

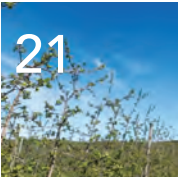
SUPPORTING GROWTH

IN THE PROVINCE'S
AGRICULTURE AND
SEAFOOD INDUSTRIES

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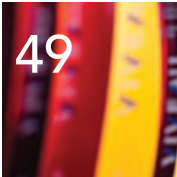
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MESSAGE FROM THE CHAIR



This year continued the trend of exciting and interesting developments for Perennia in a number of areas toward furthering our mission and vision.

We officially opened Bloom Labs, Nova Scotia's only Health Canada licensed cannabis analytical testing, at the Perennia Food and Beverage Innovation Centre.

As always, we work collaboratively with the Nova Scotia departments of Agriculture, and Fisheries and Aquaculture and continue to be a key partner with the province in undertaking and implementing development projects for the seafood sector.

Since 2000, the grape and wine sector has grown to more than 20 wineries and approximately 1,200 acres of grapes planted. In 2018 -19 we expanded our services and team with the introduction of a Wine Quality Specialist in partnership with Acadia University's ALAB. This has been another valuable addition to our wine team as quality is a priority, from vine planting to production practices to the winemaking itself.

It was our first full year for our still wine mobile bottling line and we were delighted to bottle 50,895 litres of wine in our inaugural year. We also received federal and provincial funding for a mobile

filtration line for still and sparkling wines and ciders this year with the expectation to launch that service for industry by fall 2019.

Our work managing a provincial wine quality standard project is leading to an internationally-recognized wine quality program for wines produced with Nova Scotia grapes.

I would like to thank all of our Board members, who once again showed how valuable their work is. They donated their time and expertise to guide Perennia in reaching our goals.

While the year was filled with success, it also marked the loss of Perennia Board member Dannie Hanson, who passed away in 2018. From everyone at Perennia, we share our gratitude for his vision and our grief with his family.

It is my pleasure to acknowledge Lynne Godlien who has been leading this team for the last two years as COO and Acting CEO. I am pleased to share the news

that she was appointed permanent CEO in March.

Finally, it is the staff with their wealth of expertise and insight in a variety of fields that makes this valued work possible. On behalf of the Board, thank you to everyone for the hard work you do every day to help farmers, fishers and food processors in the province.

A handwritten signature in dark ink, appearing to read 'C. Keddy'.

Charles Keddy
Chair,
Perennia Food and Agriculture Board



MESSAGE FROM THE CEO



This fiscal year was another exciting time for Perennia with new staff, service lines and new programs for industry. Our theme this year was growth. Perennia collaborated with more companies than ever to help them prepare for growth and enhanced profitability. Whether outgrowing home-based kitchens to growing export markets, our clients growing their own businesses means they're helping grow our economy. Perennia having any small role to play in that growth is incredibly rewarding for us.

As Nova Scotia's technical development agency supporting the growth of the Province's agriculture and seafood industries, Perennia operates in a wide variety of sectors, on a vast number of projects and initiatives. In 2018-19, we worked with a diverse array of clients, implemented development programs and undertook applied research in key areas.

This past year we secured funding and launched the Agri-Food Accelerator Program for agriculture producers and food and beverage businesses. In 2018-19 we also developed a proposal for a seafood accelerator program to help industry access new markets and develop value-added products. Our hope is that this will be approved and implemented in 2019-20.

Our Agri-Services team excelled while implementing the Agriculture Production Extension Program on behalf of the province. It is such an honour to lead a team that has changed over the years, and has transitioned the way we deliver the program in many ways, but that is so incredibly focused on the needs of each farmer they interact with and sector development.

The same level of dedication is evident in our seafood, food safety and product development teams. This year, our food safety team saw all our clients we prepared for audits pass with an 88 per cent or higher. We offered the leading public food safety training program in Atlantic Canada in partnership with NSF International from Guelph, Ont. This is a program we have offered for over 10 years, and we trained over 60 agriculture and seafood-based food participants in 2018-19. The team developed some exceptional content for producers and food processors including an in-depth publication on food safety considerations and best practices.

The priority of our seafood team this year to connect with industry on discovery trips in key fishery areas, and through trade shows, workshops and meetings was a huge success. They also undertook major development projects for the province in sector development, quality standards development, technology and managed the very successful Minister's Fisheries and Aquaculture Conference in Halifax in February.

The Perennia Food and Beverage Innovation Centre team was very busy in 2018-19 supporting clients with current products needing technical assistance with shelf life, flavour profiles and packaging. The team also did applied research for clients, lobster bait projects, analytical testing and developed new products like the new Blue Lobster vodka soda with Nova Scotia Spirits. In addition, the team worked with tenants at the Innovation Centre, and supported food processors by renting equipment for them to try in their businesses as they weighed the decision to buy their own, lowering their risk in making the important decision of purchasing expensive equipment versus its return on investment.

I want to thank all staff and our board of directors for all their work this past year, and I cannot wait for another successful fiscal term in 2019-2020.

A handwritten signature in dark ink, appearing to read 'Lynne Godlien'.

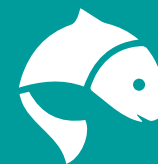
Lynne Godlien
CEO,
Perennia Food and Agriculture

OUR MISSION



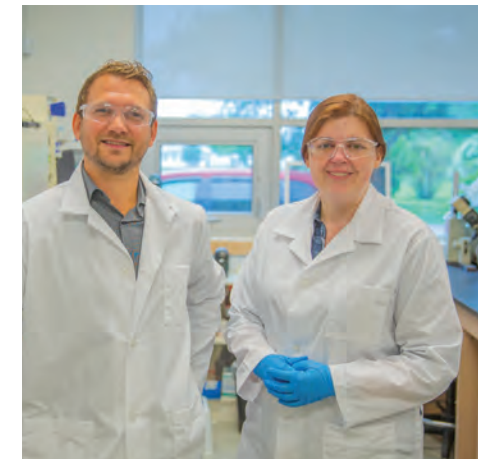
ABOUT US

Perennia Food and Agriculture Inc. is Nova Scotia's technical development agency for the agriculture and seafood sectors. The program, services and projects we implement and offer support the growth of these two sectors which are key provincial economic drivers and vital to the sustainability and growth of our rural and coastal communities.

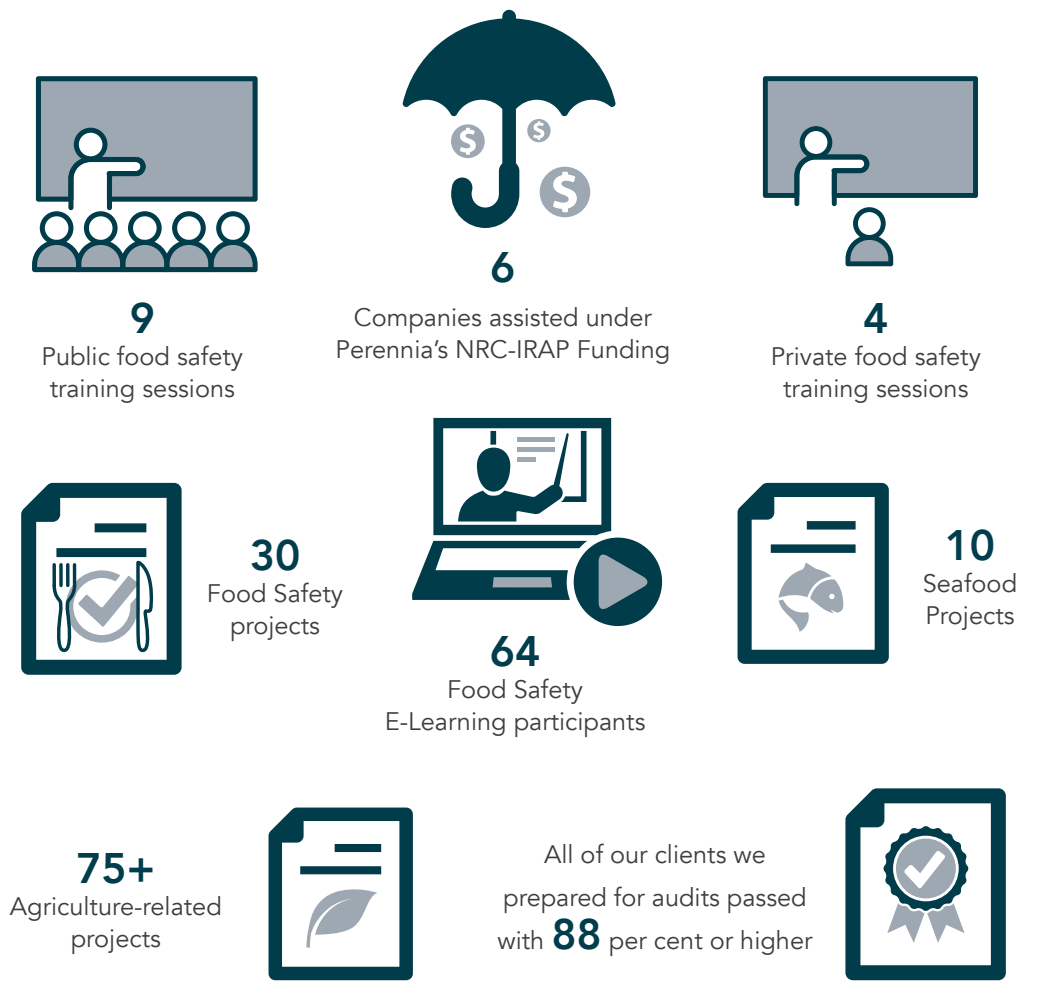
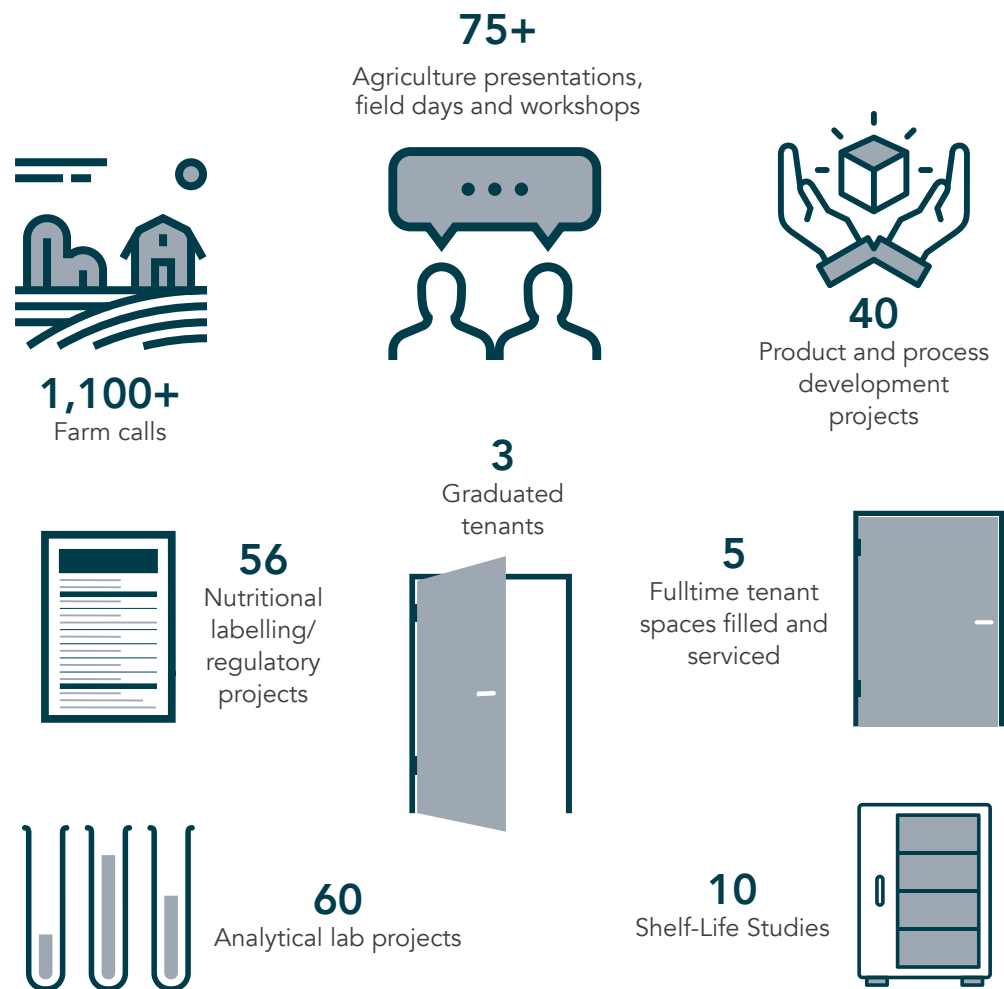


OUR MISSION

to support the sustainability and competitiveness of Nova Scotia's agriculture and seafood sectors



2018-19 METRICS



BOARD OF DIRECTORS

Perennia has an active board of directors, all of whom bring a wealth of business and industry experience, as well as vast experience on dozens of other business and not-for-profit boards.



CHARLES KEDDY, CHAIR

Charles Keddy is a first generation farmer operating C. O. Keddy Nursery Inc and Charles Keddy Farms in Kentville, Nova Scotia with his family.



NOËL DESPRÉS, VICE CHAIR

Noël Després is President & CEO, Comeau Seafoods Ltd and has over 30 years of progressive experience with Comeau's.



MILTON WOOD, TREASURER

Milton Wood is Director of Manufacturing with Oxford Frozen Foods Group. He also operates a very productive wild blueberry farm in the Oxford area.



BILL HAY, BOARD MEMBER

Bill Hay is Chairman of Trucorp Investments Limited, the company that owns and operates Bonté Foods Limited, a food manufacturing and retail company in Dieppe, New Brunswick and Grinner's Food Systems Limited in Truro.



VICTOR OULTON, BOARD MEMBER

Victor Oulton is part of WG Oulton & Sons Ltd located in Martock, Hants County. In addition to the Hereford beef cattle, the family-run operation includes a variety of other animals and a provincially inspected abattoir and poultry processing plant.



DON DOWNE, BOARD MEMBER

Don Downe has built a successful career as an entrepreneur, farmer and elected official in the Province of Nova Scotia. He has owned and operated a successful poultry operation, served as provincial minister for a number of departments, and also served as Mayor of the Municipality of the District of Lunenburg.



RÉAL SAMSON, PHD, BOARD MEMBER

Réal Samson is a past Director of the Université Sainte-Anne Bachelor of Education program, president of Collège de l'Acadie, a francophone community college and has held senior administrative positions with the provincial government. He is currently Director of Business Development for the Premium Seafoods Group.

We want to acknowledge the passing of one of our board members, **Dannie Hanson**, who passed away suddenly in July 2018. Dannie was a vocal and passionate advocate for Perennia and was Vice-President of Sustainability and Public Affairs at Louisburg Seafoods.

AGRICULTURE PROGRAMS AND SERVICES

Perennia's Agri-Services team develops and implements programs on behalf of Nova Scotia, undertakes development and applied research projects and also provides confidential consulting services to conventional and organic farm businesses. As part of the Agriculture Production Extension Program, specialists provide advice, information and skills development to support farmers in achieving success. The following specialities were offered in 2018-19: dairy, hog, beef, sheep, poultry, eggs, mink, field crops, berry crops, vegetables, viticulture, tree fruits and soils.



In 2018-19, our agricultural specialists undertook over 75 developmental and consulting initiatives. Here are some examples:

PLANT HEALTH LAB

The past fiscal year was a busy one for Perennia's wine services starting with the establishment of the Plant Health Lab. This project was funded by the Nova Scotia Department of Agriculture (NSDA) and was initiated in conjunction with Agriculture and Agri-Food Canada (AAFC) to establish a regional testing lab for grapevine viruses. Perennia's objective for this project was to test newly-planted blocks funded under the provincial Vineyard Development and Expansion Program for three viruses: Grapevine Leafroll-Associated Virus 1 (GLRaV-1), Grapevine Leafroll-Associated Virus 3 (GLRaV-3), and Grapevine Red Blotch Virus (GRBV). Throughout late summer and early fall, blocks in Kings County were sampled and screened in the new lab and testing confirmed the presence of all three viruses. Results were communicated to participating growers in advance of the 2019 Grape Growers Association of Nova Scotia (GGANS) Annual General Meeting, along with management recommendations.

Currently, Nova Scotia grape growers looking to independently test material from their vineyards must send samples out of province for virus testing. The Plant Health Lab service line was developed this past fiscal year to give growers a local option. Testing is currently available for the three grapevine viruses previously mentioned, with plans to expand screening to more viruses and horticulture crops in the future. The service will start accepting samples late in summer 2019 and will provide growers with up-to-date information on the virus status of their vineyards, in combination with extension support from Perennia staff.

WINE QUALITY SPECIALIST

Perennia also hired a Wine Quality Specialist to work collaboratively with ALAB, Acadia University's Laboratory for Agri-Food and Beverage. When wine producers are sending samples to be analyzed at ALAB, they have the option to share their results with the Wine Quality Specialist and receive interpretations. This allows them to better understand their results and the impact on the quality of their products. The specialist also worked with wineries to design a new style of wine (pétillant-naturel) with innovative packaging and a project to design and produce a traditional method sparkling wine from local grapes.

NURSERY INSPECTION PROGRAMS

Perennia delivered the Strawberry and Raspberry Nursery Inspection Program on behalf of the Nova Scotia government. This inspection program allows nurserymen to sell plants to customers, with third party inspections and traceable reports. This program has some of the highest inspection standards in North America. It also serves to reduce risk for nurserymen, by limiting the risk of pest infected plants being shipped to customers.

PROTECTING STRAWBERRIES

The strawberry aphid/virus monitoring project is an ongoing program that was established in 2013 in response to a provincial strawberry virus outbreak. The project is a collaboration between Perennia, Horticulture Nova Scotia and NSDA, as well as strawberry growers province-wide. Strawberry fields were monitored in 2018-19 to track aphid population size and flight periods (highest risk for virus transmission). Strawberry virus sampling was also performed in late summer and fall to test for virus infections in new strawberry plantings. The project informs strawberry growers when there are high-risk periods for virus transmission, so that controls may prevent the further spread of virus.

TERROIR STUDY

The three year “Terroir Study of the Wine Growing Region of Nova Scotia” is now in its second year and is assessing which grape varieties are more suitable for Nova Scotia climatic conditions. The study covers four main areas located in the Annapolis Valley in 14 different established vineyards and eight grape varieties including hybrids and *Vitis vinifera*. When the study is complete in 2020, it will allow grape growers to have current and accurate information about soil, climate, phenological stages of local grape varieties, as well as how to evaluate this information in order to use in vineyard management.

NOVA SCOTIA QUALITY WINE STANDARDS

On behalf of NSDA, Perennia completed the second phase of the Nova Scotia Quality Wine (NSQW) Standard Development project. The required committees and working groups were set up to create a NSQW (technical) document tailored to Nova Scotia’s needs, in addition to obtaining the research and background documentation required to ensure that the standard would be consistent with national and international requirements for a top tier quality wine standard. Simultaneously, the project contractors oversaw the development of a plan for a full Quality Wine Standard System that would implement and enforce the NSQW Standard.

AFRICAN NOVA SCOTIA AGRI-PROJECT

The objective of the African Nova Scotia Agri-Project is to create new value to existing farm and seafood industries, and general food production; as well as to support new farm businesses in the province’s African communities. During 2018-19, the project received in highest number of inquiries to date and undertook a number of exciting initiatives. Hope Blooms worked with the older youth at the East Preston Daycare Centre, and the Sunday school students at East Preston Baptist church to rejuvenate the old church garden into a community garden. Hope Blooms will harvest the first blooms of dandelion-flowers from the church, the Black Cultural Centre, and the AKOMA Family Centre-

lands. These flowers will be harvested, stored and used in the production of new herbal teas. The We Grow Preston Group started a children’s ‘Bee Farm’ on a Bell street lot. The Creative Farm Project at Centerville is doing aquaponics farming with Tilapia, herbs and specialty vegetables. And, project staff are working with two African immigrants, one from Alberta and the other from Newfoundland and Labrador. Both have elaborate plans and are aggressively looking to acquire land.

THINK EXPORT

As a result of feedback received at the 2018 Wine and Grape Networking Conference, an export information session was held on February 19, 2019 specifically designed for the wine sector. Nova Scotia Business Inc.’s (NSBI) “Think Export – the Wine Edition” included tours of the new location for Acadia University’s ALAB with details on each piece of equipment for tour participants to read as well as details about Perennia and Acadia’s services available for vineyards and wineries. There were 30 people in attendance. Members of the wine industry reported being better informed about the requirements for exporting product and were connected with specific people at other organizations who could assist them should they choose to export. In addition, there was an increased knowledge of the wine testing services available at ALAB and the Wine and grape related services of Perennia. The session was a hit with participants who gave it a 98 per cent success rating. Session partners were Perennia, Acadia, NSBI, NSDA, AAFC, Canadian Food Inspection Agency (CFIA) and Export Development Canada (EDC).

SHEEP PRODUCTION SUPPORT

In 2018-19, Perennia presented three Improving Lamb Survival and Ewe Nutrition workshops in partnership with the Sheep Producers Association of Nova Scotia. The sessions were very well attended with 100 producers participating. The workshops focused on ensuring the lambs got off to a good start and how to save hypothermic and starving lambs. The response was very positive and many producers have indicated that they have saved



lambs because they attended the workshop. In the fall of 2017, Perennia lead an information trip to Ontario with three sheep producers where they visited several large sheep operations. Two of these producers have undertaken expansion in the 2018-19 year. One of these producers expanded from 30 ewes to 300. The second producer has renovated their barn and installed a feed mixing system that has allowed them to improve their sheep and cattle nutrition and feeding efficiency. They have begun their flock expansion increasing from 50 to 150 ewes with plans to expand to about 500 in the next couple of years.

OVERWINTERING OF HONEY BEE COLONIES

This year Perennia’s Atlantic Technology Transfer Team for Apiculture conducted a project “Evaluating the Effect of Fall Feeding Pollen Substitutes on the Growth and Overwintering Strength of Honey Bee Colonies in Nova Scotia.” As part the project, the team tested the effect of feeding pollen substitutes in the fall of 2018 to honey bee colonies on colony growth and overwintering success near Truro. Two types of pollen substitute, in addition to a control group, were tested across 96 colonies. The late summer is particularly important as this is when ‘winter bees’ in the colony are being reared and require adequate pollen, which provides protein. When completed, the study will provide beekeepers with information on if and when to feed pollen substitute in the season and any potential impacts on overwintering success.

QUEEN REARING CASE STUDY

Few beekeeping operations in the Maritimes are currently producing their own queens to the point of self-sustainability. In 2018, Perennia established a multi-year queen rearing case study in New Brunswick to evaluate if on-farm rearing of queens could be economically viable and worthwhile for beekeepers. This year Perennia successfully reared nearly 400 queen cells, conducted hands-on queen rearing training, initiated queen rearing in several commercial beekeeping operations across the Maritimes, and conducted a preliminary cost analysis for queen rearing. The team is working with beekeepers to select superior genetics, better understand the need for queen sustainability in the Maritimes, and transfer education and technology about queens.



ENHANCING DAIRY COMPETITIVENESS

The dairy sector is very important to Nova Scotia's agriculture industry and in 2018-19, Perennia undertook two key projects to support enhanced competitiveness in the sector.

In the dairy sector, there is precious little information on the cost of production in dairy farming in Canada, let alone Nova Scotia. This past year, Perennia conducted meetings across the province to introduce producers to a web-based program used in the United Kingdom, which has been converted for use in Canada. Producers enter monthly physical and financial data and, once each year, enter all overhead costs to establish Cost of Production for the entire farm business. Monthly reports are generated to track performance and benchmark with other producers in the province. To date, 15 producers are active with the program and group meetings are being held to discuss the figures.

Transition Cow Monitor (TCM) is an important data model which acts as an early warning system of potential metabolic disease in cows. Cows are assessed at regular intervals through transition and TCM will flag cows needing attention, or that simply need to be monitored. This takes away the need to have a person do the recording and the potential for inconsistency which that creates. Adopting TCM could save the average Nova Scotia producer over \$15,000 annually by identifying problems that could lead to metabolic disease. In 2018-19, Perennia continued in the discovery phase in assessing the best way to make TCM available to a large number of producers.



ALFALFA RESEARCH TRIALS

Roundup Ready/Low Lignin alfalfa has increased in popularity due to its improved ability to maintain quality with a wider harvest window. In the Maritimes, it is common practice to add a grass species with the alfalfa to protect against losses from winter kill and increase yield. With changes in the harvest window, there is uncertainty as to which grass species to pair with the low lignin alfalfa. In the fall of 2017, plots were established with six species. In summer 2018, yield and quality samples were taken from these plots during each harvest. As a result, depending on the number of cuts, either tall fescue (three cuts) or orchard grass (four cuts) would give the greatest yield and quality.

BIOSECURITY NOVA SCOTIA REVAMP

Perennia initiated a multi-year project to enhance and develop the Biosecurity Nova Scotia website. Having easy access to practical biosecurity-related resources and information is imperative as the Nova Scotia agricultural industries manage day-to-day risks on their crop and livestock operations. Through this federal-provincial funded project, Perennia will overhaul the Biosecurity Nova Scotia website and develop a wide range of resources, inclusive of horticulture, field crop and livestock industries.

FIRE BLIGHT DISEASE INFORMATION

In 2018 efforts continued to maintain low levels of fire blight disease infections in tree fruits. Questionable tissue infections were collected, analyzed and results shared with growers for timely management of a devastating disease. Weather conditions were monitored, and fire blight infection alerts and recommendations were provided to the industry during high risk periods.

VINEYARD SITE ASSESSMENTS

The Nova Scotia Vineyard Development and Expansion Program is a provincially funded program that aims to assist the Nova Scotia wine grape industry to better position the Province within the marketplace. For growers wishing to access some funding streams, the first step is to complete a site assessment of their property to determine whether it is suitable for grape production. Perennia has been providing this service to the program since it began in 2015 and has been the sole provider since 2017. These site assessments include in depth information on soils and recommendations on which varieties will perform best. In 2018, Perennia conducted 11 partial site assessments (additions or renovations to existing vineyard properties) and 17 full site assessments on new properties for wine grape production.

VINEYARD ACREAGE CERTIFICATION

The Nova Scotia Wine Standards Regulations require that all farm wineries meet acreage minimums, production standards and location eligibility for fruit produced on their farms. The Vineyard Acreage Certification Committee, consisting of NSDA, Perennia and GGANS representatives, visits each farm winery in the province to determine that these requirements are being met. In 2018, the committee was tasked with a pilot project to visit all non-grape wineries that fall under the regulations but that had not been receiving an annual certification visit. In 2018, the committee visited 21 grape winery locations (existing and new applications) and six non-grape winery locations (small fruit/cideries/meadery) across the province.



ATLANTIC SOIL HEALTH LAB

Perennia is a partner with The Atlantic Soil Health Lab, which is funded by the Agricultural Greenhouse Gases Program. The program provides analytical support for research in the development and characterization of soil health in Atlantic Canada. Other partners on the project include Fertilizer Canada, the PEI Department of Agriculture and the Nova Scotia and PEI Federations of Agriculture. Researchers and extension agents will be working directly with the agricultural community to assess soil health, carbon storage capacity and soil nitrogen supply as a basis for greenhouse gas mitigation planning. The four-to-five-year project, which started in 2017, will involve visiting farms across Nova Scotia, New Brunswick and Prince Edward Island, testing soils and talking with farmers about the soil management practices they are currently using.

PEI FARM TECHNICIAN APPRENTICESHIP PROGRAM

The PEI Farm Technician Apprenticeship Program was developed in consultation with the PEI Agricultural Trade Advisory Committee and offers a two-year registered apprenticeship program



which combines classroom learning with on-farm experience, earning students a Certificate of Qualification in Farm Technician by the PEI Department of Innovation and Advanced Learning. Apprentices work throughout the year gaining skills on-farm with a farm mentor in addition to participating in five weeks of in-class training delivered by Extended Learning, Dalhousie Faculty of Agriculture in PEI. Through a contract with Dalhousie Faculty of Agriculture, Perennia developed and delivered the four-day Soil and Nutrient Management component of the training. Students in the program have the option to become a Blue Seal Certified Farm Technician upon successful completion of the program. Nova Scotia hopes to have a similar program up and running by 2020.

SWEDE MIDGE AND LEEK MOTH MONITORING

Pests can be incredibly devastating to vegetable crops. Based on research confirming two new invasive species were present in Canada, a monitoring project was established to detect leek moths and swede midge by trapping at sites across Nova Scotia. They were recently established in New Brunswick and affect alliums and brassicas. The project was implemented in



collaboration with NSDA and AAFC. Pheromone traps were set up at allium and brassica field sites and collected on a weekly basis. It was confirmed leek moth is present in the province, but that swede midge is still absent. The project informed growers of when these new pests are present, allowing for controls to be implemented.

WESTERN BEAN CUTWORM GROWER MEETINGS

In fall 2017, western bean cutworm damage was confirmed in Nova Scotia's corn crop. Before then, this was not a recognized insect pest in the Maritimes. This insect chews on the corn cob, creating channels for Giberella infection which causes myco-toxins in the grain. In winter 2018, Perennia hosted several grower meetings on this issue, and in summer organized seed companies and NSDA staff to monitor the pest. As a result, about 750 acres of highly infested acres were identified and sprayed in the Annapolis Valley.



PESTICIDE APPLICATION REFRESHER

This past year Perennia hosted a one-day pesticide application refresher for wild blueberry growers as part of a larger initiative to improve pesticide application across the industry and the wild blueberry sector specifically. The larger initiative includes sprayer calibration sessions, updating pesticide guides, sector specific talks etc. For this component, Perennia developed and delivered a five-hour session on all aspects of pesticide application with specific focus on the challenges of wild blueberries. More than 70 growers attended with over 90 per cent saying they will be changing practices based on the workshop.

FRUITLET THINNER TRIAL

This past year Perennia worked with the Nova Scotia Fruit Growers' Association to trial a new fruitlet thinner that has potential to become a crop load management tool. The trial was done at Eisses Farm Ltd. to demonstrate the efficacy of the product in the Annapolis Valley. The product will soon become registered in Canada and growers in Nova Scotia were among the first to have access to public trials.





PERENNIA HELPS
BRING EFFICIENCY
AND GROWTH TO
**FOLLY
RIVER
FARM**



When Lauchie and Jolene MacEachern took over a farm they worked on seven years ago, they never imagined how technology would completely change their work.

Primarily a dairy farm, Folly River Farm, located in Debert, Nova Scotia, spreads over 300 acres, with 85 cows. After years spent milking cows three times a day, the couple looked to technology to make the process more efficient.

A funding program was offering grants for new projects and the farm qualified in the lottery-style draw, allowing them to make the investment in robots. But it was the groundwork Perennia helped implement, with animal comfort and stability that allowed for everything to come together.

"We had always heard great things about Perennia," Lauchie said. "When our sales manager retired, he suggested we reach out to them and they've been offering their guidance and helping us improve ever since."

From changing rations to better quality silage, changing the cows' stall dimensions, the neck rail heights and getting more lights in the barn, each little change recommended helped productivity.

"The more comfortable the cows are, the better production is," he said. Even when the robots



came in, Perennia advised on how far the robots had to be from the cows and provided resources for the MacEacherns to review. "Perennia ensured we could make informed decisions and know what was best for the cows."

"The work we've done with Perennia has allowed us to grow substantially since we purchased the farm. We've increased production by 40 per cent without increasing our herd size."

Because of the dairy consulting services provided by Perennia the MacEacherns now have more free time, a rarity for most farmers, they're falling into easier routines and are able to take on other things, like growing grain corn, barley, soybean, clover and alfalfa.

"Perennia checks in every two weeks, and they're always there to bounce ideas off of. We have great relationships with these people who are experts in their fields," he said. "When we have problems, we can call, get opinions, and having them as part of our team makes our decisions a lot easier. Perennia will be in our future for a long time to come."

A woman with blonde hair, wearing a blue jacket and brown gloves, is using long-handled pruning shears to trim a tree branch. The background is a clear blue sky.

SPURR BROTHERS

TACKLED REPLANTING ISSUES IN ORCHARDS THROUGH PERENNIA

When a crop disease began appearing through their orchard in the summer of 2018, Spurr Brothers Farms Ltd. asked Perennia to get to the root of the problem.

The mixed fruit and vegetable farm in Kingston, Nova Scotia was dealing with replant disease. This occurs when a plant is replaced with the same type, but the new plant does not thrive or grow properly.

"A couple years back I put in a planting, which was mostly Honeycrisp apples. The rootstock they were on were supposed to be tolerant to replant disease," said Lisa Jenereaux, co-owner of Spurr Brothers.

"But the second year, we noticed a difference in the height of the trees, and some of them started to collapse. I was surprised because I thought we did everything the way we were supposed to. It was also an irrigated site, so it wasn't from stress or lack of moisture."

With five family members on the farm and 1,000 acres at stake, the family wanted to ensure continued productivity on all their sites for orchard, potatoes, onions, carrots and grain crops.

They went to Perennia for advice on how to identify and treat the issue. With Perennia's support, they began trials in the orchard to determine which treatments would be most effective.

Perennia experts conducted small-scale demonstration trials. Measurements of tree performance were also taken, which allowed results to be quantified and treatment options to be recommended.

What Spurr Brothers also realized was that this was a problem facing more orchards in the area. "It's an issue facing all growers in the Annapolis Valley. So this preliminary work helps guide decisions when we put together a larger trial," she said. "If we can work toward larger trials and get more comprehensive results to guide growers, it will be huge for the industry."

Lisa said Perennia's invaluable guidance and research can help future growers get things right the first time. "There's a lot of enthusiasm, energy and knowledge at Perennia. We're happy that we can tap into that, and that this resource is there for us."

Lisa is excited about the future of the farm and industry in the Annapolis Valley. She hopes the work with Perennia will lead to a more healthy crop, and is now looking at the introduction of new technologies. "We're planning to bring automation into the farm. We have one platform for apples and we're looking at getting another. We're also looking at a robotic weeder, which would help us by saving on costs."



"There's a lot of enthusiasm, energy and knowledge at Perennia. We're happy that we can tap into that, and that this resource is there for us."



SEAFOOD PROGRAMS AND SERVICES

Perennia's Seafood team undertakes development projects on behalf of the Province of Nova Scotia, develops projects with industry and works closely with Perennia's Quality and Food Safety, and Product Development teams on consulting projects with seafood businesses.



In 2018-19, our seafood development specialists undertook developmental projects, travelled several thousand miles meeting with and connecting with processors and harvesters and making presentations to create awareness about Perennia services for the seafood sector.

NOVA SCOTIA DEPARTMENT OF FISHERIES AND AQUACULTURE MINISTER'S CONFERENCE

A key event for the industry is the annual Nova Scotia Department of Fisheries and Aquaculture Minister's Conference. This was the 21st year for the conference and Perennia was the event organizer. As such we worked closely with the Nova Scotia Department of Fisheries and Aquaculture (NSDFA) staff and the Minister, the Honourable Keith Colwell, to design and execute the event. In three years, it has expanded from 125 attendees to more than 400 this year, with over 50 trade show booths at the new Halifax Convention Centre. The conference featured breakout sessions for the first time and covered topics such as currency and how it affects profit, succession planning and information on how statements in the media can affect profit.

Based on surveys at the conference:

- 84 per cent rated the trade show as very good to excellent
- Conference attendees indicated the number one reason they attend is to learn new information;
- 92 per cent of survey respondents rated the speakers as very good to excellent; and
- 100 per cent rated the conference as very good to excellent





LOBSTER AUTOMATION PROJECT

Our specialists, in partnership with an engineering firm, continued work on a lobster automation project to develop a prototype to quickly estimate the meat fullness of live lobster. Full meat lobsters are a premium product and also are able to withstand transport times to Europe and Asia in top quality condition for international clients. Work will continue on this project into 2019-20.

QUALITY CRITERIA FOR FROZEN LOBSTER

Perennia's seafood development specialists and members of the food safety team developed quality criteria for frozen lobster in conjunction with the Province's live lobster quality standards. This is part of a larger project Perennia is involved with along with the Nova Scotia Department of Fisheries and Aquaculture on the implementation of quality seafood programs linked to the use of the province's seafood logo by seafood companies.

CATCH TO PLATE PROJECT

Perennia also signed a Memorandum of Understanding with Université Sainte-Anne and began work with them and the North Bay Fisherman's Co-op on the next phase of the Catch to Plate Project, a quality handling and holding initiative for live lobster.

SEAFOOD ACCELERATOR PROGRAM

This fiscal year, we developed a proposal for a Seafood Accelerator Program to support the export potential of seafood products. If approved, this program will support seafood business in adopting internationally-recognized food safety programs to open new markets, and develop value-added products with an emphasis on using by-products to create higher margin products.

CENTRE FOR MARINE APPLIED RESEARCH

The Centre for Marine Applied Research (CMAR) was established to focus on areas of research and collaboration to propel the NSDFA's aquaculture growth strategy forward.

In 2018-19, CMAR continued to develop its ongoing biophysical data collection project involving the deployment and monitoring of sensors in the coastal waters of Nova Scotia. This information is being collected with the intention of supporting science-based decision-making in the optimal development of our coastal resource. Over the past year, CMAR has continued to expand sensor coverage along the coast of Nova Scotia. CMAR currently maintains over forty deployed subsurface sensor stations from St. Mary's Bay to Lennox Passage. The Coastal Monitoring Program incorporates equipment from Realtime Aquaculture and Vemco.

In early 2019, CMAR initiated a nearshore ice monitoring and analysis project in partnership with the Nova Scotia Community College Applied Geomatics Research Group. The purpose of the project is to conduct research on best practices for mapping and monitoring nearshore ice in coastal Nova Scotia. In the initial phase of this project in the winter of 2019, four study areas were identified and satellite imagery, UAV (unmanned aerial vehicle) and helicopter imagery was collected. Historical data for the four areas was also compiled and analyzed.

In collaboration with NSDFA and aquaculture industry representatives, CMAR has partnered in a collaborative exposure modeling project to quantify the wave and current climate around coastal Nova Scotia. In the winter of 2018-19, CMAR undertook an initial campaign of Acoustic Doppler Current Profiler deployments in order to collect data for the first winter storm season of this two-year project. Storm activity can vary in its scale, severity, predictability and intensity depending on the time of year and location along various coastal regions of the province. This project will provide robust modeling and validation to better inform storm planning and aquaculture siting, and will have applicability for aquaculture industry, municipalities, and other marine users in affected coastal regions.





ATLANTIC SEA CUCUMBER INC.

REACHES INTERNATIONAL SHELVES



When Songwen (Sam) Gao immigrated from Shanghai, China in 2012, he never imagined his new home in Hackett's Cove, Nova Scotia would also be the inspiration for his new business.

Atlantic Canada is the only place sea cucumbers, a part of the mollusc family, can be caught in the wild and Sam knew they were a delicacy in Asian markets. Widely thrown away by local fishermen, Sam's plan to cook, dry, then export the delicacies would fulfill an untapped market niche.

He inched closer to his dream when he teamed up with Perennia to have his product sold by an international food retailer. Perennia experts helped them with the company's food safety audit. After scoring a 97 per cent, Sam was in business. Thanks to Perennia, he had made it through the rigorous safety and inspection process for exporting his sea cucumbers and is now selling Nova Scotia sea cucumbers online across Canada through a major retailer.

Sam and Perennia worked together again to implement a Safe Quality Food (SQF) Program, which would allow Sam to export globally. The SQF is a high-standard food certification that began in Australia and is highly-regarded around the world. This means Sam's product will soon be on shelves in New York and California.

Perennia's guidance in 2018 in meeting audit and safety requirements was the impetus to expanding globally.

"Perennia has very professional staff who assisted and guided us to complete the new product from start to finish," said Sam.

Now, Atlantic Sea Cucumber Inc. is going after a large volume global supply that would skyrocket the market for their product. The first shipment of 7,500 lbs of sea cucumber shipped to Asian markets in May. The company expects this to increase more than ten-fold to almost 100,000 lbs by September.

As they prepare to export sea cucumber into China, Japan and Australia, the help they received from Perennia has prepared them for even greater success. They currently operate seasonally but expect to be running year-round soon and to grow beyond their current complement of 17 employees.

Sam is still amazed that Nova Scotia's sea cucumbers have attracted attention from buyers around the world and expects to continue to work with Perennia to research more value-added products.

QUALITY AND FOOD SAFETY PROGRAMS AND SERVICES

In 2018-19, Perennia's Quality and Food Safety Team undertook consulting projects in a variety of sectors including fresh fruits, vegetables, dairy (cheese), bakery, dry spices, poultry slaughter and processing, pet food, beverage (kombucha), beer, water, seafood and more.



PUBLIC FOOD SAFETY TRAINING PROGRAM

Perennia had a successful public food safety training program, hosting nine public training sessions for the food processing industry including HACCP I, HACCP II, Principles of Internal Auditing, Food Safety Preventive Controls Alliance (FSPCA), British Retail Consortium (BRC) Conversion and BRC Understanding. Perennia staff led five of the nine sessions. In total, 63 people attended the eight courses as registered participants with 17.5 per cent of represented companies from the seafood sector.

QUALITY STANDARDS DEVELOPMENT

In conjunction with the Nova Scotia Department of Fisheries and Aquaculture (NSDFA), Perennia worked on the Nova Scotia Seafood Quality Branding Project to develop frozen lobster quality criteria for five product categories frozen High Pressure Processed (HPP), frozen cooked shucked lobster meat, frozen cooked in shell, frozen blanched in shell, frozen raw lobster.

INFORMATION DEVELOPMENT

The team was also instrumental in leading the development of new content under Perennia's Agri-Food Accelerator Program, including a comprehensive 40+ page guide "Safe4Market – A primary producers, processors and storage operators guide to quality and food safety."



HEALTHY BERRIES

RIPE FOR THE PICKING



When Peter Kohler could no longer get his favourite berry puree because the company closed, he bought it, bringing Healthy Berries Inc. back to life. Seeing the opportunity to use wild PEI blueberries to create a Superfruit Purée, he hired Alison Carver as the General Manager.

"Healthy Berries knows the value of 'nothing added, nothing taken away', which is evident in our product," said Alison. "While many competitors remove the fruit's healthiest parts, we understood that the right technology would set us apart."

By utilizing TEKMAH technology, the entire berry is included in the puree product – the juice, peel, seed, and pulp. This process yields no waste. TEKMAH breaks down the organic material, making the berries' natural nutrition more readily absorbed by the body. The result is a ready-to-drink purée with over 850 Canadian wild blueberries in every bottle.

Knowing they had something unique, the team at Healthy Berries had to determine the best way to bring their product to market through a food safety program, but was unsure which one to choose.



To deliver a high-level and high-end product to consumers, the company looked to Perennia for guidance with an analysis to determine facility strengths and weaknesses. With Perennia's help, they decided on certification in the BRC Global Standards (BRCGS food safety program, formerly the British Retail Consortium). BRCGS was developed by retailers and is used by all types of organizations. It's a market leading global brand that helps build confidence in the supply chain.

"Perennia helped Healthy Berries reach our food safety program goals. From management to expert perspectives, and knowing the answers to our questions, we felt the pressure subside as we brought our product to market," said Alison.

This achievement was an incredible asset to the company, helping Healthy Berries stand out in the retail market. With their BRCGS certification, they've garnered a high level of respect and credibility from industry professionals.

As a result of the BRCGS certification, Sobeys has given Healthy Berries the green light to put their product in



Atlantic Canadian stores shelves by June. The BRCGS certification also allowed Healthy Berries to launch their product outside of Canada. They sent their first order into Asian market approximately a month and a half after certification was achieved.

"Achieving certification through our collaboration with Perennia gave our company and product credibility with retailers and distributors across the country, and now the world."



AGRI-FOOD ACCELERATOR PROGRAM

Mid-way through the fiscal year, Perennia received the exciting news that the Product Development and Market Access Accelerator Program (Agri-Food Accelerator Program) would be funded by the provincial and federal governments through the Canadian Agricultural Partnership.

The focus of this program is to:

- support access to new markets through skills development and information, as well as food safety support, analytical testing and training to meet scientific, retailer and market expectations for safe food; and
- support successful commercialization of Nova Scotia agricultural-based products through activities such as skills development, market feasibility studies, product development, production of prototypes, and scale up of food production.

Activities undertaken in the first year of this three-year program included:

- A food safety technician was hired, and a food safety resource page was created and populated with fact sheets, videos and links to reputable information sources for food entrepreneurs. Selected factsheets are being hosted on the Farm Markets of Nova Scotia vendor resource page as well.
- Safe4Market – A primary producers, processors and storage operators guide to quality and food safety was produced. Nearly 500 copies have been distributed.

- CanadaGAP workshops were held and well attended in two areas of the province.
- The food regulatory specialist made over 3,000 contacts with clients via phone calls, in-person, email, meetings, sample visits, and onsite work. More than 600 analyses were carried out through a variety of labs to ensure the safety of food in Nova Scotia.
- Five applications were received and approved under the Food Safety Obstacles to New Markets part of the program. One is pending, one client has not moved ahead with their project and three have been completed: CanadaGAP coaching for a greenhouse vegetable operation; a microgreens salad operation; and a general gap assessment for a meat operation.
- Two projects were undertaken in the Market Feasibility - Product and Packaging Validation component. The first was a confidential client project using production methods new to the client (a winery) and packaging not previously used in North America. The second project (wine gummies) was undertaken by the Innovation Centre as a demonstration of the types of projects that can be completed at the Innovation Centre with clients.
- Under the Technical Obstacles component of the program a solution has been worked out for a client (Phase 1). A second project was approved and will go ahead next fiscal if the client wishes to proceed.

The New Product Creator portion of the program had some notable successes. A new wine product was released by a client and a series of fruit spritzers was developed and released.

BROOK RIDGE FARM

BRINGING LOCALLY-SOURCED LAMB POT PIES INTO MARKET



"I will be able to sell from my home, in small retail shops, and at unique businesses."

When Rhonda McCarron introduced her lamb pot pies at the Antigonish Farmers' Market, they were a big hit.

Two years ago, Brook Ridge Farm, owned by Rhonda and her husband Ian, began making the pies with locally-sourced ingredients.

"They really caught on. We were cooking in the winter, spring and summer making five-inch, cook-from-frozen pies," said Rhonda. As the pies gained in popularity,

she wanted to sell them in more markets but nutritional labels on the pies were required before she could make that leap.

"Nutritional labeling allows us to move into different markets, but it also confirms product quality for all our customers," she said. "Our customers will know, based on those labels, that we undergo the same process with the same vegetables, same broth, and same crust with each pie. That's comforting for people to know."

The ProductSAFE program under Perennia's Agri-Food Accelerator Program included support for their Nutrition Facts Table and regulatory guidance services. Farmers and food companies using locally grown food ingredients are eligible for this support. Guidance and development of a Nutrition Facts Table opened the doors for Brook Ridge Farm to sell in new retail markets.

"Our lamb is local. We source our vegetables and herbs locally and

we make the pies from scratch," said Rhonda. "I will be able to sell from my home, in small retail shops, and at unique businesses. And maybe we'll sell to restaurants in the future. With Perennia's help, we've been able to really move forward with this venture."

With 250 ewes, they will have lambed more than 400 lambs this year. Rhonda says they're still sheep farmers first, but now also have this new venture.

From the day Perennia's experts came to her home-based business to review ingredients and processing steps for the pies, she's been impressed with their knowledge.

"They set me up to go in this new direction and we are working together well. The specialists are there for us and it's a positive working relationship."



HILL'S JAMAICAN JERK SAUCE

FINDS HOME IN SOBEYS STORES



"They helped us pass the certification, which will help us expand throughout Canada and the world."

When Paul Hill moved to Halifax from the Caribbean, there were two things he missed: the weather and the food. So he began to focus on the one thing he could actually change.

"I had been making jerk sauce for a long time and when I moved to Canada in 1994 I began making it for friends and family," he said. "It constantly evolved as I experimented with ingredients. Five years ago I went back to Jamaica and that's when things changed."

While in the market in Montego Bay where

his mother has a store, he was overcome with a savoury smell and discovered it was pimento. He took some home, put it in his jerk sauce and it totally changed the flavour.

"This was a turning point for me," he said. "My friends always encouraged me to sell the sauce and after that trip home, I began to take that idea seriously."

Paul, owner of Hill's Jamaican Jerk, carries medium and hot jerk sauces, and now three different barbecue sauce flavours. He began small and home-based. But when his sauce was introduced to Pete's Frootique in 2016,

it only took eight months before his sauce was on the shelves of 22 Sobeys locations.

Outgrowing his home kitchen, he began building a new 1,172 square food kitchen facility. Key to a successful expansion was getting Hazard Analysis and Critical Control Points (HACCP) certification, which would open up markets across Canada. That's when he approached Perennia.

"The Perennia team helped with the building specs, sourced products, advised me on things I knew nothing about, like materials for walls and floors, and they did the product testing and labeling," he said. "They helped us pass the certification, which will help us expand throughout Canada and the world."

Paul's vision for the facility has opened up opportunities for other food producers too. As the only facility of its kind in the area, he happily works with others on their products and co-packaging.

Before the new kitchen and HACCP certification, Paul's sights were set on Sobeys. With that achieved, he now has higher ambitions.

"Our next goal is to get the product across Canada. Then I'd love to export my product to Jamaica, the US and the UK. I wouldn't have these aspirations if it wasn't for the experts at Perennia."

PRODUCT DEVELOPMENT PROGRAMS AND SERVICES

The team at the Perennia Food and Beverage Innovation Centre works with agri-food and seafood companies to provide the following services: product and process development, value addition and commercialization, nutritional labelling, laboratory services, regulatory advice, ideation and concept design, and incubating new start-up companies leasing space.



PRODUCT AND PROCESS DEVELOPMENT

The team at the Perennia Food and Beverage Innovation Centre led several large product and process development projects including: three plant protein based treats that included none of the Canadian Food Inspection Agency (CFIA) listed allergens, a novel fruit based smoothie containing significant protein, a carbonated no sugar added fruit based drink, three alcoholic beverage flavourings with a local distillery, and a fermented cider prepared with locally available juice as a health benefit.

SENSORY RESEARCH

Perennia collaborated with the Acadia Centre for the Sensory Research, Wild Blueberry Producers of Nova Scotia, and Nova Scotia juice producers and bottling companies to complete and ensure commercialization activities. A trouble-shooting project with a blueberry industry company examined a technical problem causing separation of product and is ongoing into 2019-20. Another ongoing project examines alternative uses for a sweetener and will be literature-based with some process and product development for a company located in New Brunswick.

DETERMINING SHELF STABILITY

In 2018-19, staff determined shelf stability of three flavored maple syrups, blueberry sauces and puree, six different flavoured energy balls, a dried fish product using an all-natural preservative, donair sauce, hemp powder, alcoholic tea beverages, and artificial lobster bait. The determination of shelf life is often required as a client grows out of the farmer's market arena and into more commercial facilities. The shelf-life provides a "best before" date.

NUTRITION FACTS TABLES

Perennia Innovation Centre staff also provided 56 Nutrition Facts Tables (NFT) for various products and ingredients such as: jams, jellies, sauces, pickles, BBQ sauce, kimchi, beverages, cheese, herbs, dried sea cucumber, and more. The determination of an NFT is required as a client advances product sales to larger retail venues.

INDUSTRY TECHNICAL SUPPORT

In 2018-19, the Centre's team provided several instances of technical support to satisfy Health Canada and CFIA requirements for the food industry. This includes nutritional analysis, water activity and pH measurement, microbiology with funding assistance from the Nova Scotia Department of Agriculture (NSDA) provided for approximately 56 different clients.

SHELF LIFE AND SENSORY STUDIES

For the seafood industry the team at the Food and Beverage Innovation Centre worked with several fish and lobster clients to develop quotes for shelf life and sensory studies. A lobster processing company was provided with equipment and trained by staff to evaluate a new process and product that enabled increased export capacity. A sea cucumber client has utilized both the food scientist and received regulatory advice from staff to move their products to commercialization.



NATIONAL RESEARCH COUNCIL INDUSTRY RESEARCH ASSISTANCE PROGRAM

Perennia Food and Agriculture holds a National Research Council Industry Research Assistance program, Contribution to Organization Agreement to assist with a technical problem for an individual company and to provide a technical solution. In 2018-19 the Centre assisted six companies move their production and/or process development forward, including: formulation and shelf life of lobster bait; production of spray dried fermented blueberry cider; spray dried hemp oil; seaweed analysis for commercial use; herbs as a replacement for hops; and shelf life and sensory analysis of energy bites for increased commercial distribution.

TENANT GROWTH

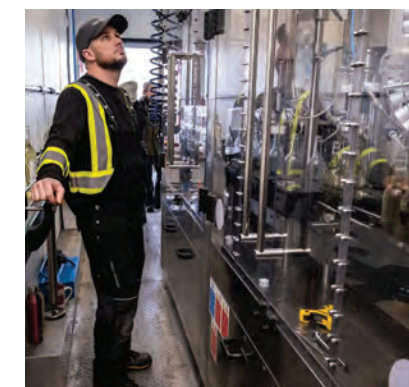
The Food and Beverage Innovation Centre graduated the following tenants in 2018-19: Agseed Technologies Inc., Pure Paint, TruLeaf Sustainable Agriculture Ltd., and Cannahort Agriculture Ltd. The graduation of these start-up companies is encouraging as it means they have outgrown the Centre and are moving towards further commercialization and economic development.

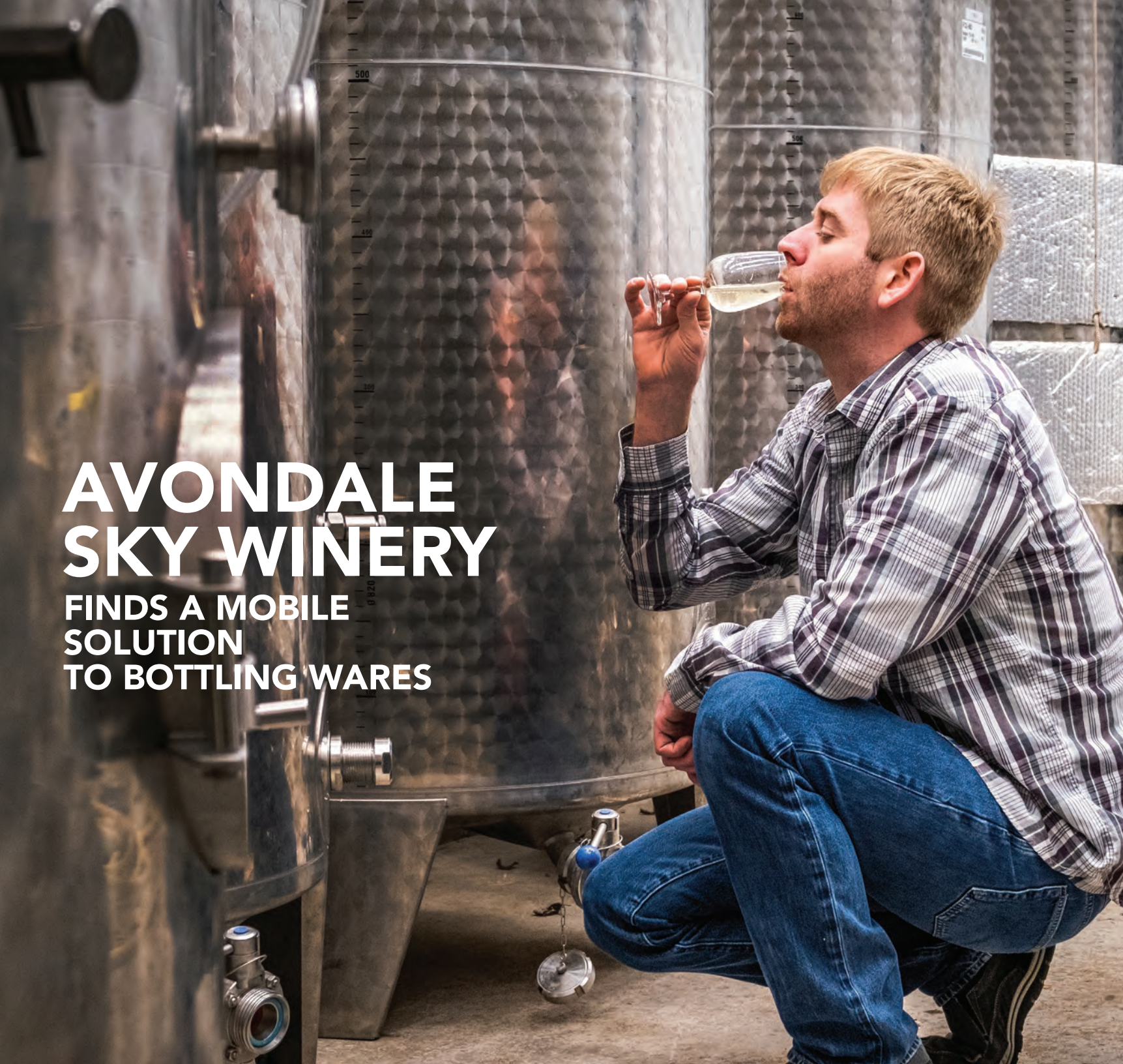


MOBILE BEVERAGE SERVICES

Perennia was pleased to receive funding in 2018 from the Atlantic Canada Opportunities Agency and Nova Scotia Department of Agriculture to build a unique mobile filtration unit that will service the Nova Scotia wine and cider sectors beginning autumn 2019. All items, including trailer, filtration system and engineer design team have been tendered and awarded is anticipated to be completed by end of June 2019. The main objective of using the cross-flow (also known as tangential flow filtration) microfiltration (CFMF) line is the economic and efficient clarifying filtration of cider, wine and sparkling wine by means of the tangential flow principle.

The mobile still wine bottling trailer serviced three wineries this fiscal year, with repeat business provided to two of the wineries. In total, the mobile wine bottling trailer completed 65,292 bottles (5,441 cases) with either a screw cap or cork closure, and many different varieties of red, white and rose wines from Nova Scotia wineries. The unit is capable of offering a full bottling service including rinsing, filling, capping/corking, capsule dispensing and labelling at speeds of up to 1,500 bottles per hour. This development project will allow the industry to bottle their wine conveniently and in large volumes over short periods of time without the need to invest in their own bottling infrastructure.





AVONDALE SKY WINERY

FINDS A MOBILE SOLUTION TO BOTTLING WARES

Avondale Sky Winery was trying to meet overwhelming demand for their wines in summer 2017.

They had the tenacity and the popular product, but the Newport Landing location realized bottling it was a challenge. It was something wine-maker Ben Swetnam wanted to remedy.

The winery began growing grapes in 1987 and shortly after Ben came on board in 2008, the new owners decided they wanted to produce wine. This was followed by a winery that opened in 2011 and a restaurant that was launched five years later.

With all the innovation, the Niagara College wine-making grad began to look at ways to grow the business. "The wine industry has been quite successful, and I suppose we grew faster than we planned," he said. "Bottling equipment is really expensive and to invest \$1-million in a 4-to-6 week bottling practice would have been really difficult."

Ben knew Perennia specialists through industry events and found out they had a mobile bottling truck to help local wineries with bottling.

"This is an incredible service for emerging and established wineries. Before Perennia came

along, it would have taken six days to bottle our Tidal Bay wine, so supplying the liquor store with an order was becoming a real challenge. But now we can do 11,000 bottles of wine, capped and labelled in a day-and-a-half with Perennia's mobile bottling unit."

He says their solution helped him and many other wineries in the area. "Perennia has been great to work with. Everyone there is so kind and patient and we're always finding solutions together," he said.

Ben is now looking forward to the mobile cross-flow filtration system Perennia has coming this year.

"For filtering and bottling, this means we can be so much more efficient. Normally we can't bottle until April or May. With this crossflow system, that can happen so much sooner," he said. "We can bottle cleaner and more stable wine several months ahead of where we'd be otherwise. Avondale is really looking forward to it."





MAKING CRICKETS

INTO PET TREATS AND SUPPLEMENTS

They may not be your traditional chicken or tuna pet treats, but Joy Hillier found the perfect protein alternative in crickets for Midgard Insect Farm's line of natural pet treats and supplements.

In attempting to address food stability and the need to focus less on cattle, chicken and traditional animals, Joy, founder and CEO of Midgard Insect Farm in Windsor, Nova Scotia, utilized her background in veterinary science to research sustainable protein alternatives.

She began her research in 2015 and found that crickets were a good source of protein for pets, aquaculture and even humans. "Sustainable proteins are needed and crickets are a valuable alternative," she said. "The sustainability of raising them, the bioavailability of the protein itself, and the amount of other nutrients found in crickets are all reasons to use them."

Excited by the idea of turning her idea into a product, Joy looked to Perennia for their expertise and rented space in their Innovation Centre in Truro to develop her product. She says the Perennia team's depth of knowledge was key to moving her idea along the product development chain.

"They're just fantastic. When I have questions about nutrition or anything scientific, they are my go-to," she said. "It's the most positive business relationship I've had during my time at Midgard. They even connected me to a venture capitalist interested in the protein."

Recently Joy partnered with Perennia to complete a growth and reproductive study using different wavelengths of LED light. Together they designed and conducted the experiment in her tenant space at the Innovation Centre in Truro. Also Joy worked with Perennia to document and implement a Food Safety Program to gain Feed Assure Certification.

Although the company is pre-revenue and still in the research stage, Joy says having the Perennia team on board constantly pushes her to move in a positive direction.

"They're always on board and their staff are always excited to see us and work with us," she said. "We will move to a commercial model and begin selling in the next year and the knowledge we've gained from Perennia will help us become a revenue-generating business."



"We will move to a commercial model and begin selling in the next year"



NO SUGAR, NO PROBLEM:

BLUE LOBSTER COOLERS FIND TASTE



Nova Scotia Spirit Company looked west to find inspiration for their new line of sugar-free Blue Lobster vodka sodas. British Columbia alcohol producers were already in the burgeoning business of ready-to-drink products and Spirit Co. co-founder Alex Rice wanted to follow suit.

Alex and Dan Allen founded the company five years ago, and along with their first employee and now partner, Evan MacEachern, began producing their '1929' brew exclusively for their client Bishop's Cellar.

"We are sugar, gluten and carb free. We don't throw preservatives in and we worked harder to make these taste great," said Alex.

The brand launched into the top space when the company started selling at NSLCs across the province. The beverages sold out across NSLC stores for most of the summer, indicating the popularity of Blue Lobster. They've maintained their momentum with a successful pre-summer launch in PEI and have plans for Ontario and New Brunswick.

Alex credits their partnership with Perennia in helping them break through the ready-to-drink product market with their lemon-lime flavour, Blue Lobster Vodka Soda. Perennia was on board to help when Alex first approached them with a need to develop a flavour profile and recipe for his soda.



Their initial ask to Perennia was to help them put the two distinct lemon and lime flavours together to make an amazing product.

"We didn't have a formulation at this stage. They helped us make those natural flavours work in concert," he said. "We grew in-house at such a fast pace that we had to outsource these opportunities to develop flavour. That's where Perennia has been incredible. They had such a precise scope of work, and are constantly helping us with ideas, samples and giving us a look at future flavours."

Perennia also supported Nova Scotia Spirit Company to develop beyond its existing resources and grow the brand and products for customers. Perennia is currently helping develop a blueberry-lemon vodka soda, made from 100 per cent wild Nova Scotia blueberry juice.

"We hope to have these products launched in the coming months and to be working on a library of new flavours for years," Alex said.

While Alex is focused on summer sales first, he sees moving into Ontario as a big future play. With 250 LCBO stores taking the Blue Lobster product in May, he's set to tap into that market.

"With Perennia's help, we're going to be able to capitalize on Ontario's affinity for the East Coast. We want to be a Canadian success story, and we're well on our way."

VIVEAU'S SIMPLY DELICIOUS BEVERAGE

READY TO SPRING INTO MARKET



What do you get when an award winning chef and food product developer decides to go into business with a trailblazing winery owner? A simply delicious and purely Canadian beverage.

"We created our business because there was a gap in the market for a healthy, flavored beverage," said Ted Grant, President & Co-founder of Viveau. "We wanted to create a low-sugar, low-fructose, flavoured carbonated beverage and were committed to health in a bottle."

The result is a two or three-ingredient, yet fully flavourful blend of fresh-pressed fruit and sparkling mineral water. The beverage is based on a popular European drink called Schorle, which combines apple juice and mineral water.

Ted and his business partner Hanspeter Stutz recognized the strength of Schorle in the rise of the foodie culture and the trend toward healthier food and beverage options. They decided to put a Canadian twist on the German-style beverage.

Proudly Nova Scotian, Viveau is committed to sourcing local ingredients from the province's growers. "We take fruits from the Annapolis Valley and Oxford-area blueberries combined with purely-Canadian mineral water to create something healthy, refreshing and simply delicious," said Ted.

The product is set to provide a boost to two co-packing facilities in the region, supporting employees at both locations and at Nova Scotian farms.

Recognizing Perennia's work in the food and beverage industry, Viveau looked for their guidance on technical aspects to get their product shelf-stable at room temperature storage.

"I have a background as a Michelin Star chef and a food product developer, but needed support with shelf-life testing," said Ted. "Perennia advised us on the food science aspect and helped us adhere to bottling regulations."

With strict measures in the Canadian Food Inspection Agency (CFIA), BRC Global Standards (formerly British Retail Consortium) and other levels of certification, Ted said that Perennia helped them put the right processes in place and establish production flow. "We came to them with the product formulation and are now shelf-stable and following industry guidelines."

Viveau is now jumping in with both feet and picking up steam in domestic and global markets. They're establishing commitment from buyers in Asia and are on their way to landing agreements with Sobeys, Sysco Canada and Costco.

"It's not easy to take an idea or concept and turn it into a commercialized product," said Ted. "But as entrepreneurs, you have to be stargazers – and we are."



Viveau is now jumping in with both feet and picking up steam in domestic and global markets.

CANNABIS ANALYTICAL TESTING

This year, Perennia (under the banner Bloom Labs) obtained the first and only Health Canada granted Cannabis Analytical Testing Licence in Nova Scotia. We were able to hire two full-time employees to help with method development and testing, and developed marketing materials for the lab. The lab team also did validation tests for Health Canada required quality assurance tests along with some other non-mandated 'luxury' tests for growers.



BLOOM LABS

In March 2018, the Innovation Centre staff assisted Bloom Labs in the development of microbiological methods for the quality assurance analytical testing facility for cannabis producers. The Centre now holds a Health Canada certified level II Biohazard Microbiological Laboratory designation and can test for specific pathogens as required by Health Canada for cannabis products. With this certification the lab has a capability for increased growth for conducting pathogen analysis.

Bloom Labs expected to be a full quality assurance testing facility by April 2019, with plans for the whole team at the Centre to be ready to provide cannabis edibles and drinkables solutions for companies in 2019-20.





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