AGRICOLA

FOR ALUMNI AND FRIENDS OF DALHOUSIE'S FACULTY OF AGRICULTURE

HELPING TO SUPPORT AND TRANSFORM INDUSTRY

THE IMPACTS OF OUR RESEARCH

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NEWLY ESTABLISHED FUND FOR FIRST-YEAR ATHLETES

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VOLUME 45, NO. 2, 2017

DALHOUSIE UNIVERSITY

FACULTY OF AGRICULTURE

VOLUME 45, NO. 2, 2017

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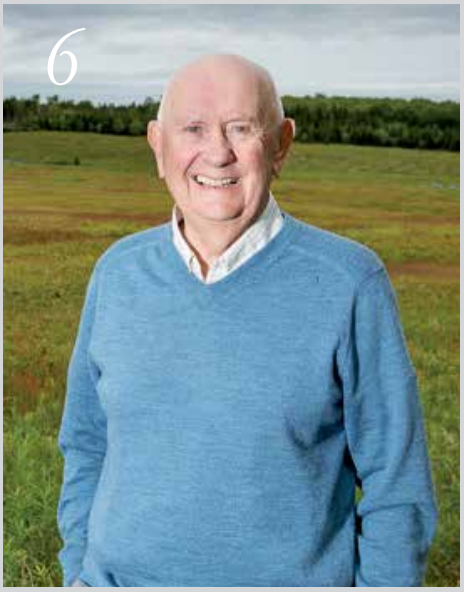

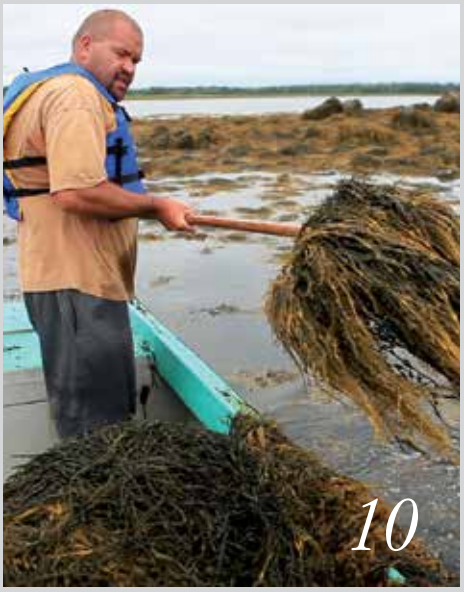

Letter from the Editor

It's my favourite time of year on the Agricultural Campus! The gardens are in full bloom and so colourful, the lawns are immaculate and the animals are grazing. This is such a beautiful place to be.

As I arrived on campus this morning and was appreciating the beauty of this place, I began to reflect on how great our campus is. In fact, this past spring the Dalhousie Agricultural Botanical Garden was the proud recipient of a 'Canada 150 Garden Experience' designation (page 31). This designation is sure to bring more visitors to our campus this summer with guests admiring our great grounds.

The Agricultural Campus is great in its beauty but also in so many other capacities.

The main stories in this *Agricola News* talk about our impact on the industry. We are doing some amazing research that is driven by industry and the results are transformational. These feature stories delve into the specific long-term research partnerships we have had with Oxford Frozen Foods, as well as Acadian Seaplants. It is because of these partnerships that we are making great discoveries and implementing changes right in the fields.

For the past 10 years, Dr. Claude Caldwell has been working with Camelina, a super-nutritious plant and believes it is the next big oilseed for Canada. Although Dr. Caldwell retired from the Agricultural Campus at the end of June (after 34+ years), he's still committed to his great work with Camelina.

It wasn't that long ago that over 200 students crossed the stage at our annual Convocation ceremony in May. These students have great stories and are going on to do some amazing work. We are pleased to showcase a few alumni stories, some new graduates and some not-so-recent-graduates, beginning on page 24. Alumni profiles are one of my favourites as I am always so inspired and left in awe of what a hard working group Aggies are.

While listening to the great stories of alumni when they are being interviewed for a story, I also love to connect with alumni at our many events. We were pleased to host groups of you and your classmates at a variety of receptions and family events throughout the winter and spring (page 17). We are currently working on a series of events for the fall (page 30). We would love to see you and hear what great things you have been up to, so please try to attend any functions that you are able.

I really hope you enjoy this edition of the *Agricola News* and learn more about the great things happening at the Agricultural Campus.

As always, please don't hesitate to contact me if you ever have any questions or feedback.

Have a great summer!

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Dean's Message

Dr. David Gray

Dean, Faculty of Agriculture
Principal, Dalhousie
Agricultural Campus

As spring turns to summer so too do our thoughts turn to the growing season as farmers prepare for the year ahead—planting, growing, harvesting.

Our lives have long been built around an agricultural calendar—schools, universities and communities all supporting the vital work taking place on our family farms.

Here on the Agricultural Campus, we as a Faculty of Agriculture recently convocated 232 graduates during our spring ceremony in early May—a full two-weeks earlier than the rest of Dalhousie University—to enable our students and their families to work together on the farm throughout the summer months.

Farming is a complicated business that has evolved over time through scientific discovery and innovation. And it is this spirit of innovation that will equip agriculture to cope with the challenges that over the next 40 years will see world population growth hit 9 billion people. Global food production will need to increase by 70 per cent. Simultaneously, we must learn to cope with changes in climate, intensification of floods and droughts and depletion of resources.

Our Faculty of Agriculture researchers are working directly with our agricultural community to undertake innovative research to address these challenges while providing counsel that sustains our communities.

The Faculty of Agriculture engages with more than 100 partners annually on collaborative research projects of direct benefit to the agriculture and aquaculture sectors with seventy-five per cent of our research funding coming from the industry we are committed to supporting—creating opportunities that shape global agriculture.

The Federal Government's Advisory Council on Economic Growth recently released the Barton Report focussed on the growth potential of key sectors. In this report, the Federal government "aspires to global leadership in agri-food such that Canada will become the trusted global leader in safe, nutritious and sustainable food for the 21st century." Canada will also re-establish itself as the worlds second largest agricultural exporter, a position that it previously held before slipping down to 5th place.

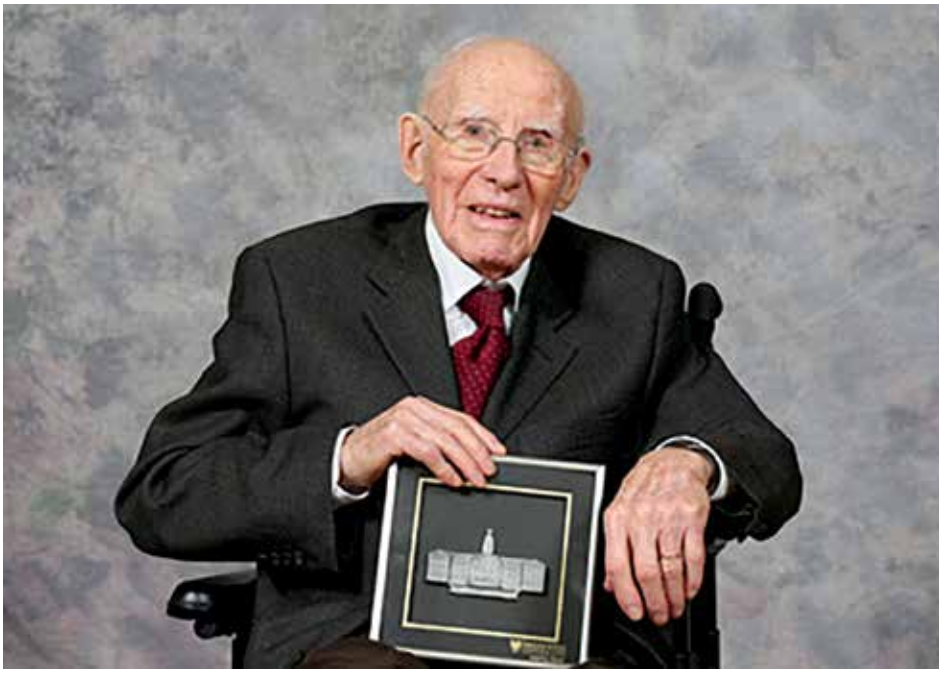
The Faculty of Agriculture is proud to work with our government toward these ambitions through our leading edge teaching and research. We are unashamedly applied in our research and work collaboratively with our partners to solve real-world problems.

In this issue you will read about Acadian Sea Plants and Oxford Frozen Food, both long-standing research partners of the Faculty of Agriculture. Not only do they support our research but the ongoing education and employment of our students.

Farming of the land and sea is a lot more complicated than planting a seed, rearing a cow or catching a fish and it is only through science and innovation that we will continue to evolve and innovate the agricultural industry.

Sincerely,

Dr. David Gray



PASSING OF FORMER REGISTRAR PETER HAMILTON

Peter Hamilton (Class of '44) registrar, professor emeritus, passed away January 29, 2017.

After graduating from NSAC Peter attended Macdonald College (Class of '47) to complete his Bachelor of Science degree in Animal Science, and then to the University of Maine (Class of '52) for his Masters degree, also specializing in Animal Science. Before returning to Macdonald College as a professor, Peter hosted Country Calendar on CBC radio, the precursor to Country Canada. For four years Peter's voice could be heard in living rooms across Atlantic Canada, celebrating the men and women contributing to agriculture in this region.

Sharing these success stories was a rewarding experience, but Peter's interest drew him back to academia. After teaching at Macdonald, Peter's first *alma mater* called him back to Nova Scotia, where he began teaching chemistry and animal science at NSAC. Peter, affectionately called "PY" by his students and colleagues, became registrar, serving the campus for 10 years in this capacity.

During his many years of teaching, Peter forged a special bond with his students. He cared, he listened. He made them feel like they were the only one in the room. It is this special connection and love for teaching that motivated Peter to give back. In 2013, Peter established the P Y Hamilton Scholarships with a planned gift he began decades ago. Open to degree and diploma students on a renewable basis, Peter intended that the scholarships will help students all the way through their program. Peter believed that students can do so much for the world if they are given the opportunity.

Peter will be greatly missed by the Agricultural Campus, especially by those who's lives he touched. Through the legacy he created, the PY Hamilton Scholarship, he will not be forgotten and he will continue to make an impact on students for years to come.

Peter is survived by his wife of 61 years, Margaret, their four children and families.

IN MEMORY

The Agricultural Campus and the Alumni Association acknowledge the passing of the following alumni. We extend our deepest sympathy to family and friends.

Mr. Peter Hamilton **1944**
Dr. Kenneth "Ross" Ainslie ... **1948**
Mr. George Harvey **1948**
Mr. Melvin Harris **1949**
Mr. Weldon Travis **1957**
Mr. Marinus Van de Sande ... **1962**
Mr. Charles Hiltz **1966**
Mr. James MacAfee **1972**
Mr. Brendan MacNeil **1972**
Mr. John MacNeil **1972**
Mr. Gary Henderson **1975**

Make a Memorial Gift

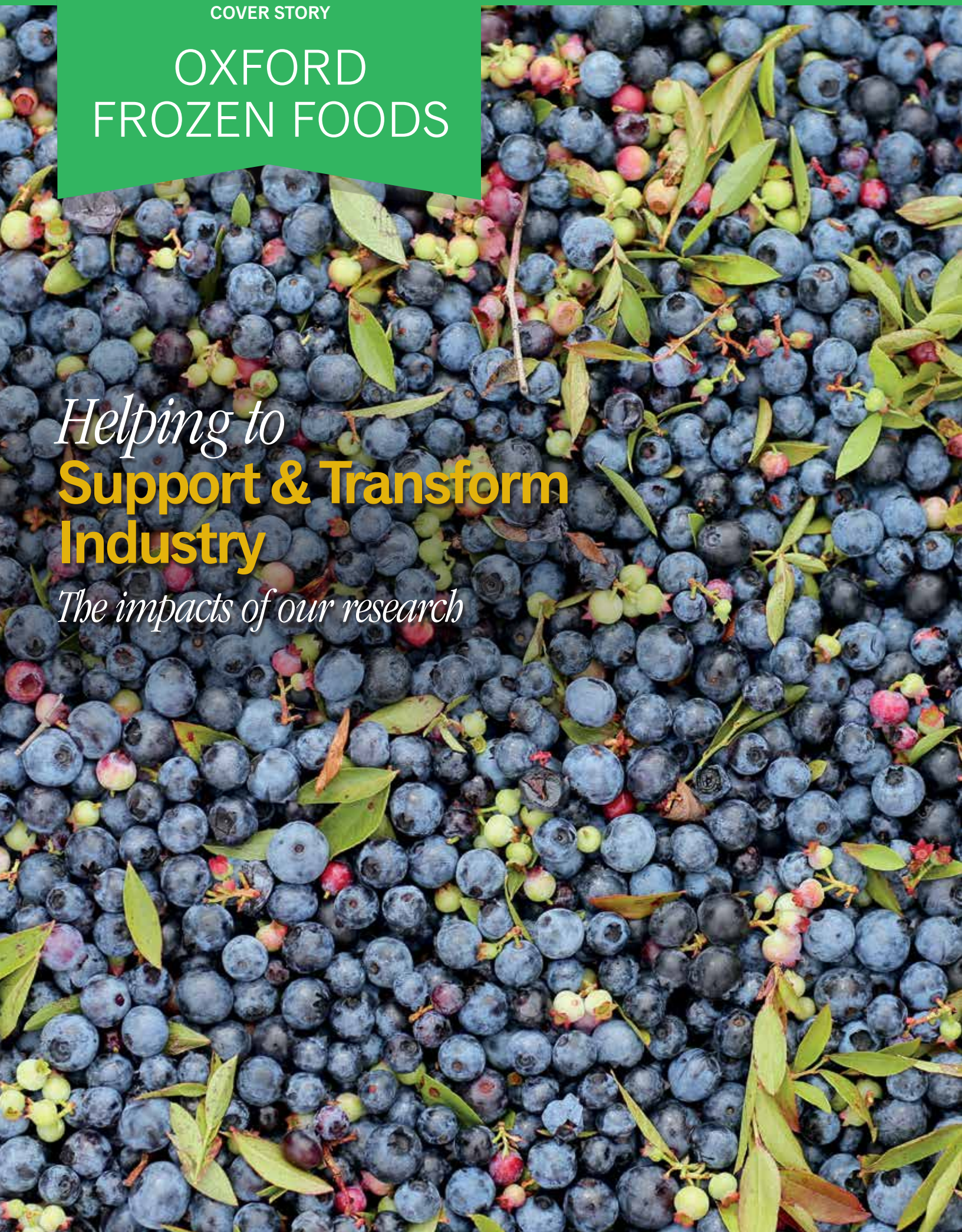
Honour a classmate or a friend with a memorial gift to the AC. Your thoughtful gift will be used to support student scholarships or bursaries, to improve campus, or to support an area that is of importance to you or your honouree. An acknowledgement of your gift will be sent to the family of the deceased.

For additional information on memorial gifts, please contact Donor Relations at 902.893.6721.

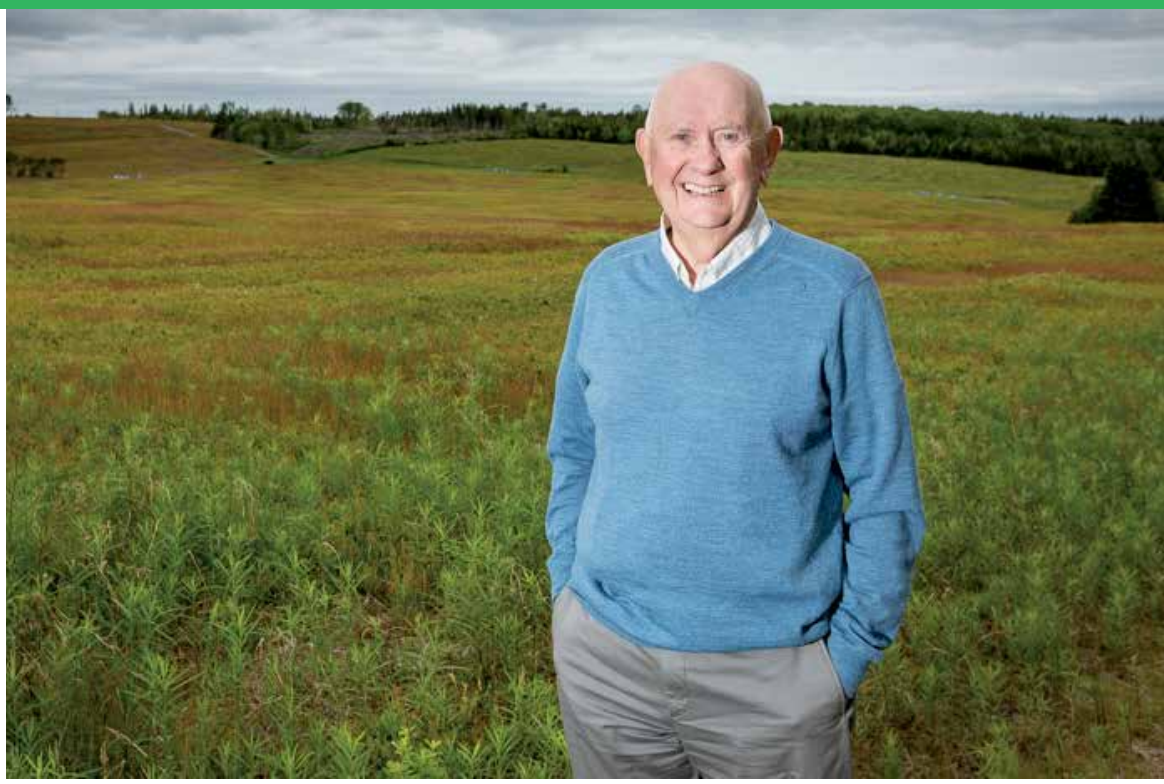
Make a gift online at dal.ca/giving

COVER STORY

OXFORD FROZEN FOODS



Helping to
Support & Transform Industry
The impacts of our research



Mr. John Bragg

MORE BERRIES IN THE BOX

As the Wild Blueberry Research Chair, Dr. David Percival had just one challenge: to put more berries in the box.

That was 20 years ago and wild blueberry production in Nova Scotia has quadrupled to over 400 million pounds annually. And it all began with Mr. Blueberry himself, John Bragg.

John, from Collingwood Corner, NS, is the chairman, president and co-chief executive officer of Oxford Frozen Foods Limited and president of Bragg Lumber Company. John is easily recognized as one of the many faces of the blueberry industry in Nova Scotia and an advocate of research at Dalhousie University Faculty of Agriculture.

"The AC was a natural fit," says John of choosing to invest in research at the Agricultural Campus 40 years ago. "Wild blueberries are a crop so suited to this region. But it's an industry that competes with other commodities around the world. We have to be efficient."

Since 1976, John has been investing millions of dollars into wild blueberry research at Dal AC. Along with generous investment, John has provided the clarity and vision needed for a research program for the wild blueberry industry.

Despite the high-level duties and busy schedule that come with leading his operations, John still takes time to regularly drive through his blueberry fields. Referring to one particular piece of property, known as Pigeon Hill, John says, "I consider it therapy, driving up this road. I've been travelling this road since I was 15 and can count every tree." It could also be said that this particular piece of land is where it all began for John.

"My father used to buy old farm land for his lumber business. He bought this property and someone approached him, wanting to lease the land for blueberry production," says John. He was only 15 at the time, but John made his own proposition to his father, asking if he could harvest the land. "I hired four friends that first summer. By the time I finished high school, I had earned enough to get to university. By the time I finished university, I had earned enough to start my business."

AN EVOLVING INDUSTRY

The wild blueberry industry continues to evolve in large part due to John's entrepreneurial spirit and his foresight that research was the way forward.

"During my first month of work in 1996, I was not sure what the Wild Blueberry

Dr. David Percival

Producers Association and the Bragg Group wanted me to focus on, despite having a list of research priorities," David explains. "However, in my first meeting with John, he managed to provide that much-needed clarity with the statement, 'Your job is to find the technologies that will put more berries in the box.' It served as an excellent foundation that I've been able to build on."

Over the years, David and his research team have predominantly focused on trying to improve fundamental knowledge of the basic biology of the wild blueberry plant and developing technology based products, processes and services that increase the yield potential and harvestable berry yield. His efforts have resulted in many different research activities including soil fertility, plant nutrition, disease management, organic production, bioactives and bioproduct development, vegetation management, double cropping, floral induction and initiation and use of plant growth regulators.

"David has brought a lot of focus to wild blueberry research," says John. "He's an innovator and a tremendous researcher. David listens to the farm community and is very responsive to the needs of the industry."

Presently, under the continued support of the Bragg Group, David is focusing on two research projects - successive double cropping, which goes from a two-year to three-year production cycle and the use of unmanned aerial vehicles (UAV) and associated sensor technologies in the disease management of wild blueberries. As research continues, the overarching goals for wild blueberry research is to improve knowledge of the fundamental biology of the plant, increase yield potential, lower the cost of production and improve berry quality and production system sustainability.

While David's research has evolved with the ever-changing industry, it wouldn't have been possible without the commitment and dedication of John.

INDUSTRY LEADER

With various Bragg Group businesses in operation, Oxford Frozen Foods Ltd. is an industry leader in wild blueberry production and has contributed greatly to wild blueberry research. Founded in 1968 by John, the goal was to make wild blueberries the natural choice for consumers around the world. The production facility began as a small family-run business that specialized in wild blueberry production and processing. Today, the company consists of eight processing facilities in Nova Scotia, New Brunswick and Maine which process over three million pounds of wild blueberries a day during harvest season. They are the largest vertically integrated fruit farm in the world and own, farm and process approximately 30,000 acres of wild blueberry land.

In addition to the farm land and processing capabilities, Oxford Frozen Foods Ltd. has over 150 million pounds

of frozen storage capacity. Not only are they the largest processor of wild blueberries, the plant is one of North America's largest producers of premium frozen carrots and one of Canada's premier manufacturers of onion rings and battered appetizers. Headquartered in the small town of Oxford, Nova Scotia, the plant employs many local residents, contributing to the local economy. In addition, Oxford Frozen Foods Ltd. is home to an in-house micro lab and employs microbiologists to ensure all products are of the highest quality.

EXTENSIVE RESEARCH

With a long list of entrepreneurial and business accomplishments, John has a special place in his heart for the Dalhousie University Faculty of Agriculture and the wild blueberry industry in Nova Scotia. Through Bragg Lumber Company and Oxford Frozen Foods Ltd., John has provided industry cash and in-kind contributions to wild blueberry research at Dal AC that has leveraged in excess of $20 million in public sector research funding including provincial departments of agriculture, Agriculture and Agri-Food Canada, Atlantic Canada Opportunities Agency, the Natural Sciences and Engineering Research Council of Canada and the National Research Council of Canada.

"The extensive research into wild blueberries would not have been possible without the support provided by the Bragg Group and the Wild Blueberry Producers Association of Nova Scotia, both in the form of cash contributions and in-kind, including providing commercial fields for research trials, management services on the trial sites and also providing their thoughts on results from various field trials," David explains.

While John has contributed directly to wild blueberry research on campus, he also supports other initiatives at Dal AC. John is currently the honorary chair of the Campaign Cabinet for the Campaign for Agriculture. The Campaign for Agriculture focuses on enriching the student experience and enhancing research initiatives. The Campaign will provide greater student support, increased hands-on and experiential learning and new common, teaching and research spaces with advanced technology. Key priorities of the Campaign for Agriculture include a much needed student centre, renewal of the farm, graduate scholarships and new key industry research chairs.

"I am proud to be honorary chair of this campaign," John Bragg says. "This campus and its leaders have brought great value to the agricultural community throughout Atlantic Canada."

A PERFECT STORM

Research has been the way forward for the wild blueberry industry. In 2016, over 400 million pounds of wild blueberries were produced.

"To put it in perspective, when I started at the AC in 1996, the industry produced approximately 124 million pounds of wild blueberries and an average crop was between 1,500 and 2,000 pounds per acre," David explains. "Through more careful management of the fields and reducing pest pressures, production in the same field today should yield over 3,000 pounds per acre and we've had some fields in excess of 12,000 pounds per acre."

While these statistics are outstanding, David explains the industry is currently facing "the perfect storm."

With record wild blueberry crops four years in a row, the excess berry yields have caused price deflation, resulting in a lower return for producers per pound for their blueberries. Although some wild blueberry producers are uneasy, David explains the industry is broadening their global markets to export to other countries. The industry is also exporting new products that can be developed and exported globally. David is confident this will allow the industry to thrive and balance the supply and demand for wild blueberries in Nova Scotia.

"Global blueberry production has been increasing at an exponential rate over the past ten years, with production expected to double in the next seven to ten years," David explains. "And although the wild blueberry industry is presently facing a 'perfect storm' for the upcoming year, I do think we have provided and will continue to provide technologies that will allow the industry to remain vibrant and at the forefront globally."

While John's original goal was to "put more berries in the box," it seems there is now a need for a much bigger box.

ACADIAN SEAPLANTS

Nova Scotia's best kept secret

It's a beautiful hot, sunny July day. And what do many Nova Scotian's crave? We like to head to one of our breathtaking shores to sniff the salt water, enjoy the breeze and dip our toes in the cold, clean Atlantic. But there's nothing like standing in that cool water, only to have a gentle wave deliver a mass of soggy, thick seaweed onto your feet. It instantly wraps between your toes and is a feeling like no other.

Instinct may be to kick and fight to free your toes. However, that's not the case for all Nova Scotian's.

That mass of soggy, thick seaweed, is being processed throughout Nova Scotia, by one of the largest seaweed companies in the world. The processing of seaweed can easily be described as one of the province's best kept secrets.

Once a small, family owned, seasonal seaweed harvesting operation, Acadian Seaplants Limited (ASL) is now a globally recognized leader in marine plant biotechnology, specializing in the cultivation and processing of seaweed products for people, animals and plants. At the head of ASL is president and CEO, Jean-Paul (JP) Deveau, an individual committed to the success and sustainability of the seaweed industries in Nova Scotia, New Brunswick, Maine, Ireland and Scotland.

Born in Moncton, but growing up in Dartmouth, JP and his father, Louis Deveau, and grandfather are the pioneers of seaweed applications in Nova Scotia. JP grew up watching his father and grandfather spread seaweed on vegetable crops. An excellent source of nutrients for plants, Louis soon began developing products processed from seaweed. In 1981, Louis established ASL.

"My father and I learned we could work together, a very important thing," JP says. "In 1986, he asked if I wanted to see what we could build together, also something I never forgot: 'If you can't do the job, I'll have to fire you. You'll always be my son and I'll always love you, but that's business, that's how it works.' I became president in 2002, the year we built our Research Center."

ASL's two main divisions are plant health and human & animal wellness. The company exports 95 per cent of its products to over 80 countries around the world. They employ 360 staff members in 13 countries, operate six major manufacturing facilities in Atlantic Canada, Ireland and Scotland and work with over 700 harvesters in Nova Scotia, New Brunswick, Maine, Ireland and Scotland.

A DIVERSE PRODUCT

With over 10,000 species of seaweed, ASL offers a wide variety of products. They specialize in creating biological seaweed extracts for global agricultural and horticultural markets and technical feed supplements for animals. Seaweed extracts are used in plant and crop inputs and are designed to enhance agricultural and horticultural crop productivity, plant vigor, plant nutrition and crop fertility, through seaweed-based crop biostimulants and nutritional inputs. Their natural, marine-plant based prebiotic, Tasco® is the premium feed ingredient incorporated into feeding programs for production and show animals, pets and equine.

ASL also produces seaweed for human consumption and a variety of everyday products. Edible seaweed is primarily shipped to Japan

Mr. JP Deveau

where seaweeds are eaten at nearly every meal. Although Canadians do not necessarily consider seaweed a daily mealtime staple, seaweed products and extracts are used in everyday household items. Irish moss, a species of seaweed, is used in everyday products like toothpaste, ice cream, salad dressings, to name a few. Cosmetics, pharmaceuticals and several personal care products also contain extracts of seaweed's functional ingredients provided by ASL.

INDUSTRY CHANGING RESEARCH

The industry-leading company would not be where it is today without extensive research in each of its industries and product lines. This industry-changing research was, and continues to be, conducted at Dalhousie University Faculty of Agriculture (formerly the Nova Scotia Agricultural College (NSAC)) with the commitment to keep the research in Nova Scotia.

"My dad learned from the beginning that the way to add value to our products was through research and development," says JP. "Throughout the years, we would look for expertise that was available locally that could be of assistance to us with the type of work we wanted to do. Because we started to make products that were used in agriculture, to help grow crops, we turned to the NSAC."

In 2005, Dr. Balakrishnan Pritihviraj (Raj), Department of Plant, Food and Environmental Sciences, began his work as industry chair at the NSAC. This position was made possible by ASL who contributed $600,000 to establishing the research position.

"I am so glad and so blessed to be a part of this partnership," Raj says of the partnership between ASL and Dal's Faculty of Agriculture. "It's significant for the industry that ASL has the confidence to invest in science and to invest in our campus. Louis and JP could have gone anywhere, but they wanted to stay home. I think that needs to be appreciated."

Raj began his research by looking at the scientific fundamentals of why and how ASL's products work.

"When I began my work in this position, I had no idea what seaweed was," Raj explains. "It was a steep learning curve. There was not much literature and not much information about the chemical components. That's what we're looking at. We want to give ASL a leading edge in the industry."

With very little published work to go on, Raj and his team moved forward with research of marine plants. Their research led them to a better understanding of how seaweed and seaweed extracts affect plants, animals and humans.

Specifically, Raj's research took a closer look at heat stress in animals, particularly animals that were to be processed for meat.

Dr. Balakrishnan Prithiviraj ("Raj")

"For example, we looked at a slaughterhouse in Colorado," Raj explains. "When animals arrive at the slaughterhouse, they are kept in pens until slaughter. It can be very stressful for them, especially in Colorado's warm weather, causing them to lose weight. This also affects the quality of the meat. Researchers found that seaweed increases the quality of the meat and reduces heat stress. Our research, using animal model systems, found the molecular mechanism(s) of action of seaweed products."

Other research found that seaweed extracts have an antibacterial effect. One of ASL's studies looked at salmonella in chicken. The seaweed extract was included in the chicken feed and two groups of chickens, one with the seaweed extract and one without, were challenged with salmonella bacteria. The group of chickens fed the seaweed extract was found to have no bacteria present in their systems.

Raj explains that he adapts his research to solve problems that arise in the industry. With no set schedule of research tasks, the research team tackles industry issues as they arise. The overall goal is to develop new knowledge about their products and keep our country and industry on top.

"I take my research to the next level and actively generate new knowledge," Raj says. "It gives us an edge when we are able to pinpoint new pathways."

Today, research continues to look at the mechanism of how ASL's products work and the sustainability of the seaweed resource. With ASL, Raj is taking a closer look at finding uses for by-products to reduce waste and add value. Raj explains that their findings have even been published for others to learn from.

"Many other companies prefer not to publish their findings," Raj explains. "JP encourages us to publish our research findings. Our published research shows that ASL is a leader in the industry and keeps ASL on top."

DEVELOPING TECHNOLOGY

Not only has ASL focused on the scientific properties of seaweed and its benefits, they've taken a closer look at the methods used to harvest the seaweed and its ecosystem. Before ASL was established, the harvesting of marine plants was regarded negatively among government and the public.

"Before ASL, seaweed was mechanically harvested which led to 'boom and bust' harvesting cycles," Raj explains. "One year there would be a big harvest and then closure for several years while the plants re-grew. With the advent of the ASL hand harvest rake, a sustainable amount is harvested year after year – a process that trims less than the annual regrowth."

ASL has focused on ways to harvest the seaweed so that it can be replenished. Raj explains that seaweed is attached to rocks by a holdfast. Years ago, when seaweed was harvested mechanically, on occasion the holdfast was removed from the rock and the seaweed could not regrow. ASL developed a rake that trims the top of the floating seaweed by cutting above the holdfast. The seaweed is harvested manually by seasonal workers. Using a long-handled rake, the harvesters plunge them deeply into densely packed beds of seaweed and collect the seaweed about a bushel at a time. This method allows the seaweed to regrow and harvesters to harvest the same site, year after year.

"The rake cannot touch the holdfast due to runners that prevent the rake from cutting too close to the holdfast so the harvesting of seaweed remains sustainable, it does grow back quickly," Raj explains. "ASL has several scientists on staff and their full-time job is to ground truth the Ascophyllum nodosum beds throughout the province to ensure the biomass is maintained."

INVESTING IN THE FUTURE

Keeping the industry sustainable is extremely important to JP and ASL. Because of this, they are always looking to the future.

"We did the first molecular work, at a time when it was very expensive," describes JP. "That was certainly leading-edge work. And that's the kind of work we want to do. We want to stay ahead of everyone else. We operate in a highly competitive environment. It is so critical that we find a way to make sure that our technology is ahead of everyone else so that we can continue to provide the value-added products that we do."

While maintaining their product is important, the future of research is also a focus area for ASL. Not only does the company invest in research at Dal's Faculty of Agriculture to keep them ahead of their competition, they invest in research to foster the development of young researchers as well.

"ASL matches government funds to train students," Raj explains. "Students spend time on campus, but they also spend months at ASL working with their researchers. They gain experience with the company and learn techniques and real world problems."

Currently, ASL has provided for seven students in Raj's lab - from undergraduate students to post doctoral positions. Not only do they assist with research, they learn first-hand about the industry and issues that have arisen. The contribution from ASL has played a crucial role in the development of the careers of many students.

ASL recently partnered with Dr. Raj and Dalhousie's Faculty of Agriculture for a 36-month research project with a total project cost of ~$1,400,000. ASL is contributing $468,000 with Mitacs, a national organization that designs and delivers research and training programs in Canada, and provincial funding totalling 440,000. In addition, the Natural Sciences and Engineering Research Council of Canada (NSERC) offers support of $468,000. Due to the outstanding financial support, the project is the largest grant of its type east of Montreal and will help train a total of eight post-doctoral fellows, three PhDs and three MScs over the three years.

With their outstanding contribution to research and fostering student growth, ASL is a proud leader in the global marine plant industry. Although they are a bit of a secret in Nova Scotia, it's no secret that ASL is a diverse, environmentally and socially-responsible multi-national company whose top priority is to enable the success of those around them.

The next time you find yourself at a Nova Scotia beach, you may just have a second thought before instantly kicking to get that seaweed away from your toes; and pause to consider how ASL built a sustainable Canadian industry in Nova Scotia using seaweed that truly makes a difference in the world.

GREEN TECHNOLOGY AND PRACTISES FUNDING

Master's student Carolyn Mann (right) shows samples to Bill Casey, MP for Cumberland-Colchester.

Dal research to help farmers adopt clean technologies and practices receives $1.7M

Faculty of Agriculture researchers are well on their way to helping the Canadian farming sector become a world leader in the development and use of clean and sustainable agricultural technologies and practices.

On Friday, April 21, the eve of Earth Day, Member of Parliament Bill Casey (Cumberland—Colchester) announced a $1.7 million investment to develop technologies, practices and processes that can be adopted by farmers to reduce greenhouse gas (GHG) emissions.

This project is among 20 projects being delivered through the $27 million Agricultural Greenhouse Gases Program (AGGP), a science-based program to help the agricultural sector adjust to climate change and improve soil and water conservation by developing new farming practices and methods. It also will help farmers increase their understanding of GHG emissions.

"For decades, the Agricultural Campus has led the way in agricultural innovation and rural economic development," Bill Casey, Member of Parliament for Cumberland-Colchester. "Dalhousie's Faculty of Agriculture continues its leadership in tackling climate change and now with this investment from our government into their valuable project, they will be able to do even more. This is good news for both farmers and the environment, which we all depend on to sustain our livelihoods."

Success through partnership

Faculty members, David Burton and Derek Lynch, at the Faculty of Agriculture are 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.

This research will go a long way to increase the resiliency of Atlantic Canadian soils to climate change and extreme weather events which will be of broad benefit to the agriculture sector across Canada.

"The Federal Government's Advisory Council on Economic Growth recently released the Barton Report focussed on the growth potential of key sectors," explained Dr. David Gray, dean of the Faculty of Agriculture and principal of the Dalhousie Agricultural Campus.

"In this report, the Federal government aspires to global leadership in agri-food such that Canada will become the trusted global leader in safe, nutritious and sustainable food for the 21st century. The Faculty of Agriculture is proud to work with our government toward this vision through our leading edge teaching and research."

The new AGGP investments will continue to support the work of the Global Research Alliance on Agricultural Greenhouse Gases, which brings together 47 countries to find ways to grow more food without growing greenhouse gas emissions.

"This funding provides a wonderful opportunity to work with the Atlantic agricultural industry and provincial partners to improve our understanding of which soil, fertility and crop management approaches best contribute to climate change mitigation and adaptation," explained Dr. Lynch. "It also provides for a unique soil health laboratory facility and helps us train the next generation of researchers in soil science and agronomy, to contribute to these important goals."

BARLEY PARTY 2017

Barley rings symbolize new chapter for Dal AC Class of '17 grads

For some Dal AC grads, the most exciting moment of graduation is walking across the stage to receive their degree or diploma. But for others, there's one event that is arguably more highly anticipated than convocation- the Barley Party.

Established in 2010, the Barley Party is the annual celebration for students who have purchased a Barley ring- Dal AC's widely recognized graduation ring. Held in Jenkins Hall in early April, students attending the Barley Party enjoyed a meal prepared by Chartwell's staff and one-by-one were called to the front of the room to accept their Barley ring. Students were welcomed to the Agriculture Alumni Association by Audrie-Jo McConkey, chair of the Alumni Association and Colette Wyllie, board member of the Alumni Association and were presented their rings by Dr. Claude Caldwell, Associate Dean, Academic. Dr. David Gray, Dean, was unable to attend this year's Barley Party but sent his congratulations to students through a pre-recorded video.

"Since the Barley ring was launched in 2010, over 900 Barley rings are proudly worn by alumni around the world," Audrie-Jo McConkey explains. "Each year, this event, the Barley Party, continues to grow. This event has become

Dr. Claude Caldwell was the very deserving recipient of the 2017 Honourary Barley Ring. The honour was presented to Dr. Caldwell by Alumni Association board members, Colette Wyllie, Jean Lynds and Audrie-Jo McConkey.

Ann Hamilton (Class of '88) attended the Barley Party to proudly receive her ring alongside daughter, Andrea (Class of '17).

one of the most anticipated events of the year for graduates. The vibe in the room says it all!"

Unveiled seven years ago, the Barley ring is the official graduation ring of the Agricultural Campus. Since its launch in 2010, it has become a highly recognized symbol of the Faculty of Agriculture. Now with over 900 rings worn by alumni around the world, the Barley ring is a proud symbol of the Faculty of Agriculture and the Dalhousie Agricultural Campus. The textured design features a pattern of barley around the band of the rings and each ring is handmade by local jeweler, Donna Hiebert. This year, 135 barley rings were given out at the Barley Party.

While the Barley Party is most popular among graduating students, it has become increasingly popular among past alumni as well. This year, two mother-daughter duos accepted their Barley rings together- Ann Hamilton (Class of '88) and daughter Andrea Hamilton (Class of '17), and Shari Allan (Class of '79) and her daughter Kasadee Allen (Class of '17).

"My mom and I have always been very close and getting our rings together just felt like the right thing to do," Andrea says. "She's one of my biggest role models and I'm so proud to be able to receive my Barley ring with her. It was my idea to attend the Barley Party together, she wasn't so sure about going but I really wanted to have her there with me."

In addition to honoring graduating students who have purchased a ring, the Alumni Association also allows for an honorary ring to be presented each year.

"Honorary rings are awarded to individuals who do not meet the criteria to be eligible for a Barley ring but who are extremely deserving of the honour," explains Colette Wyllie (Class of '10). "These individuals are ambassadors and supporters of the institution. They have made outstanding contributions to the Agricultural Campus community and truly depict the characteristics of an AC alumnus. Simply put, there are few people who fit that description more accurately than our 2017 honorary ring recipient."

Dr. Claude Caldwell, Associate Dean, Academic, was this year's honorary ring recipient. After 34 years on the Dal AC campus, Dr. Caldwell retired at the end of June. His presence will be missed by all students, staff and faculty on campus. Every September, Dr. Caldwell is one of the first instructors that degree students encounter. His first-year course, Agricultural Ecosystems, is required for all students pursing a BSc. (Agr.). It is common to hear from students that Agricultural Ecosystems with Dr. Caldwell was their most memorable first-year course, if not of their entire undergrad.

In addition to his full-time teaching and research position, Dr. Caldwell spent six years as men's varsity soccer coach and 10 years as women's varsity soccer coach. He was well-respected, easy to listen to, and the kind of coach

Shari Allan (Class of '79) also returned to campus to receive her Barley ring with daughter, Kasadee (Class of '17).

Dr. Caldwell shows off his new Barley ring with Colette Wyllie.

you didn't want to let down. He guided his teams to regional championships on a regular basis and to a national championship on at least one occasion.

Dr. Caldwell's greatest legacy is arguably his international work. He has more than 15 years of extensive international experience and is largely responsible for the immensely successful 2+2 articulation agreement between the Faculty of Agriculture and the Fujian Agriculture and Forestry University is Fuzhou, China. He travels to China yearly to deliver courses on the FAFU campus.

"Dr. Caldwell is a true Aggie- fiercely loyal to NSAC and its history while dedicated to ensuring the Faculty of Agriculture lives up to its fullest potential going into the future," Colette Wyllie says. "It is more than appropriate that he wears a barley ring on his finger to denote him as such."

As Dr. Caldwell was called to the podium to receive his honorary Barley ring, he received a standing ovation from the staff and students in the room.

"The awarding of the honorary Barley ring by the students of the class of 2017 was an overwhelming experience," Dr. Caldwell says. "When Colette mentioned that the award was going to someone with 34 years of experience on our campus, it hit me that I was to be the recipient that evening.

"I was deeply moved to the point of not being able to properly thank the students verbally," he continues. "I hope they understood the depth of my gratitude and how much the honor means to me; at the time, I could only bow to acknowledge the ovation. I know these students and to have them stand to acknowledge me is a highlight of my career not to be soon forgotten."

As excited students filed from Jenkins Hall after the ceremony, each flaunted their new addition to their finger. Beaming smiles and excited chatter about what their futures hold filled the room. To some, the Barley Party is more exciting than convocation but to all, a new door opens once the Barley ring is on their finger.

DEAN'S RECEPTION

ST. JOHN'S, NL
MARCH, 2017
BLUE ON WATER

Morgan Harrold (Class of '99), Trevor Dillman (Class of '03) and Mark Santos (Class of '99)

Dr. Gray spoke to our gathering of alumni in St. John's

AGGIE NIGHT
AT THE BEARCATS
RATH EASTLINK
COMMUNITY CENTRE
JANUARY 2017

Amanda Greaves (Class of '10) and Ashley Coffin (Class of '07)

Annette Murphy (Class of '03) and Maddox

Kevin (Class of '10) and Mike Berry, Monica (Class of '04) Sani-Berry

Richard Huggard (Class of '56) and Dwane Mellish (Class of '75)

FARM MECHANIZATION SHOW RECEPTION
MARCH 2017
MONCTON COLISEUM

Jean Lynds (Class of '90), Don Anderson (Class of '78) and Bill Seaman (Class of '56)

Janet & Grant (Class of '61) Colpitts and Derill Armstrong (Class of '61)

Nicolas Roy (Class of '06) and Ryan Weeks (Class of '03)

AGGIES IN THE COMMUNITY

A series of Aggies in the Community events were held throughout the spring. This was a new initiative developed by the Alumni office and the Communications office. These events allowed the Agricultural Campus to casually and consistently engage, in a variety of ways, as a proud member of our local and regional communities.

Two of these events were called "Sip & See's". The first being held at Annapolis Cider Co in Wolfville with Faculty Research Chair, Dr. Sean Myles. Dr. Myles discussed the value-add to local agricultural products with the generation of high-value beverages such as that of Annapolis Cider.

The second was held in Stewiacke at Coldstream Clear Distillery. Alumni, Riley Giffen (Class of '16) and his dad, Robert (Class of '89) toured guests around their operation and explained their unique approach to making high quality products.

CONVOCATION

Chair, Faculty of Agriculture Alumni Association, Audrie-Jo McConkey attended the Graduation Banquet and presented the Life Executive with a gift on behalf of the Association. L – R: Valedictorian, Holly Fisher, Life President, Ellen Sharp, Audrie-Jo and Life Secretary, Mark Trenholm.

Contribution to Student Life Recognized at Faculty of Agriculture Graduation Banquet

Dalhousie University's Faculty of Agriculture celebrated its annual Convocation ceremony Friday, May 12th although celebrations began Thursday evening with a Commemorative Tree planting ceremony in the Alumni Gardens followed by a Graduation Banquet.

The banquet is a highlight of graduation celebrations and provides an opportunity for members of the graduating class to be recognized with Distinguished Graduate Awards.

This year, Distinguished Graduate Awards were presented to Jessie Swinamer, Ellen Sharp, Alana Bent and Cassie Martel.

The Distinguished Graduate Award is designed to express the Faculty's acknowledgment and appreciation to graduating students, who have, through their time, energy, talent and leadership enriched the campus community during their studies without neglecting academic pursuits. Recipients are recognized for contributions made through their involvement over time in multiple activities, including, but not limited to, student government, campus activities, community service, sport and recreation, internationalization, or other campus programs.

The Noel Enman Memorial Award, instituted in 1984, is presented annually to a technician or technology graduate whose personality and fellowship has contributed to student life and activities thereby gaining the respect of students and faculty. This award was presented to Brenda Mulrooney.

The Dr. Gerry W. Friars Undergraduate Research award was presented to Laura O'Quinn. The award is presented annually to a student who is judged to have completed the best written research report as part of his or her Research Methods course. Dr. Friars, an NSAC alumnus from 1948, was introduced to a career in research through an undergraduate research project. More on page 23.

The Life Executive of the Class of 2017 were also acknowledged at the banquet. The Life Executive will represent the class and their interests through the Faculty of Agriculture Alumni Association. Valdictorian Holly Fisher, Life President, Ellen Sharp and Life Secretary, Mark Trenholm.

"Every year I am amazed by the accomplishments of our students," said Assistant Dean Students, Dr. Keltie Jones. "They have contributed so much to our campus community and I am confident they will continue to make a difference in the world around them. I wish them all the best and look forward to hearing about what they will do next."

The Class of 2017 also presented the traditional class composite to the Faculty during the banquet.

This year, Distinguished Graduate Awards were presented to Jessie Swinamer, Ellen Sharp, Alana Bent and Cassie Martel.

Dr. David Gray presented the Noel Enman Memorial Award to Brenda Mulrooney.

CONVOCATION

Sergeant at Arms Mr. Terry Farrell with the Royal Canadian Legion Colchester Branch #26, Life Secretary Mark Trenholm, Dean David Gray, Valedictorian Holly Fisher and Life President Ellen Sharp.

Commemorating Vimy at Dal Convocation

A commemorative Vimy Ridge Oak was planted in the Alumni Gardens as part of Convocation celebrations, May 12, on the Dalhousie Agricultural Campus.

The 5-ft English Oak, one of only 40 in Atlantic Canada, is a gift from the Class of 2017 to the Faculty of Agriculture. The Vimy Ridge English Oak commemorates the 100th anniversary of the Battle of Vimy Ridge — the First World War battle that is considered a defining moment in Canada's history.

"The Class of 2017 is extremely proud to be able to present one of the Vimy Ridge Oaks as our gift," said Class President Ellen Sharp. "Trees have been given as grad gifts in the past and are often used to describe a student's journey through their years at the AC. Beginning as seedlings, spreading roots and being enriched by the resources that we are surrounded by," she added. "This tree, however, has a legacy much deeper than many previous gifted trees. This tree is a genetic descendant from one of the acorns recovered after the battle of Vimy Ridge and will be a reminder of the strength and determination of those who gave their lives one hundred years ago."

The origin of the Vimy Ridge Oaks dates back to the battle's aftermath in April 1917. Lieutenant Leslie Miller of Scarborough, Ont. gathered a handful of acorns from a partially buried English Oak on the Ridge as a souvenir of the battle. He later planted those acorns on farmland back in Scarborough that he he called 'Vimy Oaks Farm.'

Today, several of the original oaks survive — but none remain on Vimy Ridge itself. Two years ago a team of professional arborists, working with the Vimy Foundation, began to graft cuttings from the original oaks in an effort to return Vimy Oaks back to France in honour of the centennial anniversary of the battle. A decision was also made to propagate additional oaks from the originals in Ontario for distribution across Canada.

Jim Landry, executive director of Landscape New Brunswick, obtained the trees from the Vimy Oaks Legacy Foundation for the Maritime Region and made one available to the Faculty of Agriculture at the request of Assistant Professor Tracey MacKenzie.

"I'm happy to be able to connect the graduating students with this opportunity to donate a living legacy that goes beyond simply recognizing their time on campus," said MacKenzie. "But also pays tribute to the sacrifice of our veterans that ensured their freedom to pursue an education."

"This is such a special honour for our Faculty, our campus and our university," said David Gray, dean of the Faculty of Agriculture and principal of the Dalhousie Agricultural Campus. "Our grounds are a source of learning, pleasure and pride for the university and broader community and I cannot think of a more fitting location to honour our alumni veterans and the veterans of our community than in our Alumni Gardens."

Landry has a personal connection to the Vimy Ridge Oaks project: his great uncle John Ashe died in the war and was buried in northern France. He recently had the opportunity and privilege to be the first in his family to visit Ashe's grave and in November handed John's wooden grave marker over to Canada's Chief of Defense Staff and ultimately, the Canadian War Museum in Ottawa.

"I regret I cannot be in Truro to watch this tree being dedicated to the memory of those who fought in the Great War," said Landry. "I will visit it often and I will reflect and I remind you that the species of this oak is 'robur' which in translation means 'strength.'"

Camelina— *The Next Big Oilseed*

Associate Dean Academic, Dr. Claude Caldwell, at the Faculty of Agriculture, believes there is a big opportunity for Camelina in the region and sees it as the next big oilseed for Canada.

"We're really working to develop Camelina from the genetic stage through to end-product with the idea that we develop the full value chain – in other words, its grown here, processed here and used here," he explained.

Camelina sativa, or false flax, is a hardy oilseed plant that is rich in omega-3 fatty acids, protein and antioxidants. This super-nutritious plant is used as a vegetable oil for human consumption and as an ingredient or supplement in some animal feeds.

Working closely with seed producers and feed companies, Dr. Caldwell and his team are looking to develop opportunities for camelina in the region.

One such opportunity is as a feed ingredient for farmed salmon and trout.

A recently completed large-scale study of camelina oil managed by Genome Atlantic with support from the Atlantic Canada Opportunities Agency Atlantic Innovation Fund, found camelina to be an excellent match to the fatty acid composition required in the diets of farmed fish.

The Canadian Food Inspection Agency (CFIA), in response to Genome Canada's application, agreed and recently approved the use of mechanically-extracted camelina oil as a feed ingredient for farmed salmon and trout.

Fish feed manufacturers have also explored the use of crop-based oilseeds like camelina as viable and cost-efficient substitutes for wild-sourced fish oils and proteins currently used in fish feeds.

While the CFIA's recent approval only covers camelina oil, Dr. Caldwell and his Dalhousie team are currently conducting feeding trials for the CFIA on camelina meal. "Camelina meal can't entirely replace fish meal used in fish feeds, but it could replace some of that meal," he said.

Camelina is grown in many parts of the world, including North America and Dr. Caldwell suggests camelina could be a good rotation crop for potatoes, making it a potentially viable option for farmers in the Maritimes. "There are about 150,000 acres of potatoes planted in this region. Camelina could be a successful rotation crop that could open new markets for farmers while making the aquaculture industry healthier and more sustainable," he added.

Honours student Hannah Arseneault, under the supervision of Dr. Caldwell, is also looking at the potential of intercropping Camelina with peas. "Another big opportunity with this project, is protein crops," he added. "There is literature that shows synergies between these two crops and hence a possibility that growers may be able to make more money per acre growing the two together than separately."

Dr. Caldwell has been working with Camelina for the past ten years and although retired at the end of June, is passionate about continuing his work on Canada's next oilseed.

The Camelina Project has also received support from The Research and Development Corporation of Newfoundland and Labrador (RDC), the provinces of Nova Scotia and New Brunswick, the University of Saskatchewan, Memorial University, Dalhousie University, Agriculture and Agri-Food Canada, Minas Seeds, Cooke Aquaculture and Genome Prairie.

DONOR RELATIONS

JACK JOHNSON

AGRICULTURAL ATHLETICS AWARD

"Although the 1949-50 hockey season at the A.C. was not outstanding from the viewpoint of championships won, it was a good year that will long be remembered by the boys of the team."

And 67 years later, the season summary written in the 1949-50 yearbook for the NSAC hockey team, still holds true.

Jack Johnson fondly remembers playing hockey, as part of the NSAC Rams, while earning his diploma. In fact, the ability to play for the Rams was why Jack chose to study at NSAC in the first place.

"I could have gone to a few other schools, but I had been playing in the same hockey league since I was 16, so I picked the AC. The AC had a team in the same league," recalls Jack.

Jack always has had a passion for sports and although he hasn't played in recent years, that hasn't changed. Through a new named scholarship, Jack has found a way to harness that passion again.

"I believe playing sports while attending university is a great way to learn the skills to succeed in life. This new fund will celebrate that."

This fall, a first-year, full-time student will be the first recipient of the Jack Johnson Agricultural Athletics Award.

"For the past number of years I have been involved on three committees that award high school students with scholarships," explains Jack. Although these awards are for different organizations Jack is associated with, his involvement with these awards got him thinking. "I've really been impressed with the applications and have noticed how attractive other universities are because of what they can offer to high school athletes."

Jack wanted to see more athletes encouraged to choose the Faculty of Agriculture for their education knowing they will be able to continue their athletic pursuits.

"The Rams have a strong Athletics program," says Jack. "Being able to entice more athletes can only improve their competitiveness."

"Athletics is pleased with the way alumni support our programs," says Judy Smith, Director of Athletic Services, Dalhousie Agricultural Campus. "We are thrilled Jack has put fourth this donation to not only attract a student with strong academics but also a sport background."

Once the student is selected, Jack looks forward to meeting the first Jack Johnson Agricultural Athletics Award recipient at the annual Scholarship Banquet, held at the Agricultural Campus in the fall. He hopes that their experiences at the AC will make as positive of an impact as it did for him.

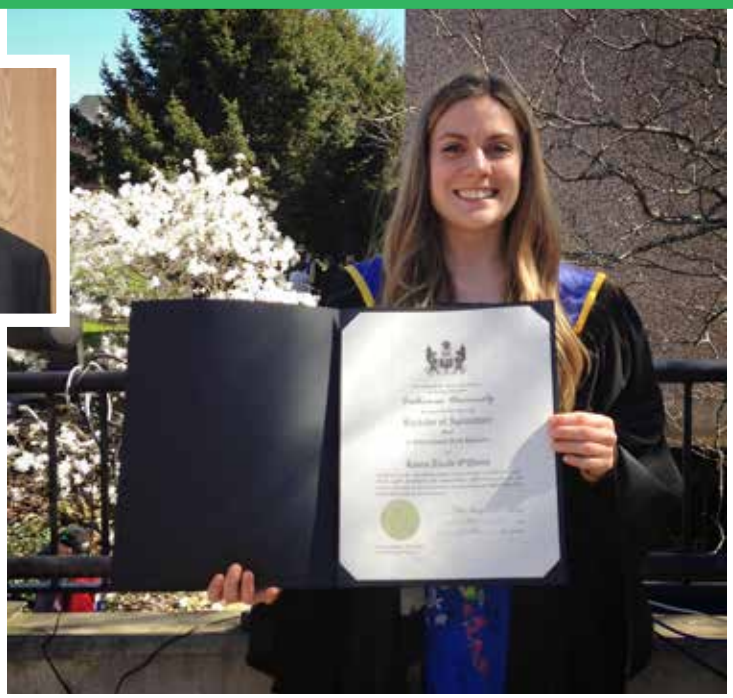
While Jack believes playing sports develops critical life skills, he also refers to the relationship aspect. "Myself and two other teammates, Bob Hanes (Class of '49) and Norm Logan (Class of '50), carried-on to Macdonald College together where we also played hockey on the same team."

The trio stayed in touch over the years. They even returned to the Agricultural Campus for their 60th reunion, in 2010, and re-created a former hockey photo.

"Both Bob and Norm have now passed away," says Jack, "but I won't forget those times."

Thanks to Jack and his generous gift of the Jack Johnson Agricultural Athletics Award soon other students will have the same experience.

DONOR
SPOTLIGHT



Dr. Gerry W. Friars Undergraduate Research Prize

The Dr. Gerry W. Friars Undergraduate Research Prize is awarded annually to the student who is judged to have completed the best written research report as part of the fourth-year project requirements. Laura O'Quinn, from Kippens, NL, was selected as the 2017 recipient.

"I was extremely honoured to be this year's recipient of the Dr. Gerry Friar's award. The recognition that the award has given me as an academic and young-professional means so much as I graduate and begin the next chapter of my life," says Laura.

Laura adds that the award is a great addition to her resume and eases some financial burdens.

Dr. Friars, an alumnus from 1948, was introduced to scientific research by an undergraduate research project, thus beginning a career in research and teaching. His passion for research eventually led him to developing his award at NSAC to financially support students who shared his appetite. Originally valued at $250, Dr. Friar's continued investment has increased the award to nearly $1,000. Over the years, Dr. Friars has financially assisted many students, like Laura.

"Dr. Friar's award has also given me confidence in my ability to succeed," says Laura. "This was my first attempt at research. The process was challenging and I often doubted the quality of my work." Graduation can be an overwhelming time and Laura says it's easy to second-guess your skills and ability to reach your goals.

"The fact that professors with research experience and extensive knowledge of agriculture chose my paper to be worthy of this award has allowed me to set my own goals a little higher and, ultimately, to dream a little bigger," she says.

Laura's winning paper was titled, Farmer perspectives on the use of perennial forages as sustainable management decisions.

"The purpose of my research was to collect farmer perspectives on the use of sustainable crop rotations," she says.

Specifically, Laura surveyed Maritime farmers about their use of perennial forages. This included why, how much, and in what way they include perennial forages on their farms. It also asked farmers if they would be interested in increasing their use of perennial forages and the barriers which limited that possibility. Lastly, the survey tried to get an idea of changes that could be made here in the Maritimes to stimulate change and help farmers overcome the barriers they face in sustainability decisions.

"This research topic was appealing to me because I have felt passionate about sustainability in agriculture since the beginning of my education here at Dalhousie's Faculty of Agriculture. I wanted to focus on this subject but, as a student of business and social sciences, I needed to look beyond just what was good for the environment," says Laura.

She adds that her research touched on economic and social aspects of sustainability by communicating with farmers about the complicated nature of deciding to alter practices based on environmental benefits alone. Laura believes these opinions could be useful to stimulate change and that it is important for researchers, scientists, social activists and farmers to work together if practices are going to shift in a positive direction.

Pleased with the outcomes of her research and findings, being selected as the Dr. Gerry W. Friars Undergraduate Research Prize recipient made Laura's hard work even more worthwhile.

"I sincerely appreciate the generosity and acknowledgement of Dr. Gerry Friar's award," says Laura. "I know that it will surely make a difference to my future career in agriculture."

AROUND AND ABOUT

CORNWALLIS FARMS LTD.

Craig (Class of '86), Geneve (Class of '86), Robert (Class of '10), David and Kathleen Newcombe Brian (Class of '91), Edna (Class of '95), Leah, Evan and Ryan Newcombe

For the Newcombe family, communication and working together is the key to keeping their farm operating smoothly. With the farm now in the hands of the ninth generation, seeing their farm continue to thrive and grow for so long is something that the entire Newcombe family is proud of.

Craig and Geneve Newcombe, in partnership with Craig's brother Brian and his wife Edna, own and operate Cornwallis Farms. The farm, in operation since 1761, consists of 1,700 beautiful acres in the Annapolis Valley and is home to dairy cows, laying hens, and broiler chickens. In addition, the farm produces a number of crops and has an on-farm feed mill to provide feed for all of their livestock.

"The farm is very self-sufficient," Geneve explains. "Over ninety percent of ingredients used in the feed are grown on our farm. We also have an extruder and are able to dry and extrude soybeans for use in our livestock rations."

The Newcombes laying hen operation consists of 21,000 laying hens that produce about 20,000 table eggs daily. The eggs produced on their farm are shipped to Atlantic Poultry Incorporated for grading and distribution under the Nova Egg label.

"Our eggs are shipped to stores all across Nova Scotia," Geneve explains. "It makes our family proud to know that we are supplying such high quality, locally produced eggs to people all across the province."

In addition to laying hens, Cornwallis Farms also has a broiler chicken operation. Geneve explains that they have six barns that produce 1.4 million kilograms of meat each year. Their broilers are shipped to Eden Valley Poultry for processing and distribution.

While Craig mostly oversees the poultry and feed mill operations, Geneve looks after the record keeping and finances and Brian oversees the dairy and cropping operations. Sixty-five dairy cows are housed in a free-stall barn and are fed a mixed ration of haylage, corn silage, grain corn, and soybeans, all of which are grown and processed on their farm. The cows are milked twice a day in a double

"We want to continue to reinvest in the farm to ensure that we, and the future generations, are in an optimal position to face future challenges and opportunities ..."

six parallel parlour. For Brian, farming is both a lifestyle and a business.

"Farming definitely has its challenges but it's a very rewarding lifestyle," Brian explains. "Margins are always getting tighter so you have to start looking at where you put your investment dollars—the equipment you want to invest in and what kind of inputs you want or can cut back on."

With 1,700 acres of crop land, the environment and taking care of the land is a top priority for the Newcombe family. In 1993, they stopped tilling their farm land to reduce soil erosion and improve the health of the soil. Today, the majority of their crop land is not tilled at all or strip-tilled, a conservation system that uses minimum tillage and only disturbs a portion of the soil that is to contain the seed row.

"One of our main goals is to become as environmentally sustainable as we can," Craig explains. "We want to continue to reinvest in the farm to ensure that we, and the future generations, are in an optimal position to face future challenges and opportunities. Our future plans include renovating some of our buildings, installing a new housing system for the laying hens, and installing robotic milkers for milking cows."

Brian also adds that they use GPS and variable rate controllers when fertilizing their crops. This helps reduce overlap and excess fertilizer from being applied.

"We like to believe that we have been good stewards of the land that has been entrusted to us," Geneve explains. "We'll continue to do our best to be mindful of the environment and our community around us."

Although Craig and Brian currently own and operate Cornwallis Farms, Craig's son David is eager to learn the ropes. In 2014, David graduated from Saint Mary's

University with a Bachelor of Commerce and has since brought his business knowledge back to the farm. David is the tenth generation on the farm.

"Growing up on the farm, I learned how to care for the animals and about planting and harvesting from my family," David explains. "I wanted to know more about the business side of things and I wanted to bring that back to the farm."

David is the middle of Craig and Geneve's three children. Craig and Geneve's oldest son, Robert graduated from Dalhousie University Faculty of Agriculture in 2010 with a diploma in engineering. He continued his studies at Dalhousie University in Halifax and now works as an industrial engineer at Barrington Consulting in Halifax.

Craig and Geneve's daughter, Kathleen, is currently in her third year at Acadia University. She studies kinesiology with the aspiration to someday be an occupational therapist. Although Kathleen is not on the farm full time, she works on the farm during the summer and on Christmas break collecting eggs and working in the chicken barns.

Brian and Edna also have three children. Their eldest daughter, Leah, is in her third year of business at Saint Francis Xavier University and is studying to be an accountant. Their son Evan (14) enjoys working on the farm when time allows. Ryan, the youngest of the three, is 10.

In addition to raising their children and managing a bustling farm, Craig and Geneve and Brian and Edna have always been involved and give back to their communities as much as they can. Both Craig and Geneve currently sit on a number of provincial agricultural and community boards and Brian is chair of the Annapolis Valley Farmland Trust.

"My passion has always been in agriculture awareness," Geneve explains. "I love to host farm tours, visit schools, and speak to individuals or groups to help share knowledge about agriculture. As farmers, we have a great story and need to take every opportunity to share it."

Not only is the Newcombe family a 10th generation family farm, they pride themselves on having four generations of AC grads in their family. Geneve explains that Robert F. Newcombe, Craig and Brian's grandfather, graduated in the Class of 1907, just two years after the Nova Scotia Agricultural College opened. Robert H. Newcombe, Craig and Brian's father, graduated in the Class of '45. Geneve and Craig were both Class of '86 while Brian was Class of '91 and his wife Edna was Class of '95. Craig and Brian's brother Andrew, who now operates his own landscaping company, and his wife Audrey are both Class of '91. Finally, Craig and Geneve's son Robert graduated in the Class of '10.

With the farm transitioning into the hands of the 10th generation, Craig is proud that his son David chose to follow in his footsteps and that the farm will be passed down to yet another generation of Newcombes.

"For me, farming was not a choice," Craig says. "Choice infers a decision had to be made. Growing up on the farm was everything. I totally embraced it, loved it and never considered anything else. Listening to my son who has returned to the farm enthusiastically describe to someone his excitement and pride in being the tenth generation to farm this land, it's clear it wasn't a choice for him either. The enthusiasm he shows to take on the challenges of a world who knows less about their food and where it comes from, that's what gives me the most pride."

Vista Bella Farm and Malagash Cidery

SEBASTIAN MARGARIT (CLASS OF '07, CLASS OF '10), BRENNA KONECZNY, YURI, TARAN, AND MARTY

Sebastian Margarit and his wife, Brenna Koneczny are proud to be a first generation farm. They built their farm, Vista Bella Farm, from almost the ground up and now, nearly 10 years later, they are more than ready to expand.

Vista Bella Farm, established in 2007, is a small scale fruit and vegetable farm located on the scenic shores of Malagash, NS. While Vista Bella Farm deals mostly in heritage apples, they also produce cherries, plums, pears, gooseberries, currants, asparagus, yellow and green beans, potatoes, mesclun salad mix, pumpkins, winter squash, and much more. In operation for ten years now, Sebastian and Brenna purchased a neighbouring farm in 2011 to expand their operation. They currently have 131 acres of land, six bearing fruit and another 2.5 that are planted. By the end of this season they will have another acre planted. They grow about three acres of mixed vegetables each year. In addition to the farm store where customers can purchase their vast variety of fruits and vegetables, Vista Bella Farm offers apple picking in the fall.

As first generation farmers, Sebastian and Brenna moved to Malagash from Earltown to grow exotic vegetables. While Sebastian grew up in Amherst and Brenna between Bedford and New Market Ontario, they quickly learned that the Malagash soil was much more suitable for tree fruit production. At Vista

Bella Farm, apples are their specialty.

"We plan on planting many more varieties but will have 82 varieties of apples planted by the end of the year," Sebastian explains. "We'll also have 15 or so varieties of pears, another 15 Asian pears and 12 plum. We want to grow different things to keep life interesting but also to remind people of the history behind the apple in Nova Scotia."

With so many varieties of apples, Vista Bella Farm has recently added a new component to their farm. Malagash Cidery is set to open to customers this summer.

"The new cidery will allow us to showcase some complex varieties in a way people can appreciate," Sebastian explains.

Last year a store was built for apple and vegetable sales so Sebastian and Brenna will sell their cider from that. They hope that one day they will be able to construct a full hospitality suite and potentially an outdoor deck. The cider produced at Malagash Cidery will initially be sold directly to restaurants but will also be available for pre-order by the case. As things progress, Brenna and Sebastian are hopeful that the cider will be available in a few retail locations and select restaurants in Truro and Halifax. Sebastian explains that the idea for their cidery came to him through his work.

"I travel a lot with work," Sebastian explains. "I work with apples in upstate New York, Washington, Holland, India, Mexico, Israel, and the general Pacific Northwest. When travelling in the Pacific Northwest I talked to large influential apple and grape growers about three years ago and they informed me of the newly surging cider industry."

After exploring different types of ciders and different styles of cideries, Sebastian and Brenna realized that the small boutique-style cideries were within their reach as a small producer. They took time to visit family in France where they also fell in love with the high tannin, multi-variety, cloudy but delicious ciders. They toured a cider museum and spoke with locals about cider making. The pair also had the opportunity to visit Spain to sample Spanish ciders.

Needless to say, Brenna and Sebastian did their homework. After playing around with their own personal size batches of cider, Brenna and Sebastian purchased a small mill and bladder press to be able to make larger batches. They invited their community to "U-Juice" days, similar to apple U-Pick days but with cider pressing. Sebastian explains that they were able to take advantage of this and encouraged people to try their cider and give their feedback. He explains it was a great opportunity to understand what people's tastes really were. With that in mind, Sebastian and Brenna are now ready to offer their cider to customers.

"Our mission is simple," Sebastian says. "We want to make local, natural ciders. We plan on only using local Atlantic Canadian products for any cider we make. And if we sweeten, we will use our on farm honey or a light backbend with our own juice made from heirloom varieties."

With a vast selection of apple varieties already, Sebastian and Brenna want to add even more apple varieties to their farm to complement the cidery. Their goal is to have over 100 varieties of apples planted by next year, with around 50 varieties already bearing.

"We are convinced through our own cider making trials that the complexity of a cider is linked to the diversity of the apples going in and so the more variety we introduce the more subtlety of flavors we can expect to find," Sebastian says.

Sebastian and Brenna admit, while their farm is thriving now, it wasn't easy to get where they are today. One of their biggest challenges has been that they

are a first generation farm. Thought they are a first generation farm, the orchard they currently have was planted by Bob Barbour and Elizabeth Barbour.

"Some trees I harvest were planted when I was three by a very forward thinking individual and hardworking family," Sebastian explains. "We have more than doubled what they had planted in trees but we owe much of our start-up success to them."

As their cidery gets set to open, Sebastian and Brenna reflect on the hard work that got them where they are today. Their hard work and dedication to their dream is admired by many local farmers.

"The biggest challenge in being a first generation farm is balancing growth with income on the farm," Sebastian explains. "Luckily, I work off farm or else we would not have been able to re-invest everything the farm makes year after year. I owe much of my success to the NSAC- I definitely wouldn't have a job off farm if it wasn't for the amazing experience I had at that school. We have three boys who we hope might want to take over the farm one day so a big part of developing this farm is for them. We have a lot of farmers who stop in and encourage us to keep the dream alive."

Although neither Sebastian nor Brenna come directly from a farm, their passion for agriculture began at young ages. Sebastian's interest in agriculture began when he was 18 with a community garden project in Amherst where he grew up. The garden project grew vegetables for a local foodbank. Sebastian soon realized his passion and both he and Brenna have worked hard to get where they are today.

"We love farming, we love apples, we love knowing where our food comes from, and we most especially love sharing our bounty with others," Sebastian smiles. "We strongly believe that you reap what you sow and every season is a reminder of how we can do better and work harder the next year."

For Sebastian and Brenna, not only is it important for their farm to thrive, it's important to them that they give back to their community. Sebastian explains that they are very community oriented and try to be involved as much as possible.

"Every year we try our best to get involved with as many charities and causes as we possibly can," Sebastian says. "Many local diners stock up on our apples and potatoes. We also get involved with the foodbank and supply food to them directly throughout the season."

In addition to their community involvement, Sebastian and Brenna aim to make their products available and affordable for everyone.

"We take food security very seriously and want to make sure our products are available to people of all walks of life," Sebastian explains. "We make a point of keeping our prices in line with typical standards as the idea of getting a premium as a small farm is nice but if it makes your products too difficult to access for low income families, I question the merits."

As a small but growing farm, Vista Bella Farm's biggest frustration is offering full time employment for people living in their community. Brenna and Sebastian currently manage the full time jobs on the farm—Brenna is the primary proprietor and deals with retail, bagging and sales, while Sebastian looks after the general agronomy decisions. The other employment opportunities are currently seasonal opportunities. Although this is their current reality, Sebastian explains that their goal is to overcome this.

"We truly want to be able to provide people with living wages and a career on our farm," he says. "That is our main goal for the next couple of years as we reach critical mass; we want to invest in our employees to develop long term skilled workers."

While Sebastian and Brenna are proud of the farm they have built, their greatest pride comes from being able to raise their children on the farm. Their three boys, ages 10, seven, and five, have vast knowledge of the fruits and vegetables that are grown on the farm.

"Our five year old has had a favorite apple for the last two years and he can pick them out (Gala) from the 50 or so varieties he sees each year," Sebastian says proudly. "Our oldest boy can pick out a good Honeycrisp season from a bad before most extension specialists in the province have figured that out. And we love that our middle son picks berries faster than most adults. You might say our biggest point of pride comes from raising kids that know good food from the ground up."

UPCOMING EVENTS

COMMUNITY DAY

Civic Square, Prince St., Truro
Thursday, July 20
10 a.m. – 2 p.m.

Agri-Golf Classic
Friday, July 28

DEAN'S RECEPTIONS

Dempsy's Corner Orchards
Aylesford, NS
Thursday, Sept. 28
7 p.m.

Poley Mountain
Sussex, NB
Thursday, Oct. 26
7 p.m.

The Pilot House
Charlottetown, PE
Thursday, Nov. 23
7 p.m.

HOMECOMING

Agricultural Campus
Oct. 12 – 14

HALL OF FAME

Agricultural Campus
Thursday, Oct. 19

BLUE & GOLD AWARDS

Agricultural Campus
Friday, Nov. 3

ROYAL AGRICULTURAL WINTER FAIR ALUMNI EVENT

Sunday, Nov. 12

Find more details at
dal.ca/agalumni or
call 902.893.6022.

Holly Fisher
Class of '17

Fourth year animal sciences student, Holly Fisher, has found a solution to address global food shortages.

Mealworms. Yes—mealworms.

While many are initially turned off by the idea, the flour that is produced by the mealworms is protein-rich and has a nutty flavour, similar to walnuts. Perhaps more importantly, it is a low cost, high-quality sustainable food source which can be added to most foods and easily shipped to places in need.

Holly first became interested in this field after giving a presentation on the subject in her Agriculture and Contemporary Issues class. Since then, she's been able to turn an interest into a viable business—3MEALS—thanks to the agriculture Cultiv8 sandbox, support through the Norman Newman Centre for Entrepreneurship, and Dalhousie donors.

Since arriving at Dalhousie, Holly has been the recipient of five awards: the Chicken Producers of Nova Scotia Award, the AB Banks Memorial Scholarship, the Roger S Bacon Memorial Scholarship, the Atlantic Poultry Institute Scholarship, and the Phillip Stead Memorial Scholarship for Student Leadership.

She says scholarships she's received have been incredibly motivating for her. "It's inspired me to keep going with my education—an affirmation that I'm doing good work, and that there is a need for it".

And indeed there has. Her work, and the work of others, has been used to advance approvals of Black Soldier Fly Meal, in salmonid diets, through the Canadian Food Inspection Agency: something that is incredibly rare for an undergraduate student. It has also garnered interest from provincial Crown corporation, Perennia, which Holly plans to work with to produce flour and take to commercial market.

This may have to wait a couple of years, and Holly is OK with that—right now, her focus is on her education.

In Fall 2017, Holly will continue her studies through a masters program through Dalhousie and Cape Breton University. She plans to continue her fourth-year research project of using Black Soldier Fly Meal for Atlantic salmon diets, and finding on other ways to use this product to improve food source and nutritional profile for other fish.

As a recipient of multiple awards, Holly is appreciated of the support provided by donors. "The scholarships I have received throughout my education have made a significant impact on my life, and they helped me flourish throughout my degree.

"The donors I have met were all so supportive and really gave me the determination to continue with my studies and extracurricular activities. I would like to thank every person involved in supporting me throughout my journey at Dalhousie, and to let them know that they have made an immense difference in my life. Thank you."

Botanical Garden Designated a
Canada 150 Garden Experience

The Dalhousie Agricultural Campus Botanical Garden is the proud recipient of a 'Canada 150 Garden Experience' designation, awarded by the Canadian Garden Council in collaboration with the Canadian Nursery Landscape Association for the Gardens of the Dalhousie Agricultural Campus

In celebration of Canada's sesquicentennial, 150 gardens and garden experiences across the country were jury-selected to receive the 'Canada 150 Garden Experience' designation highlighting the gardens of the Dalhousie Agricultural Campus as one of 150 garden ways to celebrate Canadas birthday year.

GARDENS DEFINE OUR CANADIAN AESTHETIC

At the awards ceremony, held in March of this year at the North American Garden Tourism Conference in Toronto, Alexander Reford, President of the Canadian Garden Council said, "Canada has a long-standing garden culture. From First Nations gardens that were here long before settlers arrived, to the enormous variety of gardens that every culture has brought to this country since Confederation, gardens from modest kitchen and community gardens to celebrated botanical and public gardens have played a role in defining and developing our Canadian aesthetic and quality of life."

"Our campus grounds and a source of learning, pleasure and pride for the university and wider community and as such are an idyllic place to live, work, play and learn," said Faculty of Agriculture Dean David Gray. "Our Rock Garden, along with shade and herb gardens, a butterfly meadow and apple orchard and other unique features shelter important collections and create quiet havens amid the bustle of campus life. We are very proud to be recognized as a 'Canada 150 Garden Experience' and encourage one and all to visit this summer when our largest classroom is in full bloom."

Boasting more than 26 acres of an extensive plant collection, Dalhousie's Agricultural Campus features a Rock Garden, Herb Garden, Butterfly Meadow and Alumni Garden. Spectacular vegetable and ornamental gardens serve as a living laboratory for Plant Science and Horticulture students, a testing-ground for new ornamental plants and repository for over 3000 types of trees, shrubs and plants – many of them unique to this region. A 50 + year old collection of Rhododendrons and Azaleas also bloom from late May to the end of June on various locations across campus.

"With so many great gardens to visit in Canada from coast-to-coast, the garden staff and volunteers are very pleased to have been selected as one of the designation gardens for the "Canada 150 garden experience" and hope to see you in Truro and on the garden path in 2017," said Botanical Garden Coordinator Darwin Carr.

The gardens of the Agricultural Campus have also been highlighted in the Provincial Garden Road Trip of Tourism Nova Scotia - a concept developed to increase garden tourism in Nova Scotia and to highlight the beautiful gardens and the hard work of gardeners from around the province.

To view the full list of Canada 150 Garden Experience designation winners, visit the Canadas Garden Route website www.canadasgardenroute.ca

As the 2017 garden-visiting season commences, the Faculty of Agriculture can't think of a better honour with which to celebrate the birthday of Our Home and Native Land than being named a 'Canada 150 Garden Experience'.

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