the quality of sweet cherries and other fruit post-harvest. There are large volumes of spoiled fruit that occur at the retail grocery store as shrinkage or fruit being stored or transported in unfavourable environments.

- **Opportunity:** Innovative pathogen devices, JIT ordering systems, integration of machinery and processes with traceability programs, food packaging and supply chain logistics will help with food wastage throughout the value chain. There is also potential for a storage facility for frozen and/or dried fruit. Postharvest treatments, such as ozone, can be used to slow down fruit maturity and reduce microorganisms present in food. Other methods include various physical (heat, irradiation and edible coatings), chemical (antimicrobials, antioxidants and anti-browning) and gaseous treatments.
- 9. Problem:** Agri-businesses within the supply chain are not documented and not easily known. There was an expressed need to share weather information, farm management issues and solutions and industry events. Also, farmers are growing products that are not necessarily needed by the market.
- **Opportunity:** A centralized on-line portal that has a database of resources that connect key industry players (e.g. agriculture products and distributors; agriculture by-products and processors). OAIC can also host the space for a forum.
- 10. Problem:** Local fruit suppliers can't predict their harvest dates and communicate this to the large grocery chains.
- **Opportunity:** A better-integrated business systems to enhance the fruit harvest forecasting models for better predictability through the use of big data.

Waste Management

- 1. Problem:** Crop spoilage can range from 10 to 45%. This causes not only huge economic losses, but also a potential health hazard because of pathogenic bacteria, viruses, and parasites.
- **Opportunity:**
 - Innovative pathogen detection monitoring tools and devices, such as microchip technology for detecting the presence of spores and viruses to improve food traceability and fruit quality;
 - Innovative food drying technologies; shelf stability methods; and a mobile food processing service with CFIA and HACCP certification; and
 - Byproducts recovery from the solid waste streams to be used for secondary processing such as the nutraceutical and cosmetic industry.
- 2. Problem:** Large volume of food waste from restaurants goes to landfill. Recycling plastic and transportation of food waste are other issues.

- **Opportunity:**
 - A California waste-to-fertilizer company, WISErg, provides grocery stores, restaurants and other food vendors with ways to recycle expired produce and leftover prepared foods and transform it into a liquid fertilizer.²¹
 - A Chicago based company, Zero Percent, developed an app that allows restaurants and retailers to list their leftover food and then sends texts to food pantries, soup kitchens, etc. to let them know what is available. Its software provides analysis and reporting features to help their customers waste less.²²

Labour Market and Education

1. **Problem:** Lack of affordable housing and high land costs.

- **Opportunity:** Some farmers have provided on-site housing for workers. There are also plans for three affordable housing developments in Summerland.

2. **Problem:** Lack of agriculture-specific skilled labour (e.g. field technicians, farm managers, horticulturalists) and no place in the region to find or gain hands-on/practical farm experience.

- **Opportunity:** Optical scanners and sizers in the cherry industry; weeding tools with sensors in viticulture; and robotics in packaging have all been utilized by agri-businesses as a way to automatize processes. Self-propelled harvesting platforms have also been used in Italy and South America and have the potential to be owned and shared by growers in the region within a co-op model.
- **Opportunity:** Farm school internships/ practicums that can be delivered at the OAIC.
- **Opportunity:** Farm labour recruitment agency for migrant and seasonal labour.

3. **Problem:** Many people do not understand the value of the agriculture industry and its economic impact to our communities. The current promotion of agriculture careers is also sub-par.

- **Opportunity:** An awareness campaign to promote the value of agriculture to the region can be created so that the public understands its importance both for land needs and economic impact. This campaign would include careers in the industry such as agriculture programs for primary and secondary schools to help promote agriculture at an early age and get kids excited about farming.

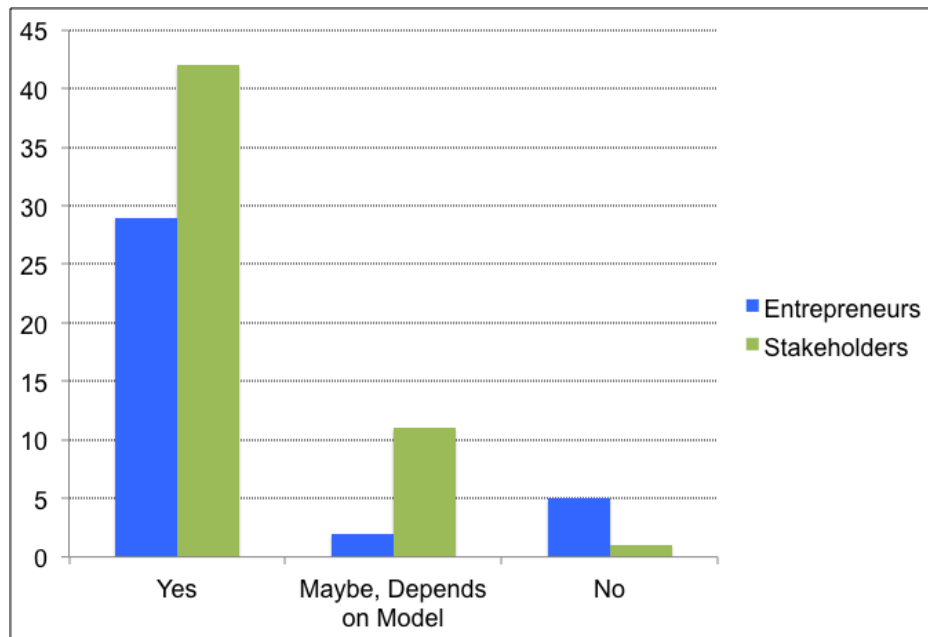
²¹ Source: AgFunder News. Lauren Manning. Food Waste Startups Grab More Attention as WISErg Raises \$12.3m. April 14, 2016. <https://agfundernews.com/food-waste-to-fertilizer-startup-wiserg-raises-12-3m5687.html>

²² Food Tech Connect. Nina Meijers. 10 Startups Reducing Food Waste One Byte At A Time. 09 oct 2015. <https://foodtechconnect.com/2015/10/09/10-startups-reducing-food-waste-one-byte-at-a-time/>

6.2 Benefit of an Agriculture Innovation Centre

The concept of having a Centre focused on commercializing innovative agriculture products and services for the OSK region received overwhelming support from both entrepreneurs and stakeholders.

Figure 5: Number of people supporting an OAIC



Respondents felt that space gives credibility to an organization and is an important element for consistency and growing the Centre. Some of the stakeholders stated that the region needs a place to:

- Share ideas, solve key challenges (e.g. use of technology in response to agriculture and food waste and climate change);
- Learn from other regions and bring in new technologies to refine and update the current agriculture industry (e.g. the region's wine and tree fruit industries are behind the rest of the world due to small farm size); and
- Be the one-stop for agriculture, offering the following services:
 - Jobs, careers and mentorship opportunities (i.e. work with semi-retired farmers to support the transition of land to the younger generation);
 - Expertise, knowledge, workshops, courses and training;
 - Business management;
 - Investment funds for start-ups; and
 - Housing options for workers.

A formal agriculture innovation ecosystem would help increase investments into the area. Respondents also believe that the Centre is needed to connect the grower with the needs/requirements of the market and establish what should and shouldn't be grown in the region.

6.3 Objectives and Goals

The **overall vision** of the OAIC is to foster and advance innovation and technologies within the agriculture industry to achieve a sustainable, resilient and prosperous regional economy. Respondents of the study identified the following 6 goals of the Centre:

1. Have one powerful portal/network for agriculture communities throughout the OSK region so that activities are coordinated, efficient for entrepreneurs, synergistic and focused;
2. Bring higher value jobs to the region;
3. Attract and match potential participants with agri-food and agri-tech mentors and key investors;
4. Prioritize opportunities on the agriculture value chain for increasing the success rate of commercialization;
5. Share resources (e.g. marketing, equipment, training programs), garner support and leverage the strengths amongst partners and local businesses to be efficient and cost effective; and
6. Enhance and build on the critical mass of current agriculture products and services and support industries.

The **purpose** of the Centre was defined in many ways:

Encourage Innovation and Entrepreneurship:

- Build local prosperity by creating an ecosystem that encourages and accelerates innovation, entrepreneurship and ideas to raise the profile of the agriculture industry for the region and be globally competitive;
- Bring academic, researchers and scientists, large producers, smaller agriculture entrepreneurs, tech companies, funders/investors and government together to share ideas for new business development and innovations;
- Bring mentoring opportunities, diversity and inspire adoption of technology to small agri-businesses;
- Be the bridge for the technology transfer between primary research and practical agriculture implementation; and
- Provide an open source for data sharing amongst the agriculture industry.

Education and Awareness:

- Promote awareness of the importance of agriculture within our region;
- Educate and train for jobs in the future (not only in tech but also within the context of agriculture) and in sustainable farming practices;
- Provide business training geared for start-ups in agriculture; and
- Foster integration of young talent into the program and succession planning with retiring farmers.

Equipment Sharing:

- Have access to and share equipment needed by food and beverage processors (commissary kitchen) and agri-tech businesses (workshop space, powerful computer and large monitor).

6.4 OAIC Structure & Partnerships

The key to meaningful incubators/accelerators is the partnerships created within the communities. Engagement agreements are required with key stakeholders. The types of partnerships are described next.

6.4.1 Primary Partnerships

As mentioned earlier, there is an opportunity to leverage the strengths of the three successful accelerators, Bioenterprise, SRCTec and AO. Collectively, all three are valuable collaborators whose contribution together will be able to meet many of the needs of the agri-food and agri-tech start-up businesses. However, one option is to have one of these organizations assume the role of the lead organization for OAIC with the other two accelerators being strong primary partners to deliver many of the remaining 'pieces' required for a holistic service offering.

Bioenterprise BC. Bioenterprise BC was presented as one such option for being that lead organization for several reasons:

- Are the most established agriculture/agri-tech accelerator in Canada;
- Have a strong agriculture network across Canada and internationally;
- Are agriculture focused but have a tech component;
- Have an existing MOU with SRCTec;
- Receive both federal and provincial funding;
- Their one-on-one delivery model suits the local farmers;
- Have access to agriculture funding and agriculture investors;
- Annually attend the National Agri-Investment Forum in Toronto;
- They need BC partners in the agriculture community; and
- Have shown significant interest in working with OAIC.

However, Bioenterprise is new to the BC market, they do not have local connections and they are still learning about the BC agriculture industry. The corporate advisory committee currently has minimum representation in BC, with UBC Vancouver being one of the only representatives. Stakeholders also expressed their concerns that Bioenterprise would not be committed to the local business community and stakeholder needs.

Bioenterprise BC does not offer space, as they are not an incubator but rather partner with others to provide this incubator space when required. Once entrepreneurs have gone through the early stage programs of AO and SRCTec, the idea is to refer back to Bioenterprise BC for support and connectivity for the next stage in business growth.

OAIC can tap into the Bioenterprise advisor network and access their discounted third party service provider structure (e.g. legal, accounting, IP, engineering, etc.). There are plans to have a Vancouver based agri-investment forum targeted to the food and food systems industry in the fall of 2017.

AO. AO is another option for being a lead organization for the following reasons:

- They are a well established local technology accelerator;

- AO's network is extensive on the tech side;
- OAIC participants would benefit from being involved in their many networking events where tech and agriculture participants can share ideas;
- Programming is relevant to those agri-businesses that have the agricultural expertise but have limited tech skills;
- Being in close proximity, OAIC participants can easily access their programs and business start-up expertise;
- Willingness to create a delivery model that can be provided at the Centre and structured to suit the participant's availability (e.g. a 'road show' is a service they can offer); and
- Access to private investment funding through pitch sessions.

However, several interviewees said that access to agriculture expertise was critical in meeting their needs with this Centre. AO currently doesn't have that and would need to build capacity to learn and lead on the agriculture side. A partnership with SRCTec and Bioenterprise would allow access to a network for the ag-tech expertise.

SRCTec. SRCTec is a third option for being a partnering organization:

- SRCTec's network is growing on the agri-tech side;
- Tech startups that do not have the agriculture expertise and agri-businesses would benefit from their validated programs that are custom to agriculture and agri-tech;
- They provide events specific to agri-tech that are well attended;
- Participants can access their agriculture EiR's virtually;
- They are focused on entrepreneurs at the early stage of development, mostly in agri-tech rather than food processing; and
- SRCTec attends the Agri-Investment Forum in Toronto annually, and has a network of private investors who have already invested in agri-tech companies. (At the 2016 Agritech Innovation Challenge, two of the four \$20,000 financial award winners were SRCTec clients.)

However, SRCTec has only been in operation since 2014 and staff only work part time. This may limit capacity to deliver agri-tech services and expertise to OAIC and would need to be confirmed.

Recommendation: The project manager for this business plan phase should explore the potential for partnerships amongst the three organizations and their respective roles/contributions to the Centre. A preliminary planning session with the ag-tech accelerators and the Ministry of Agriculture would help solidify the potential structure and how best to move forward. It is best that this session takes place in the early stages of the business plan development.

6.4.2 Education & Research Partnerships

SRDC. With an agreement in place, SRDC's research scientists can provide mentorship and consulting services in their current research fields on a per project basis. They have two researchers to help businesses with product development (e.g. ingredient use, functional products, food safety, unique attributes, sensory evaluation, health properties), and several scientists in virus detection, genomics testing, soil health, farm management,

etc. They provided support to BC Tree Fruits with their first cider, Broken Ladder. SRDC can also draw from their network of scientists from across Canada for food development expertise. Please see **Appendix 5** for a list of the areas SRDC has the capacity to support. Collaborative opportunities outside of the scientist's field of research are available but are dependent upon meeting specific requirements.

Private industry's access to the SRDC food processing centre is limited the moment. They current hours of operation do not meet the food processor's needs to have 24/7 access.

UBC-O. At a stakeholder consultation meeting, faculty Deans and the Deputy Vice-Chancellor expressed their interest in supporting agriculture innovation in five ways:

1. Development of an agriculture industry professional training program as part of or in compliment to the Entrepreneurship@UBC (e@UBC), a venture accelerator that offers entrepreneurial workshops, programs for market validation and business model development, mentorship, and startup space to help UBC entrepreneurs. There may be opportunities to deliver some components of this program through the OAIC).
2. Collaboration on agriculture projects that fit with their research areas and are relevant to industry (e.g. research on product/market development for SunRype's fruit by-products). Faculty can participate in mentoring by video and telephone conferencing.
3. Potential collaborative projects utilizing the state-of-the-art Wine Sensory Centre at the OC Penticton Campus and UBC-O's research team. There could be opportunities for product development and testing beyond the current wine industry.
4. Provide access to UBCO's lab space and equipment as part of a network of resources for the OAIC.
5. Integration of K-12 education outreach programs - potential to integrate current agriculture topics (e.g. remote sensing, robotics, waste management).

Okanagan College. OC has a MOU with the University of the Fraser Valley (UFV)'s Centre for Excellence in agriculture. There is an opportunity to discuss educational programming offered by UFV that OC could host/deliver. The offering would of course need to be self-funding, and/or have alternate sources of funding to cover the cost of delivery. One potential area that has been specified by farmers and professional agrologists include the need for agriculture technology extension and agri-business courses/workshops.

OAIC and OC have the opportunity to collaborate and provide a delivery model that best suits the industry's needs (e.g. from half day sessions, weekend training, virtual vs. in-class workshops, to exploration of longer-term credentials). In addition, there is an opportunity to refer OC alumni and graduating students with promising agri-business ideas to OAIC.

Semi-retired Local Farmers. There is a need for succession planning to transfer the wealth of knowledge from the semi-retired farmers to new, inexperienced farmers. The strategy of OAIC would be to assemble a list of interested semi-retired farmers willing to become subject matter experts and mentors. For example Frank Fenwick, an apple orchardist in Summerland has expressed interest of becoming a mentor for young farmers.

Sylvia Chong, Foundtree Product Design. Sylvia is a food scientist and consultant in food safety and product development, research and innovation. Her primary clientele are small-scale food processors. The Farm Food Drink Business Advisory Team (FFDBAT) and Found Tree are qualified to deliver agri-food business planning courses. The current participant cost of \$100/day [1], is subsidized by the Ministry of Agriculture.

Sylvia educates her clients on the PFFSTP to improve their capacity to address current food safety and traceability issues (i.e. hazard analysis critical control point (HACCP) food safety practices). Her workshop topics typically include: agrifood business planning, value added product development, quality management, developing an HACCP plan, prerequisite programs, sanitation training, food safety orientation, allergen management, food safety and food spoilage, market access, financial planning quality assurance, economics and logistics. Sylvia's expertise as a food scientist and food safety consultant would provide a huge benefit to the OAIC.

Community Futures. The General Manager of CFOS has expressed interest in becoming an anchor tenant in the OAIC facility. The idea of co-habiting with OAIC could provide users of the facility access to their training and loan services. They offer business loans to their clients who normally would have difficulty accessing capital through traditional lending institutions. A bi-lateral referral service would benefit participants of the program throughout the various stages of commercialization.

NRC-IRAP. NRC-IRAP has an extensive network that can be accessed by OAIC participants. They can access NRC's network of scientists for up to 5 days; industrial technology advisors; and other NRC departments. IRAP typically covers travel costs related to expert advisory meetings and can refer suitable participants to the Centre. Participants can apply for IRAP funding once commercialized.

6.4.3 Industry and Funding Partnerships

Farmers. Farmers that are early adopters can provide field space for demonstrations, testing, and trials for new innovations and technologies. Identifying those early adopters is key.

Communities of the Okanagan Nations Alliance (ONA). There is the potential to partner with the communities of the ONA and the First Nations Agriculture Association (FNAA) to assist Aboriginal agri-businesses build capacity and develop their agriculture, agri-food, or traditional agricultural based businesses. The FNAA provides support "through the provision of culturally appropriate assistance, marketing, education, and financial products and services".²³

²³ Source: FNAA Website: <http://fnbc.info/org/first-nations-agriculture-association>.

Industry Associations. BCFPA has indicated interest in co-marketing for events and referring participants to the Centre using email campaigns to their membership.

SD 67. There are opportunities to develop agriculture programming at the primary and secondary level as specified in the best practices research and focus group feedback.

Kwantlen Polytechnic University (KPU). Since early 2017 there have been several discussions with local food advocates, representatives of Interior Health, and Dr. Kent Mullinix, Director of KPU's Institute for Sustainable Food Systems. These discussions focus around the potential for two agriculture initiatives:

1. A Thompson-Okanagan Bioregion Food System Design and Plan that will assist decision makers on future (2050) food system policies.²⁴
2. A Farm School that addresses the aging and decreasing number of farmers by offering applied training to sustainable agriculture students.

The 9-month Farm School course includes both classroom and field training, including business planning and sustainable farming methods. The Institute, in partnership with two local governments, currently has two Farm Schools in BC (City of Richmond and Tsawassen First Nations).

There is potential for an MOU to be established for a sustainable farm school program in Summerland, with the Centre renting space for the program delivery (classroom portion) and/or offering entrepreneurial skills and product-to-market workshops in partnership with the Institute.

Funders. RDF, IAF Growing Forward, WED, SIDIT and the Sector Labour Market Partnership are funders that can provide grants for the Centre. There are several other non-repayable funding programs such as the IAF, Sustainable Development Technology Canada and MITACS, to name a few, that could be available for the participants of the Centre.

Note that the Agriculture and Agri-Food Canada (AAFC)'s BC regional office, Market and Industry Services Branch can assist OAIC participants 'pathfind' for programs and services within their organization. The federal commercialization stream is based on repayable contributions (60/40% split) and is not grant based like the provincial level (which are generally 50/50% split).

A main goal of the Centre would be to secure industry sponsorship as the industry contribution required for government funding. Sponsorship can come from financial institutions, law firms and/or other professional services organizations. It can also include agriculture-related companies, such as suppliers, that fit the values of the Centre.

²⁴ The Study applies four future (2050) food system scenarios to a baseline scenario generated from the Census for Agriculture data and field data specific to the subject bioregion (the four regional districts in the Thompson-Okanagan area), including water data from the Okanagan Basin Water Board. Measurements are done for fifteen indicators (e.g. economic impact, food self-reliance, and GHG emissions). The completed study will provide solid empirical data that can provide direction for policy decisions. This study will be considered an agriculture asset and will positively impact several of the fifteen indicators. The study applies four future (2050) food system scenarios to a baseline scenario generated from Census for Agriculture and specific bioregion field data within the Thompson-Okanagan area.

6.5 Location

6.5.1 Is Summerland a feasible location?

Yes. Over 90% of the respondents said that Summerland is a good location because it is already a well-recognized agriculture area. It would be easy to promote the location because of its renowned agricultural assets, such as SRDC. There is the potential to build on these existing assets and create an area cluster that could have economic spinoffs and help build a national agricultural prominence, much like Guelph has done.

Respondents felt that Summerland is central within the major growing areas, only being one-hour driving distance from Kelowna, Oliver/Osoyoos and Similkameen. They also said a Centre could easily leverage the connection to SRDC. In addition, the outlying areas, like the Kootenay and Thompson regions, could easily access Summerland. Industry organizations, such as the BC Wine Grape Council and Sustainable Wine Growing BC, already use space at the SRDC for meetings. It would be ideal if SRDC had space for this Centre given the positive effects of bringing together entrepreneurs and innovative researchers and academics.

No. Seven out of 91 respondents did not believe that Summerland was a suitable location. Some of these respondents felt that young people, students and participants wouldn't be able to afford to live or find available housing in Summerland or Penticton. To address this, some farmers have built affording housing on their own premise for workers. Others felt that the older demographic in Summerland would not entice young entrepreneurs to the Centre.

Another point made was that the graduating participants of the OAIC need a space to test their products and scale-up production once their products were validated. There was a concern that Summerland could not logistically offer that after having two prior businesses leave the community (e.g. Mazza Innovations) because space to grow was not available. Conversely, Okanagan Specialty Fruits has grown significantly over the last few years and has remained in Summerland.

One person said that Summerland is not a central location for people having to fly into the region (e.g. investors or keynote speakers would have to fly into Kelowna and drive to Summerland). Others said that another location would be more suitable, and suggested that the 'incubator' space at OC, Penticton Campus could be a viable option.

6.5.2 Space Requirements

As noted earlier, a physical space is required that encourages innovative thinking, communication and exchange of ideas with other entrepreneurs. Industry representatives said it is difficult to gain traction if there is no place for entrepreneurs to meet. The environment needs to be positive and supportive to encourage entrepreneurs to execute their business ideas to commercialization.

Space. As a minimum, the Centre needs to have:

- 4 to 6 desks for participants;
- 1 office for the OAIC Director;

- A meeting room to accommodate up to 20 people;
- An 800 to 1000 sqft workshop/demonstration/lab space; and
- A pilot value-added food processing facility/commissary kitchen for prototype development, testing and small batch production.

Agri-food related respondents said that the facility needs to be CFIA certified, and ideally HACCP certified. They felt that having the pilot food processing facility/commissary kitchen as part of the Centre was essential to develop the value-added agriculture industry. Moreover, the development of value-added products helps to sustain the entire food system.

There are three space options being considered:²⁵

1. Lease a minimum of 1,500 to 2,000 sqft space to accommodate OAIC participants, staff, partners, students and visitors. However, a few participants from the focus group felt that the Centre would need to be a critical mass facility, where 1500 sqft wouldn't be large enough to provide all the services requested;
2. Lease a space that is approximately 6,000 sqft that includes a 4,000 sqft pilot food processing/commissary kitchen;
3. Lease a space that is approximately 8,000 sqft that includes a 4,000 sqft pilot food processing/commissary kitchen and can accommodate an anchor tenant, such as CFOS.

Three locations have been identified in Summerland to date:

	Nixdorf Industrial Park 18006 Bentley Rd.	Begg's Property 14014 Hwy 97	Downtown Summerland – 10114 Main Street
Zoning:	Agri-Industrial	Light industrial	Commercial business
Monthly Lease:	\$5,000 (Note, OAIC would have to lease 3 units which individually are leased at a rate of \$1,750/unit plus 3% GST)	\$6,000	Not provided at time of this study
Size (Square feet):	6,300 (Note, the first phase of development has bays that are 30 x 70 feet, or 2100 sqft. The plan shows optional dividing walls between units. The second phase	6,000 (1,000 sqft of the total include a mezzanine)	5,200

²⁵ All funding programs that were considered for this project would not consider the cost of purchasing a facility/land as an eligible cost. Therefore, only properties available for lease were considered.

	of development has a total building space of 240 x 70 feet, or 16,800 sqft)		
Utilities Included:	No	No	No
Utilities Cost:	Unknown	Unknown	Unknown
Property tax/ year:	\$7,200	Estimated to be \$7,000	Not known
Number of Tenants:	1	1	N/A
Desired Term of Contract:	1 year minimum; preference for a 3 to 5 year lease	3 years minimum	3 to 5 years
Leasehold Improvements included:	Negotiable. They have a contractor that could assist with this	No (unless 5 to 10 year commitment)	N/A
Sub-leasing available for tenant:	Prefers not to have sub-leasing arrangement	Yes	N/A
Ceiling height (feet):	18 at the hip; 21 in centre of building	18	N/A
Number of offices currently available	1 in each unit	2 upstairs 3 downstairs	N/A
Other space:	Option to have workshop/meeting room designed into the space. Potential for a 24/7 commissary kitchen built into the space.	3,500 sqft open area that is empty; 1 - 8 x 10 room at front of building; 3 other smaller rooms that can be converted to offices just off of the large open area	Entire building is vacant. Would need offices created in floor plan as well as complete commissary kitchen power, plumbing, drainage requirements
Number of bathrooms:	1 in each unit	2 downstairs	1
Parking:	Plenty	Plenty	Limited 3 spaces in the back
Equipment available:	None	Fruit dryer that is at least 5 years old; compressor and boiler on site	None
Other features	Fire sprinklers Catch basins R30 insulation	Good highway visibility Easy access	Central downtown near shops

	Infrared heat Easy access Potential for expansion	Next to Granny's Fruit Stand Potential for expansion	
Power:	Up to 200 amp, 3 phase power in each unit Ability to combine three units for additional power	600 volt, 3 phase power, single phase power, and a 400 amp service. Also has 110 and 220 volt	Single Phase
Water and Gas:	Yes Extra 1" water line going in	Yes On septic with large drain fields	Yes
Currently vacant:	Construction is expected to start in November 2017 and ready for move in by summer/fall 2018	Yes, but they in negotiation with their current tenant for remediation on leased property	Yes
Condition of building:	Excellent Brand new building with option to design space to be purpose built	Moderate. Building needs a complete facelift and significant renovations	Space needs major renovations. Floors are damaged due to flooding in the winter 2016. Potential concern with foundation
Overall Suitability:	Good. Room for expansion. Further removed from downtown Summerland and SRDC Need to investigate if there are any concerns with industrial fumes from neighbouring businesses. Anchor tenant could take over an adjacent unit.	Good. Plenty of room for expansion. Leasehold improvements may be expensive. Would need a contractor/consultant to estimate cost of renovations at business plan phase. Anchor tenant space may not be possible.	Low to moderate. Location is not conducive to light industrial uses. The level of kitchen facility would likely not conform to existing uses permitted in the zoning district. May need an amendment to the bylaw. Truck and loading access is limited. Offsite storage may need to be considered. Major leasehold improvements would be required. Expansion would need bylaw variance to accommodate space upstairs.

As a note, vacant offices at the Summerland Chamber of Commerce were initially considered but are not a viable option due to space constraints. Glenfir School was considered but the owner is only interested in selling the property.

SRDC was also considered as a possible location but users of a commissary kitchen would require 24/7 access to the facility and would not align with the facility's hours of operation and security terms. Moreover, space availability and interest has not been confirmed.

Further investigation for each of the three options above is required in the business plan phase for this project. Also, other suitable locations may come up prior to application for funding.

In discussion with Jim McKillip from Remax in Summerland, commercial kitchens are not desirable to a number of landlords. The cost to install the equipment limits the use for future lease and landlords do not see a return on investment for such leasehold improvements. The typical term for lease of a commercial kitchen is 5 years.

Equipment. Focus group members and interviewees described the equipment they thought would be needed by start-up entrepreneurs and are listed as follows:

Food processing

- Wash and prep space with 3 compartment sink and stainless steel counter tops;*
- Gas cook tops and convection and conventional oven;*
- Industrial dishwasher;*
- Stock pots and pans, bowls and industrial mixers;*
- Dry storage and cold storage room;
- Standard freezer;
- Compartmentalized freezer for testing foods (mobile option);
- Flash frozen, cold press and cold pasteurization technologies;
- Vacuum microwave drying technology (mobile option);
- Form-filled seal packaging line;
- Pasteurizing tunnels,
- Destoner machine;
- Extraction equipment;
- Steam kettle;
- Canning equipment;
- Bottling line that can handle multiple products.

** Minimum requirement*

Agri-tech

- LED horticulture technology for real light density and intensity for the greenhouse industry;
- Large centrifuges and high quality microscopes;
- Imaging tools and respective computer related software where images can be downloaded into various computer programs;²⁶

²⁶ Purchasing computer and software for the agri-tech industry may be difficult due to concerns for privacy, security and licensing.

- Powerful computer with smart monitors for GIS/GPS, photo mosaic, 3D modeling and other applications.

In order to operate a virtual mentorship service, the OAIC needs to have videoconferencing software and technology.

Key elements for specialized equipment will depend on the specific needs of the processors in the service area. During the business plan phase, further investigation into specific equipment can occur.²⁷

Conclusion

The Bentley property seems to meet most of the requirements for the OAIC. At the time of writing this report, the lease space options were very limited. Other industrial parks in Summerland do not have a lot of vacancies, and if they do, they tend to be 1,000-2,000 sqft. The downtown and Begg's properties require major leasehold improvements for the requirements of the Centre. Having said that, the Begg's property is within walking distance to downtown Summerland and has a fruit dryer already in place. The property's high visibility on Highway 97 will facilitate the promotion of Summerland's innovation sector. It is recommended that an ongoing search for other suitable locations be continued within Summerland during the business plan phase.

OAIC should consult with the District of Summerland Council and the leadership team to confirm municipal support on bylaws, infrastructure and zoning during the business plan phase for options above. Please see **Appendix 6** for Summerland's Official Zoning Plan for the three main industrial sites. In addition, the OAIC project champion/director should work with the District of Summerland to streamline processes to facilitate and promote business investment readiness within the community. Vital to success of the Centre is the alumni's ability to scale up to full production. If these conditions are not congruent, then further investigation of other potential locations within the Okanagan-Similkameen region would be necessary.

6.6 OAIC Programs

Interviewees and focus group members have identified programs and services that would be valuable to potential participants. Agri-business mentoring and expertise, connectivity and networking opportunities were the most important services the Centre could offer. Other program and services that were suggested by respondents include:

- Mentoring from seasoned agribusiness entrepreneurs;
- Market intelligence;
- Centralized on-line portal that has a database of resources to connect:
 - Agriculture products and distributors;
 - Agriculture by-products with processors;
 - Workers with agri-businesses;
 - Older farmers to lease their land to younger generation; and
 - Entrepreneurs with investors;

²⁷ The kitchen design should include sufficient power and installations, such as floor drains and proper ventilation, to accommodate the Centre's growth.

- Courses and training in cash flow/business management specific to the agriculture industry (e.g. how irrigation management technologies provide for better crops and yield);
- Agriculture awareness program;
- Sustainable farm programs that offer hands-on/practical farm experience, particularly for younger farmers and with a focus on the value-added component;
- Product development, food testing and food safety quality control;
- Conferences, events, keynote speakers, demo days, networking opportunities;
- Pitch sessions for start-up agri-tech companies and investors;
- Private investment program for start-up agri-businesses; and
- Offer workshops/instructional programs in the areas of technology, law, accounting, innovation, and operations.

6.6.1 Programs and One-on-One Mentorship

While the Bioenterprise model is solely based on a one-on-one mentorship, the respondents required specific agri-business programming. The programming models from SRCTec and AO could be adapted to meet the needs of start-up entrepreneurs.

The OAIC program delivery format will vary depending on the entrepreneur and should be flexible. One popular format is where start-up entrepreneurs meet 1 day a week for 1.5+ hours, for 8 weeks. An EiR runs the program and brings in the essential professional network, such as lawyers and accountants. AO also has a roadshow delivery model that spans over 1 day a month with each session being 3.5 hours, for three months. One of the focus group participants said it would be great if there was a 2 nights/week drop-in option to access mentors in real time to answer questions.

6.6.2 Stages of Business Development

Stakeholders and entrepreneurs said that support at all stages of business development was key, but heavier focus should be on start-up and year 4 and 5 businesses when interest and supports wane. Additionally finding investment for later stage businesses is often easier. In summary, the focus of the Centre should be on programs and services for the following business stages:

- **Brainstorm and Research** - Idea stage;
- **Proof of Concept** – Test the market and generate a viable business case;
- **Build and Test Prototype** – Pre-commercialization;
- **Commercialization** – Fine tune manufacturing, distribution, sales and support to commercialize the product (Stage 1); and
- **Stage 2 Growth** – Typically year 4 and 5 businesses.

OAIC's education partners would be responsible for creating the programming around agri-tech, food development, processing, testing and sustainable farming. The Centre could provide space for these programs.

6.6.3 EiRs and Subject Matter Experts (SME's)

EiR's and SME's have had experience in the agriculture sector and/or are research scientists who have provided technological and scientific expertise to entrepreneurs in the development of their products/services. The business plan will need to clarify the appropriate programming amongst the 3 partners.

EiRs are paid, on average, \$100/hour. A number of potential mentors in the South Okanagan have been suggested by respondents.

6.6.4 OAIC Fees

Membership

The best practices research showed membership fees are charged to any clients and participants who access programs and services. These membership fees vary from program to program, however in our primary research it was suggested that a fee of \$75-\$150 per year was an acceptable amount.

Program

Potential program fees might include the following and need to be further explored at the business plan stage.

	\$/mo	Description
Start-up Basics	120 for 8 sessions over eight weeks	This program helps entrepreneurs develop their business plan and go through a customer discovery. This program feeds nicely into the other programs and helps get the business ready for, the lender/funder requirements.
Venture Acceleration Program (VAP)	200	This is a mentorship program where individuals get mentoring on a weekly basis. Users are product-based companies with pre-revenue/early revenue, proto-type/minimum viable product in progress; business cofounders are in place and committed to building a company.
Market Validation Program (MVP)	500	3 day course over 3 months where entrepreneurs practice their pitches and have 1:1 matching with an EiR.
Revup Program	1,500	Participants are product based companies, post revenue of \$500,000+, committed to high growth and have a management team in place.
Desk Space	250	
Meeting Room Rental	\$25/hr	
Agri-Food Business Planning	\$105 per day	Workshop topics include: agrifood business planning, value-added product development, quality management, developing an HACCP plan, food

safety orientation, allergen management, food safety and food spoilage, market access, financial planning quality assurance, economics and logistics.

Mentorship

In the beginning of the client-mentor relationship, Bioenterprise offers advising services for free. If the client is far enough along, they then sign up for a 6-month contract at a cost of \$500 per month. If the client pays the \$3,000 up front they get a 20% discount.

While this is a great fee structure for later stage business concepts, the early stage start-ups with limited financial resources would benefit more from a programming model similar to AO and SRCTec.

Technical & Food Processing Expertise

Partner scientists and engineers can provide consulting services at a cost of \$350-\$500 per 7 hour day.

Conference/Events

Fees to attend OAIC conferences and events will vary depending upon sponsorship and partnership funding.

6.7 Value Chain

A question asked at the focus group is where on the agriculture value chain the Centre should put its focus. Almost all interviewees and focus group participants said that the focus should be on those opportunities that provide for higher value, higher margin products (e.g. cheese, ciders and breweries, seeds, fertilizer, insurance, machinery, food ingredients) and support the region's wine, tourism and hospitality industry.

Respondents recommended casting the net wide enough so that OAIC doesn't get 'pigeon-holed'. At the same time, the Centre should not try to do everything--the more scattered the services and targeted sectors, the more difficult it would be to serve the community well. It was suggested to first identify the bottlenecks within the region along the value chain, and then focus on the top 5 successful business models that would best answer the challenges faced in the agriculture industry.

The priorities were identified as:

- 1. Waste Management.** Crop spoilage was a 'hot topic' with entrepreneurs and stakeholders. There are significant opportunities along the entire value chain to address this concern, including early pathogen detection, innovative drying technologies, and by-product recovery for secondary manufacturing.

- 2. Pilot food processing facility/commissary kitchen.** Several food processors, scientists and technologists, as well as deans/directors of sustainable food systems faculties and growers, said the region has an abundant capacity on the growing side, and it may be worthwhile to foster the value added processing sector. Both SRDC and Sylvia Chong from Foundtree Product Design receive requests from entrepreneurs wanting assistance with food testing, product development, food safety and regulatory requirements.
- 3. Precision farming technologies** that focus on growing quality fruit, increasing yields, monitoring farm input and output for regulatory purposes, and cutting input costs. This would include field monitoring and data collection tools, such as UAVs, intelligent irrigation, pathogen detection devices, etc.
- 4. Transportation and Infrastructure.** There are opportunities in technologies that can be used to monitor and track the quality of fruit post harvest in storage and transit. This includes JIT inventory systems, integrated business systems, on-line industry resource/marketing platform, etc. big data is not a technology that tracks variables. It's a term used to describe the compilation of large amounts of data to analyze for trends. Technology is used to gather data, which in turn, creates big data for analysis.

6.8 Geographical Scope for Target Participants

Feedback from entrepreneurs and stakeholders said that the geographic scope will depend on the business model, partners within the community and funders requirements for the Centre (e.g. funders might require a homegrown footprint as part of their criteria).

Several interviewees suggested it should be available to anyone in the world, as foreign investment would help to keep programs sustainable, bring innovation to the area and help raise the profile of the region. Opportunities for innovation will materialize when the area is established as a strong agriculture community.

Two people suggested having a two-tier system for membership fees (Canada and, International) while several others recommended offering programs throughout the interior region including the Northern Interior region as they get little support for agriculture. Two others suggested targeting existing companies from Ontario, Washington and other agriculture community areas who might want to expand into the Okanagan. An important point that was made was that there is value in becoming a thought leader in agriculture innovation but the Centre would need to prove itself first. However, thought leaders are already in the region and the goal of the Centre would be to promote the partnerships with these experts.

The partners such as SRDC and UBCO have built a reputation in their fields of research, both locally and internationally. Many of their students, staff and clients have come from international markets. In addition, Bioenterprise and NRC-IRAP have an extensive national and international network that can provide participant referrals. For this reason, the Centre should not rule out international applicants. However it is recognized that the majority of participants will come from the local area.

6.9 Target Participants

Using the data from the best practices, existing population demographics and interviews with entrepreneurs and stakeholders, two target participant profiles have been created.

1. Entrepreneurs

- Aged 30+
- Early stage of business commercialization (e.g. idea stage)
- BC entrepreneurs (primary) and Canadian entrepreneurs (secondary) wanting to relocate (particularly where input comes from this region) – Alberta, Saskatchewan Southern Ontario, Manitoba, Quebec
- Could be expatriates working in the USA – California, Seattle, Portland, New York and wanting to relocate
- Have a background in horticulture, nutrition, science, engineering, IT, food processing, laboratory testing, GIS surveying and mapping, or pharmaceutical/neutraceutical
- Have a post-secondary education
- 50+ semi-retired professionals looking for a career change or a smaller community (e.g. Maple Roch)
- High net worth individuals wanting to open a winery, brewery, distillery or innovative agricultural business
- Eligible through the Provincial Nominee Program (Entrepreneur Immigration Stream)
- Landed immigrants and expatriates living in larger centres

2. Specialty/niche crop farmers

- Aged 25 to 35+
- BC entrepreneurs (primary) and Canadian entrepreneurs (secondary) wanting to relocate (particularly where input comes from this region) – Alberta, Saskatchewan Southern Ontario, Manitoba, Quebec
- Do not have equity or high net worth; relying on family or outside investment
- Have a primary job
- Have training and/or diploma or degree in horticulture, science or sustainable land and food systems
- Have a history and experience in the region, with some having family roots in agriculture and are the next generation farmer
- Interested in innovative technologies and agriculture as a business
- Community oriented

3. Established growth-oriented businesses

- In agriculture, technology and food processing sectors or supporting industries
- Niche/specialty businesses
- BC or Canadian companies that have between 2 and 5 employees
- Have product and market diversification and expansion goals; plans to use the Centre to beta-test their products/services in this region

Please see **Appendix 7** for a list of agriculture, agri-food and agri-tech businesses with respective NAICS codes to establish a database of potential businesses to target.

6.10 Funding Potential

An investigation was done in finding potential funding for an OAIC. Funding sources that were found to be the best fit with the objectives of the Centre are outlined below.

6.10.1 Primary funding:

	Rural Dividend Fund (RDF)	Western Economic Diversification Canada: Western Diversification Program (WDP)	Southern Interior Development Initiative Trust (SIDIT)
Funding/Grant Amount	Partnership maximum \$500,000 (60/40%); Single Applicant maximum \$100,000 (80/20%). In-kind contribution cannot make up more than 10% of applicant financial contribution.	There is no maximum specified. They require a 50/50 split of total costs covered between WD and the applicant.	Grant maximums are \$25,000 per applicant. May consider exception to policy for collaborative initiatives between municipal partners to a maximum amount of \$50,000 by exception only.
Funding From Other Government Programs	Funding from other government programs (federal or provincial) can contribute to the overall project funding as long as it is not part of the applicant financial contribution. Applicants must identify the program and provide a contact.	They allow up to 90% stacking with other government funding (although preference is that industry contributes more than 10%)	Applicants must provide confirmation of all other sources of project funding. Preference for projects with multiple other funding sources, where the applicant organization makes a significant financial investment and secures significant financial investment from other funding sources.
Eligibility	Small, rural BC communities. RDF opened up the max. 25,000 population requirements for partnership applications where focus is on a regional strategy/rural communities.	Not-for-profit organizations that enhance, diversify and strengthen the economy of Western Canada. Current priorities are clean technology (any product, process, or service that reduces environmental impacts relative to the standard and/or most commonplace technology in a given market) and Indigenous economic growth. This focus may change in 2018's intake.	Community Economic Initiatives: Funding in support of community investment that creates economically sustainable communities (usually with population of over 25,000).
Application Deadline	Not yet determined for rest of 2017 or 2018.	The intake period for the WDP Call for Proposals is now closed. Probable next intake will be in Feb 2018.	April 1, 2017
Project/Activities Completion Date	2 years	Funds multi-year projects, with three years being the typical maximum. Percentage of WD support can shift within those years (i.e. depending on when provincial government funding would be coming in).	1 year (April to March). May consider SIDIT may consider requests for multi-year funding (up to 3 years).
Formalization of Organization - Must have financial statements and be incorporated	✓	✓	✓
Select Eligible Costs	New hire salary/benefits; Consultant fees; marketing/promo costs; training.	They cover lease and leasehold improvements; outreach; project-specific incremental operational costs, technology development activities; acquisition of equipment for commercialization; trade shows, missions, investment forums and other events; market intelligence; supply chain development; innovative cluster growth; or export opportunities studies.	Not been identified. SIDIT does not generally fund capital projects. Exception to policy may be made for smaller organizations located in rural communities.
Partnerships	Must have Letter of Support.	Preference given to projects that include industry support (can be in the form of written support or confirmed funding from industry sources). Letter of support and commitment.	Must have public/private sector partnerships (P3s).

6.10.2 Secondary funding:

	Community Initiative Program (ICCI)	Real Estate Foundation Grant (REF)	Genome BC - GeneSolve and Sector Innovation Program (GBC)
Funding/Grant Amount	Non-repayable contributions range from \$3,000 to \$300,000 (up to 50%).	Foundation support will not exceed 50% of the cash portion of the project budget, or 33% of the total budget (including in-kind donations), whichever is less.	Up to \$250,000 per project, with a 1:1 match from the sector's partner. No additional co-funding is required. They work directly with interested Sector Partners to post "challenges" on an open-access website, where researchers can submit a short description of proposed solutions.
Funding From Other Government Programs	If a community accesses other federal government support, the total federal support cannot exceed 50 percent of eligible expenses associated with the activities funded by ICCI. Federal support received that are unrelated to the activities funded by ICCI do not affect the amount of ICCI's contribution.	Not specified.	Not specified.
Eligibility	Canadian communities and non-profit, locally based organizations seeking to offset costs of specific FDI attraction and retention strategic activities. Values partnership marketing initiatives.	Registered non-profit organizations. The focus needs to be on land use planning, policy and best practices. Projects should have links to land issues, rather than focused on economic development and marketing projects.	Fall and winter intake sector eligibility has not yet been determined. Only projects related to human health will be accepted to this intake. Projects must provide genomic solutions to enhance sector competitiveness and sustainability; address the needs of the sector and have the potential to generate social, environmental and economic benefits for British Columbia in the future.
Application Deadline	September/October 2017		Next intake is early October 2017 and early February 2018. Start date of project eligible to start July 1 and October 1, 2018, respectively.
Project/Activities Completion Date	1 year (Jan to Dec)	Must have project completion date.	Project terms must be between 12 and 18 months.
Formalization of Organization - Must have financial statements and be incorporated	✓	✓	✓
Select Eligible Costs	FDI training and travel costs; FDI strategic planning and analysis; FDI tool and material development; lead generation. No tradeshow costs.	Project coordination and management, consultant fees, communications, production of education content, workshop delivery, community consultation and travel.	Not specified.
Partnerships	Values partnership marketing initiatives.	Encourages partnerships and collaboration with other groups (P3s). Letter of support recommended.	Must be a partnership-led project.

Those that were closed to applicants but worth investigating in the new year include:

- NRC-IRAP's Canada Accelerator and Incubator Program (CAIP)
- Agri-Innovation Program (AIP)
- IAF Market Development Program (MDP)

The Labour Market Partnership funding was included for later stages in the project for succession planning activities. There are also opportunities to partner with industry and trade organizations to optimize limited resources for marketing and promotion.

MITACS could be available to OAIC participants as it co-funds the salaries of university researchers (usually at the Masters or PhD level) working with an industry/company partner on a research challenge faced by that industry/company. MITACS would not be a source of funding for the Centre itself.

Please see **Appendix 8** for details on those government funding programs that are no longer accepting applicants for this fiscal year but may be provided with some proposed changes in 2018.

6.10.3 Sustainability of the Centre

To ensure sustainability of the Centre, respondents stated revenues should be generated from not only the accelerator programs and mentorship but also specialized/niche services with the commissary kitchen. To determine the competitive advantage for the Centre, an inventory of the industry assets and gap analysis should be conducted during the business plan phase.

Moreover, the selection criteria used to screen applicants will be critical to long-term sustainability. Respondents suggested comparing the 5 top business plans submitted with the regional challenges so that projects selected are meaningful, have the highest chance for success and are providing an ROI to the community.

6.11 Marketing Strategy

The focus group participants and industry stakeholders indicated that the best approach to attract and recruit participants within the agriculture industry was through:

- Ag-Tech Summit, conferences, symposiums, workshops
- UBCM trade show
- Globe Foundation annual conference

The best practices analysis revealed most programs have limited funds for marketing their organization and programs. SRCTec advised marketing for the program has mainly been word of mouth, but the many events they organize helps to build the brand awareness. In the fall of 2016, SRCTec coordinated an Ag-tech conference with BCIC, which helped to boost their brand within the province. They attend the Pacific Agriculture Show in Abbotsford every year and maintain very close ties with BCIC, the Ministry of Technology and Innovation, and other accelerators within the BC Acceleration Network. These partnerships have helped to build the SRCTec brand over the past 10 years. Furthermore, SRCTec is one of two organizations in Canada that attend the Ag-Tech Venture Forum in Toronto which greatly boosts the organization's brand and level of interested participants.

Bioenterprise has only just opened in the province of BC but the marketing plan for the organization includes building a strong referral network with:

- The Ministry of Agriculture
- The BC Acceleration Programs
- MITACS
- IRAP

Their goal is to hold the annual Ag-tech conference and will be travelling around the province conducting presentations on the services they are offering.

AO advises that word of mouth is the most popular means of marketing the program. After 6 years of operation and extensive publicity, awareness of AO has increased dramatically. In addition to the monthly newsletter, website, blog, and events, tradeshow have helped to spread the word. The Community Manager also conducts monthly orientation sessions in communities around the region, and wherever possible, partnerships are created with various communities and municipalities.

The government operated food innovation centres also garner most of their clients via word of mouth. However tradeshow have helped to bring in participants from outside the region both from other parts of Canada and internationally. The APBI centre works in partnership with the Alberta Trade Offices to market to immigrants looking to bring their innovative agri-food ideas to Canada.

The scientists at the BIO FOOD TECH centre in PEI attend several conferences and events around the world. Their travel and networking at these events helps to build the awareness of their facility.

All of the programs analyzed mentioned the importance of having a quality website to provide information about programs and services.

6.12 Selection – Screening Criteria

The best practices research revealed the screening criteria for selecting participants varies from program to program. In the first few years of an organization's establishment, most programs had little if any screening process but as the interest grew the selection process became more intricate.

The SRCTec program accepts anyone who has an innovative idea worth testing, however all prospective clients must attend an orientation session before they can be considered for the program. Potential participants are asked to complete an application form, which asks questions about the agri-technology, the business, and the training required by the participant. The participants have to agree to the rules within the program and once they understand the requirements and fees, they are accepted into the program.

Bioenterprise has an on-going intake with specific selection criteria:

- Clients have to be incorporated in Canada.
- A technical assessment of the product is conducted by Bioenterprise.
- The company product must be ready to be positioned for global success.
- Entrepreneurs must be coachable.
- Acceptable products require a high level of innovation.

The Bioenterprise staff assesses the critical components for each business and mitigates risks inherent in early stage of the business.

AO began selecting any entrepreneur who applied to enter the program but after 6 years of operation, the programs have become competitive and the selection process has become more stringent. On average 32 businesses will apply for a place at AO however only 8 will be accepted.

At Leduc's APBI, clients are selected on the basis of their venture's likelihood of commercial establishment and growth. In addition to having a business plan that is acceptable to branch management, clients must demonstrate financial resources to supply and install process equipment, manufacture and ship product and pay accounts while waiting for receivables to be cleared.

Selection Criteria for APBI and two other accelerators/incubators, Thrive and Sprout X New Zealand and Australia, have been provided in **Appendix 9**. The other food innovation centres investigated in this study have no formal participant selection process in place, however they do have a questionnaire to ensure the company has the ability to pay for the work required and also has some form of a marketing plan in place.

In the first year or two of the OAIC, the number of participants applying to enter the program will be low. However after word spreads and participants graduate from the programs, the expectation is that the demand for space will be higher than the seats available. Possibly in year 3, OAIC could create something similar to TecTerra (a geospatial industry accelerator in Alberta) where decisions on who to accept into the program are based on whether the company will make money. For every \$1,000 invested, a specific ROI will be required. There is a need to choose candidates carefully, with the expectation there are quarterly reviews with participants.

A private investment program such as an agriculture investment fund like the THRIVE Investment Fund would help to stimulate growth and innovation within the agriculture industry. In one of the programs that a respondent went through, investors covered 50 to 75% of market research costs conducted by a third party company. When the startups were close to having a product or service ready for beta testing, they made a list of everything they needed to commercialize their business (e.g. website, prototype development, etc.) and applied for an interest free loan of which the private investment fund did not take equity. OAIC should research the possibility of starting an agriculture investment fund in partnership with Bioenterprise, SRCTec and AO.

6.13 Performance Measures

With any economic development program, there are performance indicators used to measure effectiveness, success and ultimately the return on investment of using public money to fund the program. It can be difficult to accurately measure the effect a program has on the success or failure of an innovative business idea.

There are several external factors that can affect the business and be completely unrelated to the success of the business. Every government-funded program is collecting performance indicators and overlap often occurs. With this in mind, the OAIC should consider the implementation of a CRM to track the input and output of services for each entrepreneur that engages with the organization. This will help to paint a clearer picture as to the impact the program has on each business.

The standard metrics for economic development programs include:

- How many ventures in the program.

- How much money was raised for each business.
- Number of business start-up and launches.
- Number of new grocery store items.
- Number of members.
- Jobs created.
- Number of inquiries.
- Anecdotal success stories.
- Investment acquired and from where.
- Revenue (quarterly possibly).
- Success stories that highlight innovation.
- Evidence that industry groups support the centre.
- Committee membership (or desire to sit on the board).

6.14 Preliminary Project Budget

A preliminary 'high-level' project cost for the OAIC is estimated to be a total of **\$1.5 million** for a 3-year period. The budget is based primarily on receipt of government funding from the RDF, WED, BCIC, SIDIT, municipality funding and other grant sources, constituting 75% of the total budget, which is approximately **\$1.13 million**. The remaining 25% of the total budget must come from the private sector (**\$375,000**), where the total budgeted revenues generated by the OAIC of **\$209,000** will be considered as the industry's contribution for both the second and third year. A breakdown of the project budget is as follows:

EXPENSES	Year 1	Year 2	Year 3
Personnel			
OAIC Salary & Benefits (1)	\$120,000	\$140,000	\$155,000
EiRs, VAP business coaching, Bioenterprise advisors and consultants (2)	\$97,000	\$138,000	\$210,000
Training and Networking	\$5,000	\$2,500	\$5,000
Travel	\$8,000	\$9,000	\$12,000
Sub-total	\$230,000	\$289,500	\$382,000
Operating Expenses			
Space requirements (rent, phone, internet, bookkeeping, legal, finances, security) (3)	\$68,400	\$68,400	\$68,400
Equipment maintenance (commissary kitchen, computer, electrical and plumbing, etc.)	\$3,500	\$3,000	\$4,500
Property Tax, Utilities, Insurance (4)	\$31,200	\$31,200	\$31,200
Cell phone	\$1,200	\$1,200	\$1,200
Hospitality for meetings	\$600	\$1,200	\$1,500
Sub-total	\$104,900	\$105,000	\$106,800
Marketing Expenses			
Website	\$12,000	\$2,400	\$2,400
Agri-tech and value-added food processing pull-ups	\$450	\$0	\$0
Promo material for Events/Shows	\$1,000	\$1,000	\$1,000
Sub-total	\$13,450	\$3,400	\$3,400
Tradeshow Attendance	\$500	\$1,000	\$1,000
Host events (5)	\$16,000	\$27,000	\$30,000
Sub-total	\$16,500	\$28,000	\$31,000
Software Systems, Furnishings and Equipment			
Software (6)	\$1,400	\$1,400	\$1,400
Furnishings	\$10,000	\$5,000	
Commissary kitchen (7)	\$65,000		
1 specialty line - optional		\$30,000	
Leasehold improvements (8)	\$70,000		
Sub-total	\$146,400	\$36,400	\$1,400
PROJECT TOTAL	\$511,250	\$462,300	\$524,600

REVENUE	Year 1	Year 2	Year 3
Private Sector Funding (9)			
OAIC Cash Flow		\$77,300	\$131,260
Private Industry Contribution	\$122,813	\$38,275	
Summerland Chamber of Commerce	\$5,000		
	\$127,813	\$115,575	\$131,260
Government Funding (9)			
District of Summerland Contribution	\$20,000	\$22,000	\$25,000
COEDC Contribution	\$5,000		
Other Municipality Contribution	\$5,000		
	\$30,000	\$22,000	\$25,000
RDF (10)	\$181,965	\$224,630	
WED-WDP (11)	\$125,650	\$70,700	\$262,300
BCIC (12)	\$25,000	\$30,000	\$30,000
SIDIT	\$25,000		
GF, LMP and/or other grants			\$75,000
	\$357,615	\$325,330	\$367,300
Sub-total	\$387,615	\$347,330	\$392,300
OAIC Rental and Program Income			
Commissary kitchen rental fee (13)	\$14,400	\$24,000	\$36,000
Specialized line processing fee		\$7,500	\$12,000
Program fee (14)	\$4,100	\$6,560	\$10,660
One-on-One mentoring (15)	\$7,200	\$9,600	\$16,800
Events fees (16)	\$36,000	\$60,000	\$84,000
Membership Fee (17)	\$2,000	\$4,000	\$6,000
Education and Training Fee (18)	\$4,000	\$6,400	\$8,000
Bioenterprise/SRCTec rental for office at OAIC	\$7,200	\$7,200	\$7,200
Meeting Room/Workshop Rental Fee (19)	\$2,400	\$6,000	\$6,000
Total OAIC Rental and Program Income	\$77,300	\$131,260	\$186,660

Notes:

- Includes a portion of the salary of the Bioenterprise Regional Manager plus part-time admin support years 2 and 3.
- EiRs and advisors budgeted at a rate of \$100/hr, at 90 hours per participant requirement. Number of OAIC participants supported include 8, 12, and 20 for year 1, 2 and 3, respectively. VAP business coaching budget was based on the figures provided by MIDAS.
- Rent is based on the Nixdorf Industrial Park property at \$5,000/month for 6,300 sqft. This does not include triple net.
- Property tax is \$200/unit/mo (\$600 for 3 units/mo). Utilities and insurance estimated each at \$6000/a.
- Includes 2, 3 and 3 major events in years 1, 2 and 3, respectively.
- Includes Adobe Software at \$900; Web Conference Software at \$150; and CRM (1 seat per year) at \$350.
- Estimate obtained from 3 commercial kitchen representatives within the region. Average was \$40-60K for used; \$60-90K for new modern equipment. Budgeted was \$45K plus \$20K for back-end technology.
- Estimate for design and construction consultant, permits, contingencies, electrical/HVAC, plumbing, structural, exterior, and signage.
- Industry funding requirement is based on 25% of the total budget, set at \$127,813, \$115,575 and \$131,150 for years 1, 2 and 3, respectively. WED requires at least 10% while other funding sources require 25%. This contribution will depend on the government funding sources received for the project. Maximum government funding that could be provided is \$383,438, \$346,725 and \$393,450 for Years 1, 2 and 3, respectively. Note that municipality contributions are only suggestions and have not been committed. The business plan phase will need to explore and confirm commitment from municipal and private industry contributions.
- Funding assumed at 60% plus 10% in-kind for personnel and marketing expenses.
- Funding assumed at 50% of total project value operating, software and equipment expenses; plus personnel and marketing for year 3 only.
- Funding assumes \$30,000/year covered by BCIC for a portion of Bioenterprise BC staff.
- Assumes rental rate of \$100/day at 2 days/month. Based on 6, 10 and 15 users for years 1, 2 and 3, respectively.

14. Includes 5, 8 and 13 start-up agri-businesses taking the Start-up Basics, VAP and MVP programs for years 1, 2 and 3, respectively.
15. Includes 3, 4 and 7 later stage agri-businesses taking utilizing Bioenterprise's 1:1 mentorship for years 1, 2 and 3, respectively.
16. Based on 12 events per year; 30, 50 and 70 people for each event in years 1, 2 and 3, respectively and at an average fee of \$100/event.
17. Based on 20, 40 and 60 people for years 1, 2 and 3, respectively.
18. Based on workshops provided quarterly at \$200 per session and with 5, 8 and 10 participants for years 1, 2 and 3, respectively.
19. Based on a 2 hour booking, 2 times per week, at \$25/hour. Also includes farm school rental fee 6 hour booking, 1 time per week, at \$25/hr.

7 Conclusion

Extensive stakeholder engagement took place to determine the feasibility of having an OAIC in Summerland. Both interviewees and focus group participants had strong support for the establishment of an agriculture focused innovation centre for the region. There was a need for agriculture start-up support, pilot food processing and testing facility/commissary kitchen and education programming.

Problems and Opportunities. Numerous examples of the region's challenges and opportunities were provided earlier in this report. They set the foundation for potentially hosting a brainstorming session to find solutions for some of the industry's bottlenecks. These challenges would be cast out to tech and agri-tech providers who in turn pitch their ideas to farmers, processors, distributors, and others along the value chain.

OAIC Structure. The structure for the Centre is based on best practices research of other agriculture and technology accelerators/incubators and food innovations centres. It is recommended that OAIC formalize a partnership with the three successful accelerators, Bioenterprise, SRCTec and AO. They have proven and validated models and expressed interest in partnership. Collectively, all three are valuable collaborators whose contribution together will be able to meet the needs of the local community with their agri-business expertise as well as their tech entrepreneur business programming.

It is recommended that the OAIC further explore the option of becoming a satellite office for one of three accelerator partners: Bioenterprise BC, SRCTec and AO for efficiency and expediting the operations of this Centre. For success of the Centre, the administrative partner's Advisory Committee must include members of the agri-food and agri-tech businesses and key stakeholders within the OSK region to ensure regional interest is supported and represented.

Partnerships. Partnerships with academia, research, industry associations, funding agencies and private investment are also critical to the success of the OAIC model. Each brings unique resources that are networked and part of the distributed model. For instance, UBC-O has several researchers and lab facilities relevant to agricultural innovation, and is developing plans for a new state-of-the-art greenhouse. This greenhouse will undertake year round trials to demonstrate innovative equipment and technologies, planting systems, new crops and growing techniques, etc.; all of which would be part of OAIC's resources.

Location. The Nixdorf property on Bentley Road is considered the best option for this Centre as it is:

- A brand new building and can be purpose built;
- Meets the space requirements for the Centre;
- Has the lowest rent/sqft;
- Is somewhat close to downtown Summerland and SRDC;
- Has an energy efficient building design offering lower utilities than other spaces;
- Neighbours ALR land which is convenient for participants to potentially use inactive or active farms to field test products; and
- Has easy access and potential for expansion.

Equipment. Respondents stated their need for pilot food processing and testing facility/commissary kitchen. The business plan should further investigate the design, budget and options for specialized equipment.

OAIC Programs and Services. In order to ensure long-term sustainability of the Centre, revenue needs to be generated from:

- Programs and mentoring;
- Membership and events;
- Technical and food processing expertise;
- Equipment rental;
- Space rental (e.g. office, meeting room, workshop/lab); and
- Courses and training programs (e.g. agriculture business, sustainable farm school internship).

The Centre's programs are based on a hybrid between Bioenterprise's coaching and mentoring as well BCIC's VAP programming, delivered at the Centre through the partner accelerators. Key to success is the hands-on and practical approach, which was emphasized at the focus groups and interviews. Further details and pricing model will need to be further flushed out during the business plan stage.

OAIC's Focus on the Agriculture Value Chain. Given the large capacity of tree fruits and viticulture within the Okanagan-Similkameen, and to a lesser extent, the Kootenay region, respondents identified and prioritized the following four areas that the Centre should focus on:

- Waste management;
- Value-added food processing and innovation;
- Precision farming technologies; and
- Transportation and infrastructure.

Geographic Scope. In reference to best practices, a majority of the participants will come from the region. The emphasis of the geographical scope for attracting participants should be regional and include other parts of BC and Canada within the first 1 to 2 years to test the efficacy of the model. In order to bring in new ideas and innovations to address the region's challenges, international applicants should be considered on a per case basis.

Target Participants Target participants include start-up entrepreneurs specialty/niche crop farmers and small growth-oriented businesses. The selection criteria for screening participants needs to evaluate the potential success of the companies and its positive economic impact on the community. Entrepreneurs must have products that show promising margins, among other criteria. In order to choose entrepreneurs that are more likely to anchor themselves in the region, it is recommended preference be given to agri-businesses that are incorporated in BC. Preference should also be given to agri-businesses that help to solve problems within the region's agriculture industry.

Industry Support. Critical to success is the ability to obtain industry buy in and support through financial contributions. Many respondents said how important it was to have industry drive this initiative. The Centre also needs project champions who draw on their large network to refer potential participants and link them to investors. These champions need to be identified and committed in the early stages of the business plan phase, as their role is vital to the ultimate success of the project. Moreover, there is an opportunity for the OAIC to consider establishing an agriculture investment fund with other accelerators and industry partners to encourage agriculture investments within the region.

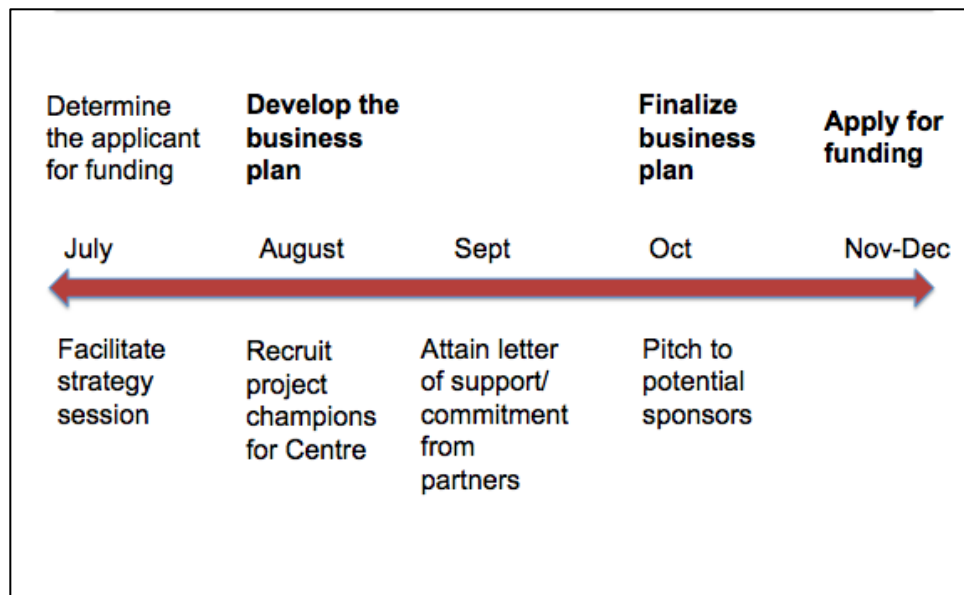
Return on Investment. Accelerators, when structured right, have a positive effect on attracting seed and early-stage financing to a community, bringing spill over benefits to the wider regional economy. A formal agriculture innovation ecosystem, as the one proposed for this OAIC, would help encourage investment discussions amongst agri-businesses and investors, which could promote other local investments. Incubator businesses have a much greater chance of survival than do other start-up businesses. It could also help build resiliency within the community and identify new products and services. OAIC participants can find solutions to bottlenecks in the supply chain, which improves profitability and build synergies amongst businesses and organizations.

Moreover, according to Dr. Roly Russell, who has been studying statistical patterns in coupled ecological and social systems, indicated that the agriculture employment multipliers are high (e.g. within the food community -1.5 to 5x).²⁸ For every job created in agriculture, there is up to five more jobs created. OAIC graduates that prove viability, and stay in the community, create higher value, skilled jobs for the region. Summerland has already experienced the effects of agricultural scientists starting their own innovative businesses and creating highly valued jobs.

How many other business ideas are out there that are not known and would benefit from an incubator?

Next Steps. In order to move forward, the Summerland Chamber of Commerce's board and the District of Summerland Council should consider the following tasks:

²⁸ "Connecting the Dots: Local Economies & Agricultural Enterprises". Dr. Roly Russell, Keynote speaker at "Valuing Agriculture as an Economic Driver", Community Economic Development Regional Forum, May 23 and 24, 2017.



The stars have aligned with the timing of this project. There is interest at all levels of government and great support from the industry to support agri-food and agri-tech innovations.

The BC Ministry of Agriculture is interested in the progress of this feasibility study and has confirmed that Summerland's investigation of having an agriculture innovation centre is further ahead than any others considering something similar. The timing of and advancements made in this project provides a strong foundation for Summerland to consider leading the Interior BC in agrifood and agri-tech innovations and emerging technologies and help OAIC cohorts commercialize their businesses.

Appendix 1: Selected Farm and Farm Operator 2011 Statistics for the Okanagan Valley

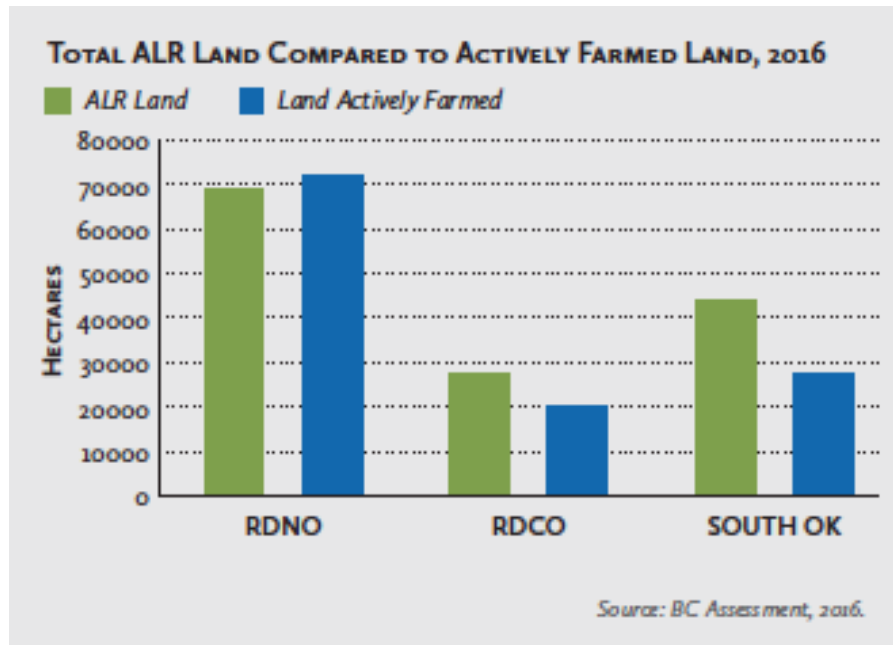
(Extracted directly from the OVEDS © 2015 Okanagan Valley Economic Development Society – Okanagan Valley Economic Profile Pages 43 and 44)

Selected Farm and Farm Operator 2011 Statistics for the Okanagan Valley ⁶³ Note: some totals may not add to the sum of unit statistics due to rounding differences, and operator counts are rounded by Stats Canada to nearest 5	North Okanagan	Central Okanagan	Okanagan Similkameen	'Okanagan Valley'	British Columbia
	Regional District	Regional District	Regional District	Σ Regional Districts	Province
Farm and farm operator statistics					
Population Census 2011	81,237	179,839	80,742	341,818	4,400,057
Number of farms	1,167	1,020	1,506	3,693	19,759
Number of farm operators	1,770	1,520	2,265	5,555	29,925
Male operators	1,120	985	1,490	3,595	19,010
Female operators	660	535	780	1,975	10,915
% male	62.9	64.8	65.6	64.5	63.5
% female	37.1	35.2	34.4	35.5	36.5
Average age of farm operators	57.4	56.9	55.8	56.6	55.7
% younger than 35	4.0	3.9	4.6	4.2	5.4
% age 35-54	39.0	40.5	40.2	39.9	40.5
% age 55 and above	57.6	55.6	55.2	56.1	54.1
Land , crop and horticulture statistics					
Land area (km ²)	7,503	2,905	10,414	20,822	922,509
Total area of farms (hectares)	84,339	31,368	84,058	199,765	2,611,382
Total area of farms in crops (hectares)	21,003	6,379	11,899	39,281	599,674
Average area of farms (hectares)	72	31	56	54	132
Farm finance statistics (\$ millions)					
Total gross farm receipts (excl. forest)	126.2	96.5	132.7	355.4	2,935.9
Value of land & buildings	1,637.9	1,856.4	2,698.7	6,193.0	32,183.0
Value of farm machinery & equipment	98.0	66.4	112.0	276.4	1,834.3
Total farm capital (market value)	1,774.5	1,928.9	2,824.9	6,528.4	34,701.7
Operating expenses	112.8	93.0	122.2	328.0	2620.7
Farms classified by industry group (# Farms)					
Fruit and tree nut farming	96	517	1,014	1,627	3,367
Other animal production	300	153	152	605	4,184
Other crop farming	322	119	115	556	4,047
Cattle ranching and farming	220	50	91	361	3,166
Greenhouse, nursery and floriculture production	51	84	41	176	1,934
Vegetable and melon farming	51	45	65	161	912
Poultry and egg production	69	30	10	109	1,191
Sheep and goat farming	33	16	12	61	604
Oilseed and grain farming	24	4	2	30	271
Hog and pig farming	1	2	4	7	83

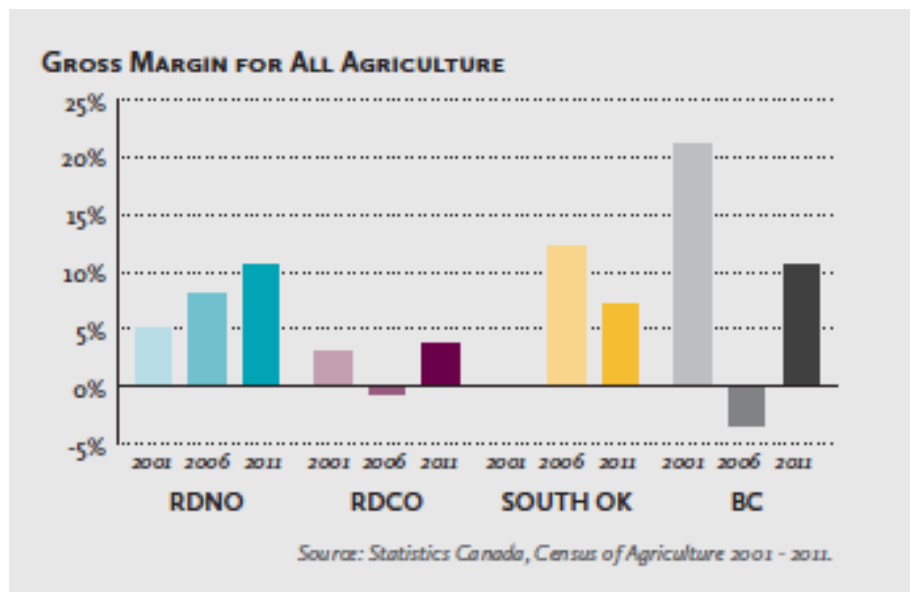
Farm Statistics ⁶⁴	North Okanagan	Central Okanagan	Okanagan Similkameen	'Okanagan Valley'	British Columbia
Various crops and livestock	Regional District	Regional District	Regional District	Σ Regional Districts	Province
<u>Note:</u> some totals may not add to the sum of unit statistics due to rounding differences					
Hay and field crops - Hectares under cultivation					
Alfalfa and alfalfa mixtures	11,243	1,428	3,439	16,110	217,898
All other tame hay and fodder crops	3,685	442	2,354	6,481	166,417
Corn	2,378	-	-	2,378	14,179
Barley	1,178	24	76	1,278	26,479
Wheat	747	-	-	747	34,875
Oats	395	13	11	419	35,164
Fruits, berries and nuts - Hectares under cultivation					
Total fruits, berries and nuts	482	3,409	5,511	9,402	24,494
Apples	358	1,625	1,528	3,511	3,904
Grapes	30	855	2,408	3,293	3,711
Cherries (sweet)	23	640	766	1,429	1,691
Peaches	11	65	413	489	511
Pears	3	94	96	193	260
Other fruits, berries and nuts	22	46	98	166	839
Plums and prunes	6	22	99	127	189
Apricots	2	13	72	87	94
Cherries (sour)	1	20	10	31	40
Blueberries	4	14	6	24	8,441
Raspberries	8	8	4	20	1,747
Strawberries	10	5	5	20	363
Saskatoons	4	X	X	4	68
Crops other than above - Hectares under cultivation					
Vegetables (excl.g/house)	174	163	259	596	6,591
Nursery and greenhouse products	150	468	63	681	4,571
Christmas trees	25	47	21	93	2,621
Livestock and other - #farms and livestock					
Horses & ponies - Farms	378	183	243	804	6,087
Horses & ponies - number	2,874	1,327	1,568	5,769	45,791
Cattle and calves-Farms	355	96	144	595	5,790
Cattle and calves-number	33,583	4,215	16,117	53,915	620,638
Sheep and lambs-Farms	75	29	32	136	1,587
Sheep and lambs-number	2,680	1,007	1,228	4,915	57,456
Pigs-Farms	22	10	9	41	627
Pigs-number	141	79	102	322	89,067
Poultry inventory-Farms	190	132	120	442	3,922
Poultry inventory-number of birds	23,639	5,526	3,486	32,651	2,626,811
Egg production-Farms	121	117	87	325	2,982
Egg production-000's of dozens	579	93	42	715	65,124
Bees-Farms	26	31	32	89	629
Bees-number of colonies	1,738	975	1,028	3,741	33,603

Percentage of Total Land Base that is Actively Farmed

Note, all information below was sourced and extracted from: State of the Basin Report 2016, Okanagan Valley Interregional Monitoring and Evaluation Framework, Regional Districts of North Okanagan, Central Okanagan, and Okanagan-Similkameen, May 5, 2017, Page 13 and 14.

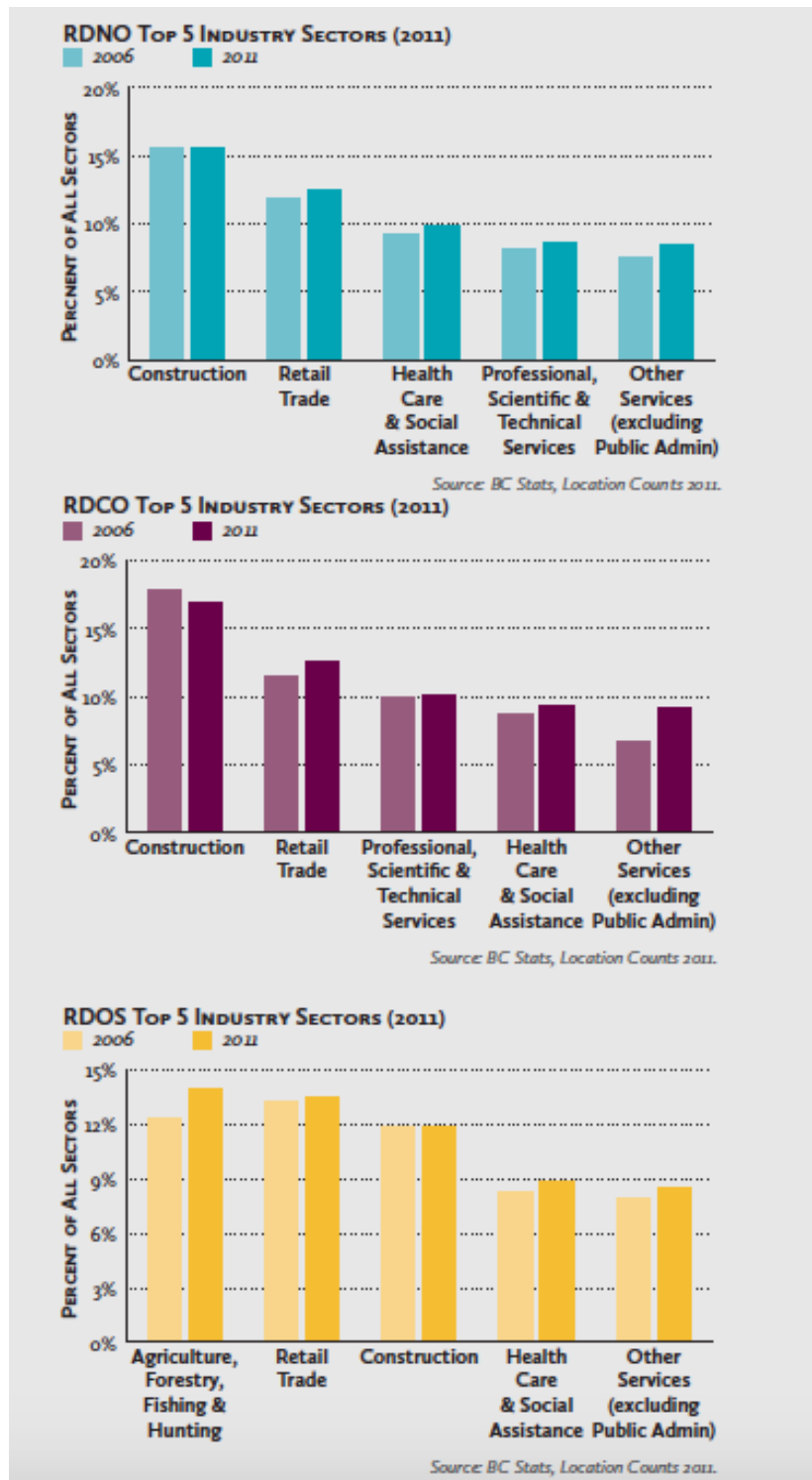


Profitability (% of Gross Margins) for all Agriculture



Percent of firms with employees by industry sector (NAICS)

Note, all information below was sourced and replicated from: *State of the Basin Report 2016, Okanagan Valley Interregional Monitoring and Evaluation Framework, Regional Districts of North Okanagan, Central Okanagan, and Okanagan-Similkameen, May 5, 2017, Page 9.*



Appendix 2: British Columbia Data Catalogue: British Columbia food and beverage processing establishment counts by type of processing and region (June 2014)

Source: <https://catalogue.data.gov.bc.ca/dataset/bc-food-and-beverage-manufacturing-establishments-by-region/resource/d6505550-feef-4b73-badd-9241d951222b>

NAICS	Manufacturing_Category_Description	Regional_District	Count
311224	Oilseed processing	Okanagan Similkameen	1
311340	Non-chocolate confectionery manufacturing	Okanagan Similkameen	1
311351	Chocolate and chocolate confectionery manufacturing from cacao beans	Okanagan Similkameen	1
311420	Fruit and vegetable canning, pickling and drying	Okanagan Similkameen	3
311515	Butter, cheese, and dry and condensed dairy product manufacturing	Okanagan Similkameen	1
311614	Rendering and meat processing from carcasses	Okanagan Similkameen	1
311811	Retail bakeries	Okanagan Similkameen	5
311940	Seasoning and dressing manufacturing	Okanagan Similkameen	1
311990	All other food manufacturing	Okanagan Similkameen	5
312110	Soft drink and ice manufacturing	Okanagan Similkameen	1
312120	Breweries	Okanagan Similkameen	2
312130	Wineries	Okanagan Similkameen	81
312140	Distilleries	Okanagan Similkameen	2
Total			105
311111	Dog and cat food manufacturing	Central Okanagan	4
311119	Other animal food manufacturing	Central Okanagan	1
311211	Flour milling	Central Okanagan	1
311340	Non-chocolate confectionery manufacturing	Central Okanagan	1
311352	Confectionery manufacturing from purchased chocolate	Central Okanagan	1
311420	Fruit and vegetable canning, pickling and drying	Central Okanagan	4
311515	Butter, cheese, and dry and condensed dairy product manufacturing	Central Okanagan	1
311614	Rendering and meat processing from carcasses	Central Okanagan	2
311811	Retail bakeries	Central Okanagan	11
311814	Commercial bakeries and frozen bakery product manufacturing	Central Okanagan	2
311821	Cookie and cracker manufacturing	Central Okanagan	1
311919	Other snack food manufacturing	Central Okanagan	1
311920	Coffee and tea manufacturing	Central Okanagan	2
311940	Seasoning and dressing manufacturing	Central Okanagan	1
311990	All other food manufacturing	Central Okanagan	12
312110	Soft drink and ice manufacturing	Central Okanagan	5
312120	Breweries	Central Okanagan	6
312130	Wineries	Central Okanagan	26
312140	Distilleries	Central Okanagan	3
Total			85
311111	Dog and cat food manufacturing	North Okanagan	4
311119	Other animal food manufacturing	North Okanagan	4
311211	Flour milling	North Okanagan	1
311214	Rice milling and malt manufacturing	North Okanagan	1
311351	Chocolate and chocolate confectionery manufacturing from cacao beans	North Okanagan	1
311410	Frozen food manufacturing	North Okanagan	2
311515	Butter, cheese, and dry and condensed dairy product manufacturing	North Okanagan	1
311611	Animal (except poultry) slaughtering	North Okanagan	1
311614	Rendering and meat processing from carcasses	North Okanagan	3
311615	Poultry processing	North Okanagan	3
311811	Retail bakeries	North Okanagan	3
311824	Flour mixes, dough, and pasta manufacturing from purchased flour	North Okanagan	3
311920	Coffee and tea manufacturing	North Okanagan	2
311990	All other food manufacturing	North Okanagan	3
312110	Soft drink and ice manufacturing	North Okanagan	2
312120	Breweries	North Okanagan	3
312130	Wineries	North Okanagan	1
312140	Distilleries	North Okanagan	1
Total			39

311351	Chocolate and chocolate confectionery manufacturing from cacao beans	Central and East Kootenays	2
311352	Confectionery manufacturing from purchased chocolate	Central and East Kootenays	1
311410	Frozen food manufacturing	Central and East Kootenays	2
311420	Fruit and vegetable canning, pickling and drying	Central and East Kootenays	1
311611	Animal (except poultry) slaughtering	Central and East Kootenays	1
311811	Retail bakeries	Central and East Kootenays	9
311814	Commercial bakeries and frozen bakery product manufacturing	Central and East Kootenays	4
311919	Other snack food manufacturing	Central and East Kootenays	1
311920	Coffee and tea manufacturing	Central and East Kootenays	3
311990	All other food manufacturing	Central and East Kootenays	5
311940	Seasoning and dressing manufacturing	Central and East Kootenays	1
312110	Soft drink and ice manufacturing	Central and East Kootenays	1
312120	Breweries	Central and East Kootenays	3
312130	Wineries	Central and East Kootenays	2
Total			36
311111	Dog and cat food manufacturing	Kootenay Boundary	2
311352	Confectionery manufacturing from purchased chocolate	Kootenay Boundary	1
311611	Animal (except poultry) slaughtering	Kootenay Boundary	2
311811	Retail bakeries	Kootenay Boundary	2
311814	Commercial bakeries and frozen bakery product manufacturing	Kootenay Boundary	2
311821	Cookie and cracker manufacturing	Kootenay Boundary	1
311920	Coffee and tea manufacturing	Kootenay Boundary	2
312110	Soft drink and ice manufacturing	Kootenay Boundary	2
312130	Wineries	Kootenay Boundary	1
Total			15
311119	Other animal food manufacturing	Thompson Nicola	1
311352	Confectionery manufacturing from purchased chocolate	Thompson Nicola	2
311420	Fruit and vegetable canning, pickling and drying	Thompson Nicola	1
311511	Fluid milk manufacturing	Thompson Nicola	1
311520	Ice cream and frozen dessert manufacturing	Thompson Nicola	1
311611	Animal (except poultry) slaughtering	Thompson Nicola	1
311614	Rendering and meat processing from carcasses	Thompson Nicola	2
311811	Retail bakeries	Thompson Nicola	5
311919	Other snack food manufacturing	Thompson Nicola	1
311920	Coffee and tea manufacturing	Thompson Nicola	2
311990	All other food manufacturing	Thompson Nicola	1
312110	Soft drink and ice manufacturing	Thompson Nicola	1
312120	Breweries	Thompson Nicola	5
312130	Wineries	Thompson Nicola	7
Total			31
311111	Dog and cat food manufacturing	Columbia Shuswap	1
311119	Other animal food manufacturing	Columbia Shuswap	1
311352	Confectionery manufacturing from purchased chocolate	Columbia Shuswap	1
311511	Fluid milk manufacturing	Columbia Shuswap	1
311515	Butter, cheese, and dry and condensed dairy product manufacturing	Columbia Shuswap	1
311611	Animal (except poultry) slaughtering	Columbia Shuswap	1
311614	Rendering and meat processing from carcasses	Columbia Shuswap	1
311811	Retail bakeries	Columbia Shuswap	2
311814	Commercial bakeries and frozen bakery product manufacturing	Columbia Shuswap	2
311821	Cookie and cracker manufacturing	Columbia Shuswap	1
311920	Coffee and tea manufacturing	Columbia Shuswap	1
312110	Soft drink and ice manufacturing	Columbia Shuswap	1
312120	Breweries	Columbia Shuswap	4
312130	Wineries	Columbia Shuswap	3
Total			21

Appendix 3: South Okanagan Agriculture SWOT Analysis

Note, all information in this appendix was sourced and replicated (with modifications) from the MDB Insights: South Okanagan – Similkameen Economic Development Group (SOSEDS) Foreign Direct Investment Strategy 2016.

Strengths	Weaknesses
<ul style="list-style-type: none"> • OSK has strong reputation for producing clean, safe, and organic/natural foods • Internationally recognized and known as an area for good quality wines, cherry breeding and fruits • Strong agriculture investments in region • Favourable microclimates and soil conditions for agricultural production, as already demonstrated with wine and tree fruits • Critical mass of primary agriculture producers in the region • Access to high quality research facilities and support systems • Several funding/tax support programs • Good access to transportation networks 	<ul style="list-style-type: none"> • Region is behind pre-harvest agriculture technologies compared to other regions of the world • Limited number of producers that are suited and ready for investment • Many gaps in the supply chain limiting growth • Lack of processing facilities and limited availability of facility rental space • A lot of small “mom and pop” wineries and food processors that aren’t reinvesting or expanding • Highly regulated food and wine sector where the rules are difficult to navigate and seen as outdated or unreasonable
Opportunities	Threats
<ul style="list-style-type: none"> • Strong increasing demand in Asian markets for wine (both grape and fruit/berry) • Rising global demands for healthy, packaged foods • BC carving out a bit of a niche as an agrifood centre • Hops growing and Medical Marijuana • Position region as an ‘agri-tech’ and interior food processing hub and establish an “agri-tech” C of E • Attract investment in wine-related and food processing supply chain businesses • Enhance food processing capabilities (niche and organic) 	<ul style="list-style-type: none"> • Non-welcoming attitude by some community members towards foreign owned business • Already experiencing food processing companies leaving the region due to facility limitations

MDB Insights also identified other emerging opportunities:

- Connecting agricultural waste (e.g. B quality) with commercial/industrial processes and creating new products.
- Improving local food processing capacity and market linkages for B products and organic specialty products.
- Capitalizing on the continued trend towards premium and “craft” products
- Harnessing new developments in agri-tech to increase production.
- Leveraging the booming tourism sector to support the sale of value-added agricultural products.
- Increasing acreages of high value crops to build capacity (e.g., grapes, cherries, cannabis, apple cider).
- Exploring wind and solar opportunities in farming practices given the climate in the region.
- Emerging free trade negotiations between Canadian provinces and territories for alcoholic beverage products.
- Establishing partnerships between primary producers and agri-tech companies for demonstration sites and facilities to showcase innovative products. These may be translated into opportunities for future local investment.
- Increasing awareness of grant and funding support programs, such as Growing Forward II, CanExport, AgriInnovation, AgriCompetitiveness, Agrifood Venture Acceleration Program and Bioenterprise BC programs.

Appendix 4: Feedback from Interviews and Focus Groups with Entrepreneurs and Stakeholders on Problems and Opportunities in the Regional Agriculture Industry, May/June 2017

Primary Inputs:

Breeding and Propagation

Problem: Okanagan-Similkameen growers have a hard time accessing plant materials of a premium variety. Large international fruit breeding corporates tend to limit access to and have control of the specific fruit variety through the entire value chain.

Rapidly spreading viruses have also been identified as a major threat in the South Okanagan's grape industry (as had been experienced in Australia and California), which may require a massive replant within the next 10 years. Virus free grape material is definitely needed.

Currently there is not a local source of clean virus free material in the quantities required by local growers. Grape growers tend to be fairly resistant to new varieties as it is the old established varieties that are well known and quite a bit of marketing is required to release a 'new' grape variety.

- **Opportunity: Access to virus free grape propagative material.** There are opportunities for the development of new varieties for grapes and other fruits that are virus free. Viruses can be eliminated from a variety at the 'Centre for Plant Health (CPH)' which is managed by CFIA. A single plant of a variety would be cleaned up and then used as the 'mother' for all future plants. A repository would be required for the bulking up and distribution of this clean plant material.

There is also particular interest to develop new varieties for the growing number of cider houses propping up in the Okanagan Valley and increasing demand for organic fruits and vegetables.

- **Opportunity: Establish new agreements with fruit breeders to access new premium varieties.** It was suggested that Summerland Varieties Corp. could further work with the large companies to access new varieties and establish new contract terms for brokerage and protection of the BC fruit industry. For example, peaches have lagged behind other fruit for varieties. People want more red peaches that store better and have the taste quality that customers desire. Having said that, apples are the larger crop by planted area and would likely garner more interest as they would impact the most growers, followed by cherries. SRDC would be the source of these as they currently produce the best varieties for our growers and are accessible.

Growing

Problem: Many of the existing orchards have older irrigation infrastructure that does not optimize water usage. The investment to adopt and integrate soil and weather sensors is significant and farmers often do not understand the ROI or see the value in upgrading their infrastructure.

- **Opportunity: ‘Intelligent’ irrigation systems.** There are advances in wireless ground sensors that measure the volumetric water content in the soil on the basis of the dielectric constant of the soil. Intelligent irrigation systems maintain soil profile. There are also UV filtration and ozone systems that monitor water quality and usage.
- **Emerging opportunity: Nanotechnology applications in agriculture.** The application of nanotechnology (the manipulation of matter on an atomic, molecular, and supramolecular scale) in agriculture aims in particular to reduce applications of plant protection products, minimize nutrient losses in fertilization and increase yields through optimized nutrient management. Emerging technologies include: nanosensors that can be used for monitoring soil conditions and crop growth; nanochips that can be used for detection of animals and plant pathogens; nanoparticles to selectively bind and remove chemicals or pathogens from food; and nanoclays and nanofilms as barrier material to prevent spoilage and oxygen absorption. However, concerns have been raised as with any new technology about the environmental and health impact of nanomaterials.

Problem: Starling birds have caused great damage to fruit trees and vineyards and have been difficult to control. Noise deterrents and visual repellents such as reflective tape, have been used to frighten starlings away, but these birds are tenacious and quickly learn to ignore noise and visual scare tactics. Netting fields and hiring commercial falconers can be effective in preventing crop loss, but it is expensive and labour intensive.

- **Opportunity: Laser technology for bird control.** Agrilaser autonomic is new innovative technology that Europeans are using for effective bird control in their orchards. Coral Beach Farms is currently testing this technology for use in their cherry orchards.

Data collection and field monitoring; Quality Control

Problem: There is difficulty in assessing, diagnosing and monitoring pests, weeds, soil and plant health issues, particularly in varying microclimates. The farmers are generally located on small acreages with small crops and are very sensitive to the cost of pathogen mitigation efforts.

- **Opportunity: Data analytics, drones (e.g. with multispectral imaging capabilities), open data sourcing, biosensors and predictive software.** Smart phones, mapping, and low cost wireless technologies create opportunities for the large-scale use of digital information in agriculture right through the value chain and for monitoring weather, microclimate conditions, soil moisture, water quality and pathogens. Biosensors are connected to a wireless network for real time monitoring. Surveillance equipment is also being used on several farm plots with overall larger acreage to inspect wind and insect damage and cattle roaming. Early detection allows farmers and manufacturers to take preventive measures to increase yield; optimize distribution, inventory and food quality; and reduce the costs of food production, transportation and labour.

- **Opportunity: Biological controls and leaf tissue testing.** Virus management technologies and tools to identify, monitor and assess the impact of viruses in vineyards are currently being researched. In addition, leaf tissue testing can be linked to chemical programs and spray calibrations for accurate timing and application rates. ProgenyBio is one company that offers these services.

Researchers are also making further inroads on new compost science for building organic matter to reduce the need for fertilizers and pesticides. There are also new developments with biological controls (e.g. black soldier flies).

- **Opportunity: Electronic, sensed sprayers and weeders.** Farmers have expressed the need for accurate sensor systems to measure canopy volume but also variations in canopy density in order to adjust both air and liquid volume of spray in real-time. The aim is to keep the droplets on the canopy, improve the deposition and avoid drift. Ultrasonic sensors have been tested and shown strong relationships among the ultrasonic echo energy, detecting distance and canopy density.²⁹ There are some farmers in the region that are also testing the WeedBadger and other weeding systems to remove weeds without destroying the plants root system and soil structure.

Problem: Food safety requirement that have been mandated not only by CFIA but also the grocery chains have been getting ‘overly stringent’ because “they don’t want to be sued by people who don’t understand agriculture” (as described by one interviewee). It has become a hindrance to some good agriculture practices, such as reusing municipal compost and utilizing chickens on farms for nematode and pest controls.

Farmers have also expressed their concerns for being too much in the office rather than managing their farm due to overwhelming regulatory compliance procedures (e.g. BCWA, BCWI, CFIA, BC Tree Fruits, etc.). Farmers are recording and storing information in different formats (e.g. hand written vs. spreadsheets and other computerized formats), making it difficult to efficiently collect and assess data.

- **Opportunity: Streamline the regulatory paperwork.** There is an opportunity to standardize data collection and storage across the industry’ value chain for easy adoption and reporting. One interviewee suggested the development of an app that accesses an on-line database for spray and fertilizer application rates, or an app that records field data collection and maintenance records which can then be sent off to the appropriate regulatory bodies.

Production and Processing:

Problem: Currently, there is no accessible pilot food processing facility within BC to use culled fruit for secondary manufacturing or to develop and test food and beverage products and respective packaging. SRDC has processing equipment in their pilot plant that is not easily accessible to industry. In the past, the only means to accessing this equipment was

²⁹ Source: A Canopy Density Model for Planar Orchard Target Detection Based on Ultrasonic Sensors. Hanzhe Li,¹ Changyuan Zhai,^{1,2,*} Paul Weckler,² Ning Wang,² Shuo Yang,¹ and Bo Zhang¹. College of Mechanical and Electronic Engineering, Northwest A&F University, Yangling 712100, China. Department of Biosystems and Agricultural Engineering, Oklahoma State University, Stillwater, OK 75078, USA. <http://pubmedcentralcanada.ca/pmcc/articles/PMC5298604/>

through established contractual agreements for research and development purposes, rather than for commercial purposes.

There are a handful of commissary kitchens throughout the OSK region (e.g. Kelowna, Winlaw, Hedley) but no other that became apparent during this study. Some food processors are using church kitchens but they haven't been ideal options due to scheduling issues and not having adequate space for storage.

- **Opportunity: Build an OAIC pilot food processing facility and/or technology driven commissary kitchen to meet the needs of local processors.** There is an opportunity to continue conversations with SRDC and further investigate the possibility of utilizing some of SRDC's equipment for the Centre (e.g. canning retorts). In addition, farmers and processors said they would like to have a 'test kitchen' to experiment with recipes, evaluate their products and test their food for bacterial contamination before full-scale production.

Commissary Connect is an innovative commissary kitchen located in the Lower Mainland and has plans to expand its offering to other regions in BC. They are privately funded and have a business model that has become very popular because they can operate their kitchen for a fraction of the cost of traditional commissary kitchens.

Their purpose is to provide a fully equipped kitchen space and connect local food producers to their suppliers or end users via retailers, wholesalers and other food buyers. They supply the backend technology using a shared use model for various business functions, such as invoicing, performance monitoring and reporting, traceability, scheduling, bookkeeping, security, procurement and employee recruitment. Their technology allows pay-per-use for lower fixed costs to members as well as provide for economies of scale by streamlining the supply chain.

Their goal is to have the kitchens 'run themselves' and help its members transfer to a scaled-up facility. Their model also includes an education component, where they organize training programs, forums and events for new food businesses.

Problem: Organic farmers and food processors in the agriculture industry are concerned with a lack of sanitizing options and have looked into alternatives to chemical sanitizers to prevent food borne illnesses.

- **Emerging Opportunity - Ultra-violet C (UVC) light for sanitizing organic fruit in food processing.** One farmer stated that there was UVC light being studied at Washington State University that has been shown to be effective against foodborne pathogens on the surface of certain fruits, particularly apples, pears and other smooth skinned fruit. Further research identified that UVC has germicidal properties that can be effective against e-coli and other bacteria, mould and viruses. UVC light, which cannot penetrate opaque, solid objects, can be effective in sanitizing surfaces. The technology has already been used to effectively sanitize food contact surfaces as well as drinking water and contaminated air.³⁰

³⁰ Source: <https://phys.org/news/2015-07-uv-foodborne-pathogens-fruits.html#jCp>

Problem: Reliable labour is difficult to recruit and retain, especially for small orchardists because they don't always know when they need them. They are also not big enough to keep labourers employed all season.

- **Opportunity: Optical scanners and sorters.** Labour shortages within the Okanagan has already driven technology. The cherry sector has brought in robotics with optical sorters/sizers to help deal with this issue.

Transportation and Infrastructure:

Business-IT

Problem: There is currently no place to get start-up farm support with farm machinery, equipment and agriculture technologies in the region. At one time, this service was offered by the Ministry of Agriculture Technology Extension Branch but is no longer available due to resource constraints. Agrologists used to arrange for demonstrations at an active orchard where growers convened and learned. Post secondary education institutions picked up this deliverable at one stage but that too had subsided.

- **Opportunity: Agricultural knowledge and technology transfer.** There is an opportunity to reinstate the technology extension program through the OAIC with a delivery model that suits the changing demographics and primary occupation demands of the farmer.

Problem: Seasoned farmers managing older, less desirable orchards do not take the time or have the business skills to understand the cash flow/business side of their farm operations. Some don't understand the value of decommissioning larger, under valued farms and focus more on smaller, renovated, high-density orchards as a means to increase profitability and lower costs. They tend to keep their larger farms (with or without leasing) for tax credit purposes.

- **Opportunity: Farm business management education, mentorship and software tools.** Industry associations, agrologists and post-secondary institutions have an opportunity to mentor participants and offer demo days, courses and workshops to new and existing farmers at the Centre. They can also develop tools to help farmers track and manage input costs, crop health, fruit and vegetable production volumes, equipment, people and overall profitability of their business. In the past, the BC Ministry of Agriculture's Production Insurance Program had produced a software with these capabilities and was well received by farmers, but it no longer exists.

Problem: Entrepreneurs often have difficulty accessing capital or it takes much longer to acquire than anticipated.

- **Opportunity: Networking opportunities, pitch sessions to investors and access to finance:** Networking and access to finance is one of the most important benefits of an incubator/accelerator. Accelerators have been shown, when structured right, to have a positive effect on attracting seed and early-stage financing to a community,

bringing spill over benefits to the wider regional economy.³¹ OAIC can provide these networking opportunities and pitch sessions to investors.

- **Opportunity: Democratizing entrepreneurship through peer selected investments.** Agri-tech entrepreneur communities in the US are taking a bottom up approach to venture capital that emphasizes peer collaboration. These entrepreneurs help each other build their businesses and then bring in outside investors and mentors to request financial support for their next phase of business commercialization. At the end of the program, entrepreneurs select which peers they put forward for investment.³²

Problem: The OSK region is made up of many small acreage parcels, which makes it difficult for a producer to warrant the investment required to adopt new technologies in agriculture. In the viticulture sector, for example, there are growers and wineries that use unique input and manufacturing technologies that they are not willing to share with others as a means to differentiate their products or realize a competitive advantage. Other regions in the world with similar industry composition, such as Tyrol, Italy, have benefited from sharing equipment, such as harvesting technologies, and applying uniform systems amongst small acreage parcels. In this way, these small farms were able to afford to use the latest technologies.

- **Opportunity: Coop model for adopting agriculture technologies.** There is an opportunity for BC processors and growers to collaborate and pool resources so that economies of scale can be captured and therefore, be more competitive in the global market. One such area could be in self-propelled harvesting platforms with cat tracks or vacuum harvesting machines, as used in California, that have been shown to have an average cull rate of 3 to 6%.

Problem: Higher density orchard systems and technologies require significant upfront costs that many of the new younger farmers can't afford. Young farmers want to lease land (20 to 150 acres) from the older generation and require at least 10 to 12 years to realize the benefit of replanting an orchard. Often these young farmers do not have a farming background. However, older generation farmers do not want to reinvest in their orchards or lease their land because they may want to sell their orchard in the near future. Also, older farmers are not aware of young farmers wanting farmland to lease.

- **Opportunity: OAIC programs.** The Centre can provide education on programs and funding available to help young farmers adopt technologies. A portal and networking events for the sector can connect the younger and older generation farmers.

Problem: Farm consolidations are a trend throughout the region. The farm manager that lease these consolidated farms, called 'king pins', lease more land in order to grow economies of scale (usually at a critical mass of 50 to 70 acres) so that they can afford to bring in a temporary foreign labour force and invest in equipment and new technologies. The spatial requirements of managing these consolidated acres require technology.

³¹ Source: Harvard Business Review. What Startup Accelerators Really Do. Ian Hathaway. MARCH 01, 2016 <https://hbr.org/2016/03/what-startup-accelerators-really-do>.

³² www.Royseuniversity.com/webinars/technology – "Water Tech".

- **Opportunity: New farm management software.** New software, hardware and Internet of Things capabilities help farmers manage and track farm assets with multiple sites, machinery maintenance requirements and work teams. SurveyLife is one such company looking to deploy this technology in the agriculture sector.

Storage and Shipping

Problem: One of the techniques that are predominantly used for testing fruit maturity in apples and pears is the starch test, where apples are dipped in iodine and respective patterns are correlated with fruit maturity. However, there is room for improvement as test results are not always accurate.

- **Opportunity: New non-destructive methods for maturation testing:** There are new technologies that are being researched and considered as a determinant for fruit maturity, such as measurement of ethylene gas being released by apples. However, this measurement doesn't always work with all varieties. Dry matter weight testing is another method that is being tested and used to predict the storability of fruit. There are also opportunities for better ways to pressure test peaches for optimal maturity. These are just some of the examples where there is room for further improvements for qualifying the fruit that goes into storage in order to save floor space and increase the market value of fruit.

Problem: Monitoring and tracking the quality of sweet cherries and other fruit associated with pathogens post-harvest is an issue. There have been large volumes of spoiled fruit that occur at the retail grocery store as shrinkage or fruit being stored or transported in unfavourable environments.

- **Opportunity: Postharvest treatments to slow down fruit maturity and reduce microorganisms present in food.** Ozone treatment is an emerging technology that has been tested and is said to not have an adverse effect on the fruit's visual, textural and nutritional quality throughout the supply chain. Other methods include various physical (heat, irradiation and edible coatings), chemical (antimicrobials, antioxidants and anti-browning) and gaseous treatments.³³
- **Opportunity: Supply chain logistics and inventory management.** Innovative pathogen devices, JIT ordering systems, integration of machinery and processes with traceability programs, food packaging and supply chain logistics will help with food wastage throughout the value chain. There is also potential for a storage facility for frozen and/or dried fruit.

I-Food Systems Inc. is a company that produces airtight boxes with water absorbing labels and microbial sachets with the respective oxidizing formulation for prolonging food storage. Cawston Cold Storage is one of the only facilities that have dynamic controlled atmosphere storage for organic apples. A few farmers also expressed the potential for a storage facility for frozen or dried fruit.

³³ Source: US National Library of Medicine. *Postharvest treatments of fresh produce*. P. V. Mahajan, O. J. Caleb, Z. Singh, C. B. Watkins and M. Geyer. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4006172/>

Marketing, Distribution and Retail

Problem: Agri-businesses within the supply chain are not documented and easily known. There was an expressed need to share weather information, farm management issues, solutions and industry events. Also, farmers are growing products that are not necessarily needed by the market.

- **Opportunity: Centralized on-line portal with job/marketing platform.** Entrepreneurs and stakeholders both expressed the need to have a centralized on-line portal that has a database of resources that connect:
 - Agriculture products and distributors;
 - Agriculture by-products and processors;
 - Workers with agri-businesses;
 - Older farmers to lease their land to younger generation;
 - Scientists with farmers for innovation and technology transfer; and
 - Entrepreneurs and investors.

Problem: Local food suppliers can't predict their harvest dates and communicate this to the large grocery chains. For example, Save on Foods create their marketing and promotional strategies in the winter months and base their purchasing decisions several months in advance using predictions on fruit harvest forecasting models. If the local market cannot supply these products due to climate and weather constraints, they turn to other jurisdictions, like the US, for earlier ripening but different varieties. There have been instances where the chain could not take fresh local cherries that were available because they had to first sell the 'sub-optimal' Washington cherries that they had purchased in advance.

- **Opportunity: A better-integrated business systems that connects to local harvest forecasts.** There is an opportunity to enhance the fruit harvest forecasting models for better predictability through the use of big data and promote the BC Buy Local Program.

Waste Management:

Problems: Crop spoilage can range from 10 to 45%. This causes not only huge economic losses, but also some fungal species could produce toxic metabolites in the affected sites, constituting a potential health hazard. Additionally, the fruit or vegetables have often served as vehicles for pathogenic bacteria, viruses, and parasites. The seed itself can introduce these spoilage microorganisms during crop growth, harvest, post harvest handling, storage and distribution.

Waste management through the entire value chain is a problem. Currently culled fruit is being shipped to the Lower Mainland for secondary processing (e.g. juicing, slurry for yoghurt) or used for compost. Transportation of culled fruit for usage is also limited.

- **Opportunity: Innovative pathogen detection monitoring tools and devices.** Microchip technology is being considered for detecting the presence of spores and viruses to improve packaging technologies, food traceability and fruit quality; prolong shelf life; and effectively meet phytosanitary requirements.

- **Opportunity: Mobile vacuum microwave food drying technology.** NuWave Research is one such breakthrough technology that offers mobile, on-site solutions in vacuum microwave dehydration that enable regional farmers to affordably manage food preservation of commercial crops while maintaining optimal food quality, taste and nutrition. They provide a solution to food waste and imperfect seconds.
- **Opportunity: Value-added food and beverage processing from culled fruits.** Freezing, drying, juicing and fermenting fruit and vegetables can help market food throughout the year rather than at one particular time of the season. BC Tree Fruits Cooperative has recently released its 'Broken Ladder' cider brand using culled apples. Several other cider houses are popping up and utilizing culled fruit.

Also, Okanagan Mobile Juicing Inc. provides a mobile juicing service to producers throughout the Valley and is CFIA certified with plans to be HACCP certified for cross border and export markets.

Problem: There is a large volume of food waste from restaurants that goes to landfills. Recycling plastic waste and transportation of waste are other issues.

- **Opportunity: Recycling food waste as input for secondary manufacturing (e.g. ethanol isolation, fertilizers).** A Californian waste-to-fertilizer company, WISErg, provides grocery stores, restaurants and other food vendors with ways to recycle expired produce and leftover prepared foods. They have patented its Harvester machine that extracts any nutrients remaining in the food and stabilizes the solution so that it can be transferred to one of their locations. Waste material is then transformed into a liquid fertilizer that farmers or hobby gardeners can use as a crop input. It has been approved for use in organic crop production. The machine also creates a data-driven report that grocery stores can use to improve their management of produce and prepared foods.³⁴
- **Opportunity: B2B Marketplace for surplus food.** Chicago based company, Zero Percent, developed an app that allows restaurants and retailers to list their leftover food and then sends texts to food pantries, soup kitchens, etc. to let them know what is available. Its software provides analysis and reporting features to help their customers waste less.³⁵

Problem: SunRype's fruit juice production generates massive volumes of organic waste streams (effluents and solid waste) that are presently deposited at the Brandt's Creek Tradewaste Treatment Plant in Kelowna. Fruit processing facilities to deal with lower quality fruit is much more prevalent in Eastern Canada, NY, and WA but are not that apparent in the Southern Interior BC.

³⁴ Source: AgFunder News. Lauren Manning. Food Waste Startups Grab More Attention as WISErg Raises \$12.3m. April 14, 2016. <https://agfundernews.com/food-waste-to-fertilizer-startup-wiserg-raises-12-3m5687.html>

³⁵ Food Tech Connect. Nina Meijers. 10 Startups Reducing Food Waste One Byte At A Time. 09 oct 2015. <https://foodtechconnect.com/2015/10/09/10-startups-reducing-food-waste-one-byte-at-a-time/>

- **Opportunity: Byproducts recovery from the solid waste streams.** There are opportunities to dry byproducts as input material for baked products, nutraceuticals or cosmetics and extracting the phyto-compounds as seed oil. Salubrious Seeds is one local example that is using grape pomace from wineries.

Labour Market and Education

Problem: There is a lack of affordable housing and high land costs.

- **Opportunity: On-site housing.** There are several examples where farmers have provided housing on their own farms as a means to provide affordable housing to workers. There are also plans for three developments that would provide affordable housing in Summerland: 1) Alliance Church property; 2) Summerland Credit Union's proposed development across from the middle school; and 3) Parkplace Development on Wharton Street.

Problem: At a macro-level, there are challenges with youth leaving the region, labour shortages and spousal employment opportunities. Focus group entrepreneurs expressed the lack of agriculture-specific skilled labour (e.g. field technicians, farm managers, horticulturalists) and the high cost to hire tractor mechanics and farm equipment repair people.

There is also no place in region to find or gain hands-on/practical farm experience. There is limited access to farm programs that train or educate the younger generation on how to become farmers.

- **Opportunity:** Optical scanners and sizers in the cherry industry; weeding tools with sensors in viticulture; and robotics in packaging have all been utilized by agri-businesses as a way to automatize processes. Self-propelled harvesting platforms have also been used in Italy and South America and have potential to be owned and shared by growers in the region as a coop model.
- **Opportunity: Farm school internships/practicums.** There is an opportunity for OAIC partners to help train/educate new farmers in the diverse skills needed specific to agriculture in the region. Agriculture programs for primary and secondary schools would help promote agriculture at an early age and get kids excited about farming. What the Fungus is an example of a company that hires interns for their exotic mushroom greenhouses and farm.

Problem: Many people do not understand the value of agriculture and its economic impact to our communities. The current promotion of agriculture careers is also sub-par.

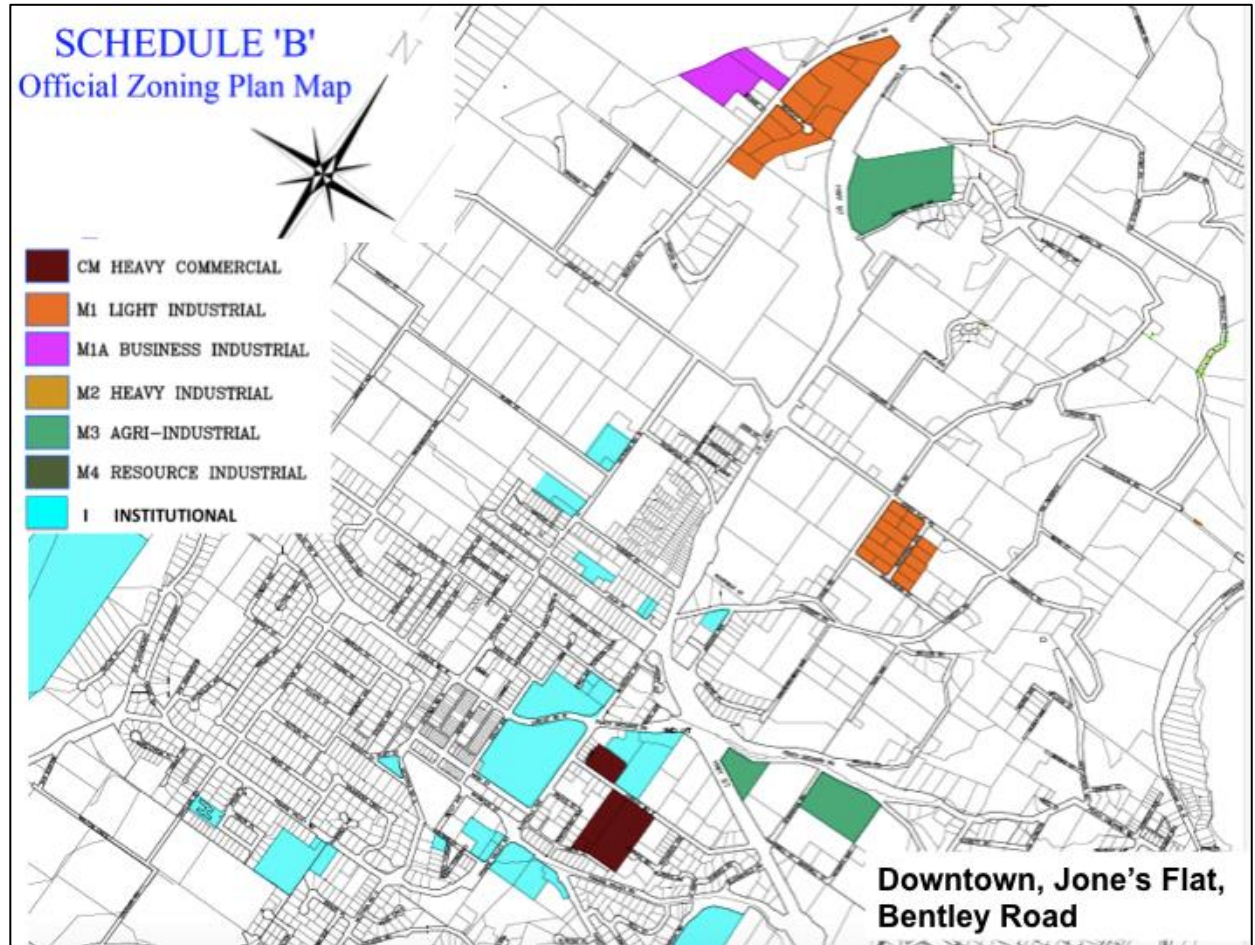
- **Opportunity: Awareness campaign to promote the value of agriculture.** An awareness campaign to promote the value of agriculture to the region can be created so that the public understands its importance both for land needs and economic impact. This campaign would include careers in the industry such as agriculture programs for primary and secondary schools to help promote agriculture at an early age and get kids excited about farming.

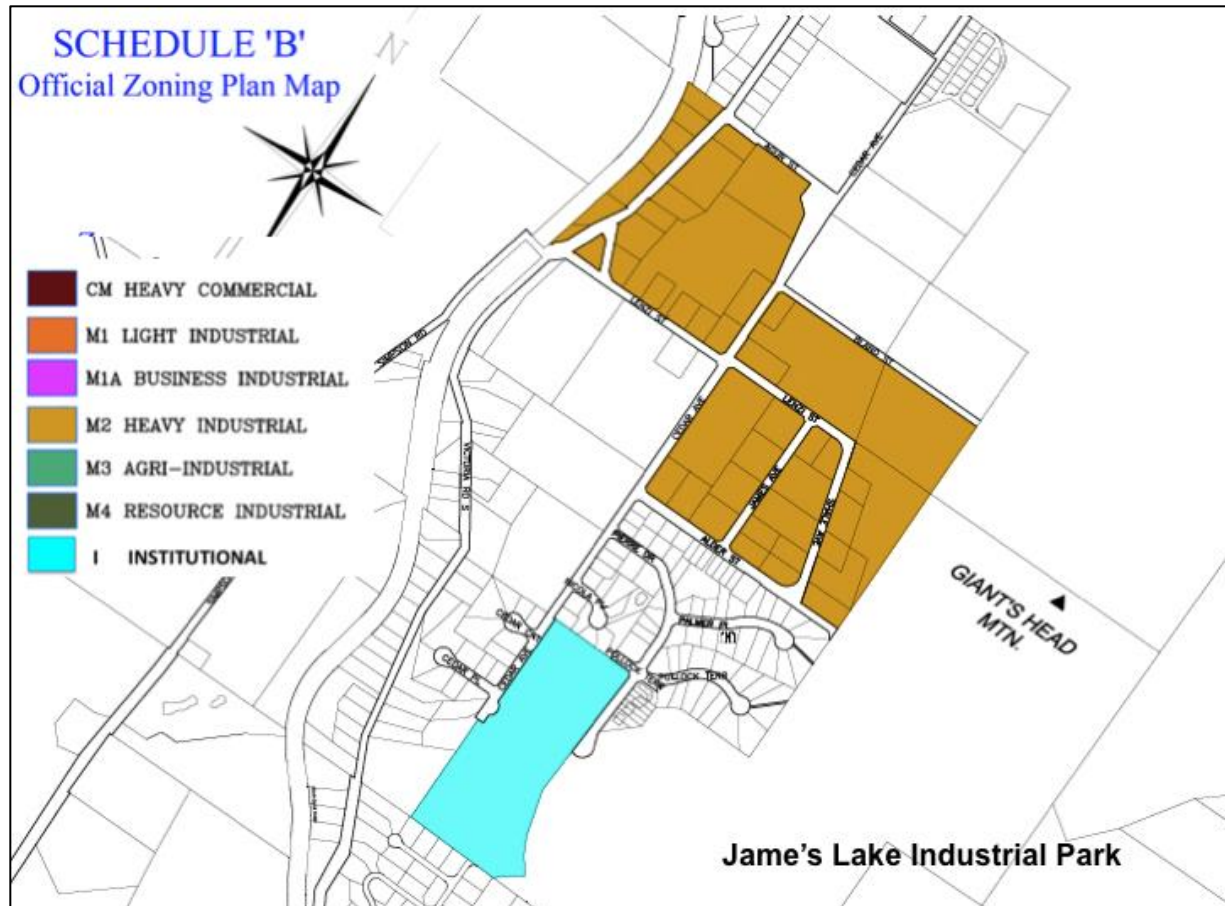
Appendix 5: SRDCs Potential Areas of Support in Research Expertise for the OAIC

The areas SRDC research scientists/managers can provide expertise and potential support for the Centre include:

- R&D transfer and agreements around the protection of that knowledge and royalties (but not commercialization of business);
- Food development (e.g. plant-based functional foods, nutraceuticals and bioactives; food ingredients; food, wine, fruit and vegetable quality, unique attributes and health properties; sensory evaluation); Ability to bring in other AAFC Centres;
- Food processing - Potential use of pilot processing facility at SRDC if industry identifies need for it;
- Food preservation, storage and safety;
- UAVs - drone technology - product development and testing
- Tracking software - R&D and testing
- Precision agriculture/farm management and machine-learning
- Pest management
- Water management
- Waste management
- Soil health/nutrient management, including use of GIS
- Virus detection - development of diagnostic tools and testing
- Genomics - testing tools and access to the Canadian Plant Virus Collection

Appendix 6: Summerland Official Zoning Plan Map





Appendix 7: Breakdown of Potential Sub-sector Targets for IAS Strategy with NAICS Codes

Note: This list should be prioritized and vetted through the Project Committee and SOSEDS to ensure targets will enhance the region's current offering and competitiveness.

Agriculture

- Specialty/niche crop farmers – [018]
- Support activities for crop production [115110]
- Viticulture and winery equipment suppliers [453992]
- Laboratory testing and samples distribution services [62151]
- Precision farming software and equipment suppliers (e.g. diagnostic equipment, drones and virtual fencing) [62151] -medical and diagnostic laboratories; [417930] - professional machinery, equipment and supplies; [115116] - Farm management services
- GIS laboratories and consultants; [541370] - Surveying and mapping
- Suppliers of preservation and storage systems for tree and specialty fruits; [311400]
- Functional foods and nutraceuticals processors/manufacturers; [325410] - Pharmaceutical and medicine manufacturing and SIC code 2833 – Medical chemicals and botanical
- Specialty distribution businesses for specialty products [413, 41319] - Other Specialty-Line Food Merchant Wholesalers
- Safety equipment dealers/manufacturers [417930]
- Medication Marijuana producers (if adopted by the region) [446110]
- Natural and organic sprays for disease control [325199]
- Agricultural supplies merchant wholesalers [4183]
- Grain and oilseed milling [3112]
- Non-conventional oil extraction [211114]
- Green technology service providers/equipment for separation, extraction, fractionation and bioconversion of ag products [417930] – professional machinery, equipment and supplies
- Clean energy windmill/solar equipment (component) manufacturers and installers – [238220 and 238222]
- SIC codes 7699-32 – solar energy equipment and systems – service and repair; 5074-07 - solar energy equipment and systems-supplies/parts; 3433-05 – solar energy equipment manufacturers; 5074-05 solar energy equipment-wholesalers

Food and Beverage Processing and Manufacturing

- Fruit and vegetable preserving and specialty food manufacturing [3114]/ Fruit and vegetable canning, pickling and drying [311420]
- Food/beverage processing and equipment manufacturers [333241]
- All Other Industrial Machinery Manufacturing (including cheese and coffee processing machinery) [333299]
- Bakeries and tortilla manufacturing [3118]
- Snack food manufacturing [31191]
- Coffee and tea manufacturing [31192]
- Confectionary manufacturing [3113]
- Flavouring syrup and concentrate manufacturing [31193]
- Seasoning and dressing manufacturing [31194]
- All other food manufacturing [311990]
- Beverage manufacturing [3121]
- Breweries [31212]
- Distilleries [31214]
- Agricultural implement manufacturing [33311]
- Material handling equipment manufacturing [33392]
- Fertilizer manufacturing [32531]
- Pesticide and other agricultural chemical manufacturing [32532]

Appendix 8: Government Funding Programs Not Accepting Applications but Should be Considered in 2018 if Programs are Renewed

	NRC-IRAP's Canada Accelerator and Incubator Program (CAIP)	IAF's GF Market Development Program (MDP)	IAF's GF AgriInnovation Program (AIP)
Funding/Grant Amount	Funding has been fully committed and no longer accepting applications. CAIP is a contribution program and not a granting program. CAIP recipients must match program funds 1 to 1 with funds from other sources. Matching of funds can include in-kind contributions.	Funding has been fully committed and no longer accepting applications. Funding normally will not exceed \$2.5 million per year. May be required to contribute up to 50% of the cash costs of project. Eligible projects may be funded up to 100% in cases where the potential benefit to industry is substantial.	Funding has been fully committed and no longer accepting applications. Funding is expected to be cost-shared, with significant potential for net benefit to the industry. May be required to contribute up to 50% of the cash costs of project. Eligible projects may be funded up to 100% in cases where the potential benefit to industry is substantial.
Funding From Other Government Programs	They expect to have partnering contributions.	When including funds from other government sources to meet the Applicant's 50% share, the stacking limit must be respected. The maximum level of total government funding will generally not exceed 85% of eligible costs per project. In-kind contribution can include staff salary/wages to undertake direct project activities.	This program cannot duplicate the federal AgriInnovation Program. The maximum level of total government funding will generally not exceed 75% of eligible costs per project.
Eligibility	Accelerators and Incubators must show how they will expand their range of program and services (e.g. how early stage firms become investment ready, benefit from innovation support resources such as expertise and networks, and create wealth in Canada.	Must be registered to do business in BC.	Must be registered to do business in BC. There are two types of investments: those targeted at research and development activities that bring innovation to the sector; and the Enabling Commercialization and Adoption Stream, which supports projects that prepare for the commercialization of an innovative technology, process or product through commercial demonstration, commercialization or adoption.
Application Deadline	Applications are now closed. Program is currently being evaluated.	Applications can be submitted at any time until September 30, 2017 or until all funding has been fully committed.	Applications are now closed. Program had a continuous intake.
Project/Activities Completion Date	This is a five-year program, ending in 2019.	This is a five-year program ending on March 31, 2018. They will most likely announce the new program in the fall 2018.	This is a five-year program ending on March 31, 2018. They will most likely announce the new program in the fall 2018.
Formalization of Organization - Must have financial statements and be incorporated	✓	✓	✓
Select Eligible Costs	Salary costs, overhead costs, professional fees/rates, contractor fees, travel and living expenses, operating and maintenance expenses. Non-eligible costs were capital expenditures including the purchase of land, leasehold interest in land, or the payment of property taxes.	Development and implementation of market development and branding strategies. Industry-wide branding, promotion and advertising. Incoming, outgoing and exploratory missions. Participation or attendance in trade fairs/shows and conferences. Market research. Technical support services which facilitate entry into markets. Does not cover product development and commercialization.	Covers administration, salaries/benefits, contracted services, travel, capital/Assets, other direct project. Does not cover building/land. Covers industry-led initiatives to research, pilot, and/or adopt new products, processes, practices or technologies that promise significant potential to enhance the sector's competitiveness, productive capacity and sustainability. Does not cover activities related to medical marijuana or farm start-ups/businesses.
Partnerships	Not indicated.	Not indicated.	There are no partnership requirements, there are stacking limits for other government funding.

Appendix 9: Selection Criteria that APBI Leduc, THRIVE and Sprout X Use to Screen Applicants into their Incubator/Accelerator

APBI

The criteria for attending the APBI incubator are:

- Must be a new or expanding business;
- Must have a complete business and marketing plan in place and available for review;
- Must be capable of meeting and ensuring compliance with all CFIA regulations;
- Must have HACCP plans in place prior to initial production;
- Must have adequate resources to pay rent, wages, supplies and overhead;
- Must have a plan for graduating from the Incubator at the end of the lease agreement;
- Should show capacity for managerial competence;
- Should be open to coaching;
- Should demonstrate a need for incubation services;
- Should have space and utility requirements compatible with incubator capacity; and
- Should not be in competition with existing incubator clients.

THRIVE

At THRIVE in California, administrators conduct six months of interviews, surveys and discussions with corporate partners to define specific pain points facing agriculture companies. From those interviews, a framework is created in which to identify promising agri-tech companies. Once the framework is identified, the call goes out requesting applications from entrepreneurs. In 2017, Thrive received 136 applications from 40 countries. The 10 finalists were selected by THRIVE's corporate partners as they analyzed the fit with the year's theme and the product's innovation.

Sprout X

At Sprout X in New Zealand and Australia, the selection process looks at:

- Entrepreneurs & inventors developing new businesses and/or ideas that have a prototype or proof of concept of their product;
- Existing start-ups that are at early stages of growth;
- A team of two is a recommended requirement for acceptance into the programme
- Entrepreneurs with the following traits:
 - Willing to learn and take advice;
 - Good communication skills;
 - Great listeners;
 - Ability to work at speed;
 - Strong team work skills.