Why Agriculture **Community Report**

2024–2025

DALHOUSIE UNIVERSITY | FACULTY OF AGRICULTURE

Message from the Dean

It is a privilege to share the remarkable achievements of the Dalhousie Faculty of Agriculture over the past year—accomplishments that reflect the dedication, creativity and resilience of our students, staff, faculty and partners. Together, we continue to advance agricultural innovation, support sustainable communities and prepare the next generation of leaders who will shape the food systems and environments of tomorrow.

A few key highlights include the launch of the Atlantic Institute for Digital Agriculture which will enable us to become a global leader in research and innovation in digital agriculture.

Extended Learning launched Future Farm: Precision Agriculture Training, funded by Upskill Canada, powered by Palette Skills and the Government of Canada. This rapid upskilling program takes an industry-led approach to supporting Canadian workers, training them on the most in-demand skills for today's job market.

More than 50 students participated in mobility and international learning opportunities over the past year including to the UK, Netherlands, Dominica, New Orleans and Atlanta.

We celebrated 10 years of partnership with CASE IH and Tidal Tractor and we are on the road to receiving our 150th piece of equipment. This partnership has played a pivotal role in enhancing student education and advancing campus operations.

Mi'kmaw Natural Resources is now being offered on our campus and introduces students to Indigenous practices of being custodians of the land and animals. Students can interact with Mi'kmaw community leaders and gain a greater understanding of what it means to live and learn in Mi'kam'ki.

As we look ahead, we do so with optimism and determination. In every classroom, lab, greenhouse, barn and community partnership, the Faculty of Agriculture is living its mission: to cultivate knowledge, lead innovation and help build a more sustainable, secure and healthy future for all.

Thank you to everyone—students, faculty, staff, alumni, industry partners, and community members—who has contributed to another extraordinary year.

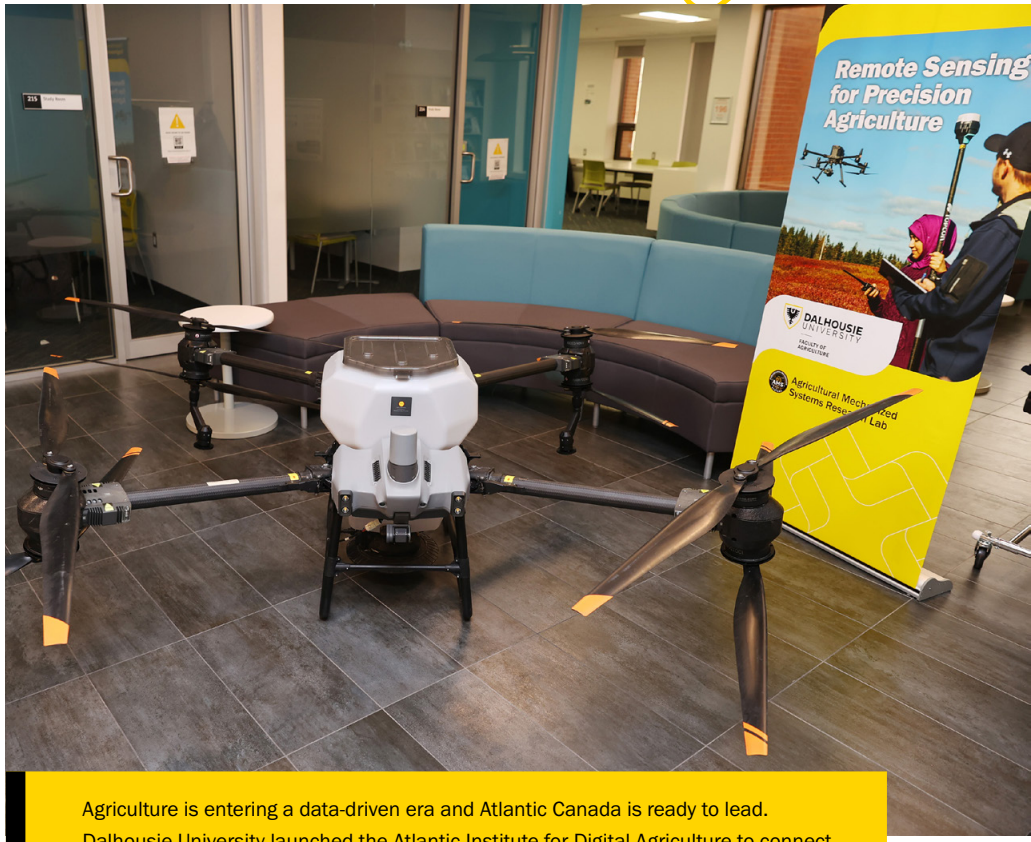
Sincerely,

Dean Heather Bruce

Local and global sustainability

The Faculty of Agriculture is committed to making important contributions to slow the rate of GHG concentrations by developing agricultural and landscape practices that reduce or offset negative impacts on the environment, increase farmer income, support sustainable communities, improve soil production and water quality and enhance wildlife habitats.

- The Atlantic Institute for Digital Agriculture was launched enabling the Faculty of Agriculture to become a global leader in research and innovation in digital agriculture.
- Twenty-four students in Grades 7 – 12 participated in the Culture of Growing program, a youth-led community garden and greenhouse program that contributes to community food security.
- Up to $6.8 million was awarded for Organic Science Cluster 4 through Agriculture and Agri-Food Canada's AgriScience Program, an initiative under the Sustainable Canadian Agricultural Partnership.
- There were five new post doctoral fellows in sustainable agriculture at the Faculty of Agriculture, including two alumni, who are addressing food insecurity, water quality and availability, soil degradation and more thanks to the generous funding of the McCain Foundation.
- A team of eight fourth year Agricultural business students launched the Harvesting Impact podcast, a student-led initiative developed under the guidance of Dr. Tasha Richard.



Agriculture is entering a data-driven era and Atlantic Canada is ready to lead. Dalhousie University launched the Atlantic Institute for Digital Agriculture to connect researchers, industry and government in driving innovation, sustainability and food security through advanced technology.

As agriculture faces mounting pressure to feed a growing population amidst climate change and resource constraints, a new revolution is underway driven not by tractors and tillage, but by data, AI and digital connectivity.

Local and global sustainability

- Sarah Stewart-Clark led an interdisciplinary team that was awarded $484 000 to examine the impact of storm events and sea-level rise on marine invertebrates in the intertidal zone.
- A first in a series of provincial science workshops was held on campus connecting industry, researchers, academia and government with an initial focus on digital agriculture.
- Faculty of Ag students triumphed at the Atlantic Engineering competition earning a national silver.
- Eighteen Agriculture students along with three instructors from Romblon State University in the Philippines took part in a Summer Enrichment Camp on campus.
- Extended Learning launched Future Farm: Precision Agriculture Training, funded by Upskill Canada, powered by Palette Skills and the Government of Canada. This upskilling program takes an industry-led approach to supporting Canadian workers, training them on the most in-demand skills for today's job market.
- Cultiv8 employed seven part-time and four full-time student interns, a full-time farm coordinator and hosted 20 events with over 1200 attendees. Programming has been integrated into five academic courses.
- More than 50 students participated in mobility and international learning opportunities over the past year including to the UK, Netherlands, Dominica, New Orleans and Atlanta.
- Dr. Paul Manning received approx. $250,000 as the co applicant on the NSERC Grant: LeafHope: A Comprehensive Toolkit to Reduce Insecticide Use and Greenhouse Gases in Canada. NSERC Alliance Grant – Sustainable Agriculture. Dr. Manning also helped lead the development of a new certificate in Agriculture, Food and Sustainability
- Dr. Mason MacDonald, with Drs. Travis Esau and Mathieu Bilodeau completed a project on using remote sensing to predict nitrogen requirements for Christmas trees. This work was presented at two international conferences, a seminar at Michigan State University and a published paper.

Dr. Stefanie Colombo, Assistant Dean Research; Dr. Travis Esau, Director, Atlantic Institute for Digital Agriculture; Carolyn Van Den Heuvel, Executive Director Nova Scotia Federation of Agriculture; Amy Melmock, Executive Director, Industry Development Department of Agriculture; Dean of the Faculty of Agriculture Dr. Heather Bruce and student Humphrey Maambo, McCain Farm of the Future

Local and global sustainability

- Dr. Mason MacDonald also received a grant from the Sustainable Canadian Agricultural Partnership to explore seed treatments to improve growth of balsam fir trees and reduce impact of environmental stresses.
- Dr. Chris Hartt, Dr. Gary Grant, Dr. Gumataw Abebe, Dr. Temitope Ojo, Ashley MacDonald and Anne Grant-Bennett were awarded a bid for their proposal on an economic impact study for the Nova Scotia Federation of Agriculture, conducting an objective economic impact assessment of the status of Nova Scotia's agriculture industry to evaluate its contributions to the provincial economy along with key challenges and opportunities.
- Suresh Neethirajan: Human–Computer–Farm Animal Interactions webinar (80+ participants, 18 countries) and Millbrook First Nation partnership to establish leadership in ethical, inclusive AI innovation.
- Audrie-Jo McConkey was awarded the 2025 achievement in Internationalization Award. This year, she led an Aquaculture field course in the Philippines and organized a once in a lifetime opportunity for a group of students studying Aquaculture Systems Technology to travel to New Orleans to attend the World Aquaculture Society conference and Recirculation Aquaculture Systems short course.
- McCain Foundation Postdoctoral Fellow in Sustainable Agriculture, Dr. Xujie Li, explored early feeding strategies for newly hatched broiler chickens and redistribution of potato peel as a value-added feed ingredient for use in poultry diets and presented his findings at this summer's Poultry Science Association annual conference.
- Dr. Jing Lu published research comparing the gut microbiomes of wild and captive polar bears, offering insight into the potential impacts of habitat loss on wild populations and broader implications for other species and the circular bioeconomy.
- Jacob Foster, a MSc student co-supervised by Dr. Stephanie Collins and Dr. Renee Petri (Agriculture and Agri-Food Canada) continued his research exploring the use of anti-methanogenic feeding strategies, such as the use of linseed products and seaweed on the rumen environment and greenhouse gas emissions of dairy cows.
- Kaitlyn Newton, an honour's student in the Department of Animal Science and Aquaculture working with Dr. Stephanie Collins and Dr. Natalie Diether, conducted a nutrition research trial in honeybees determining the impact of feeding strategies and the use of bioactive extracts to ameliorate winter losses due to disease.
- Research and teaching in Plant Food and Environmental Sciences integrated AI and machine learning into environmental management, enabling real-time monitoring, pollution detection, and the development of models to predict harmful algae blooms and optimize fertilizer use.

Food Security

The Faculty of Agriculture is committed to improving food security locally and globally through our teaching, research, international activities and local partnerships.

- Kubota Canada renewed an agreement to provide the Faculty of Agriculture with the use of six pieces of landscape and grounds maintenance equipment for a second three-year period. This leading-edge equipment and technology will support managed landscapes programs and campus operations.
- The student Food Pantry served an average of 85-90 students per month for 12 months. Each student was supplied with three to four days of food per visit as well as access to menstrual products, hygiene items and sexual health supplies. A generous partnership with Organic NS and the Wolfville Farmers Market also provided several dozen holiday food hampers to students remaining in Truro through the winter holiday.
- The Faculty of Agriculture celebrated 10 years of partnership with CASE IH and Tidal Tractor and is on the Road to 150 having celebrated a significant milestone, marking the delivery of the 141st tractor in its highly successful partnership. This partnership has played a pivotal role in enhancing student education and advancing campus operations, underscoring the university's commitment to innovation and excellence in agricultural studies.
- Masstown Market and the Jennings family provided a generous donation which is fueling the Cultiv8 program at Dalhousie's Faculty of Agriculture. This funding will provide student internships and programming to boost community food security and enhance entrepreneurship.

By students, for students. The student Food Pantry in Cumming Hall provides low-barrier, confidential access to food essentials and has grown substantially since it was initiated in September of 2022. This past year, the Food Pantry served close to 90 students monthly. These students rely on the year-round service for nutritious food and essential items like menstrual products, hygiene supplies and sexual health resources. Whether over the summer break or through winter holidays, the pantry remained a steady source of help, powered by a wide network of donors, student organizations, and on-campus partners.

Food Security

- Dr. Phoebe Stephens, Department of Business and Social Sciences, was the first researcher from Dalhousie University to receive the prestigious Social Sciences & Humanities Research Council Open Research Area (ORA) 8 grant as Principal Investigator. The project, *Capitalizing on Food System Transformation*, is valued at $1.6M and represents a highly competitive international funding opportunity supporting innovative research in the social sciences.
- As part of International Development Week, the Faculty of Agriculture, in collaboration with the Colchester Food Network, hosted an exciting international cooking class at the Truro Fire Service. This free event offered participants a chance to explore diverse culinary traditions while learning about global and local food security and sustainability.
- Bridge Into Agriculture is a program hosted by Extended Learning to help bridge the gap between African Nova Scotian communities and agriculture through the production of a small vegetable garden. The program completed its fourth year with 18 students with over 50 since its inception.
- Extended Learning hosted an Ag Drone School with ten participants from NS and 21 from PEI advancing precision agriculture. Hosted in partnership with Landview Drones.
- Fifteen women trained in partnership with Green Diamond in a Tractor Safety Course for Women.
- PEI and NS Farm Technician Apprenticeship program continues.
- Fundamentals of Beekeeping continues in partnership with Atlantic Tech Transfer team for Apiculture.
- The Flax Fibre to Fabric Project is a collaborative initiative aimed at reducing Canada's reliance on imported textiles by developing a sustainable flax-based textile supply chain in Atlantic Canada, with Dalhousie researchers studying soil health, crop nutrition, and fibre flax ecology.

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Food Security

- In April 2025, instructors Rongrong He and Frank Cheang, together with colleagues in FAFU, led approximately 20 students from FAFU's 4+0 programs in a co-curricular activity to transform a patch of grassland on the Qishan campus into a small garden where they planted a variety of vegetables and ornamental flowers.
- Dr. Paul Manning contributed to a multidisciplinary review discussing conservation challenges and opportunities for native apple (*Malus*) species in Canada as well as farmer outreach at three separate events.
- Vijaya Mohan, a graduate student working with Dr. Mason MacDonald, has identified a seed priming agent that improves broccoli yields in greenhouse and field trials.
- Striped bass is a potential alternate fish to salmon that thrives at >20 C. North River Fish Farm is working with Dr. Jim Duston and has completed the production cycle and looks forward to increasing production. Live 2kg product was trucked to New York's Fulton Fish Market and was well received.
- David Barrett developed a rapid test for the detection of bovine viral diarrhea virus antibodies in bovine blood.
- Sarah Stewart-Clark is a member of the Nova Scotia Premier/Minister's Advisory Roundtable on Sustainable Development and Climate Change, 2022-present.
- Sarah Stewart-Clark was awarded the Host Committee Discover Halifax award for co-hosting the 23rd International Conference on Aquatic Invasive Species in Halifax, Nova Scotia in 2024.
- Sarah Stewart-Clark organized and moderated a three-speaker public forum updating the community on outcomes related to the Town of Truro Municipal Deer Hunt at the Faculty of Agriculture. This is a partnership with Millbrook First Nation, the NS Department of Natural Resources and the Faculty of Agriculture over the past four years.
- Fraser Clark and Sarah Stewart-Clark attended Dalhousie Engagement Days Fisheries Round Table in Yarmouth NS where Fraser Clark presented his research called "From Ocean to Table: Collaborative Research on Lobster and Crab Health.
- Sarah Stewart-Clark and Fraser Clark worked with students at Maple Grove Education Centre teaching them how to assess lobster health and monitor their heartrates.
- Fraser Clark initiated a collaborative project with the Nova Scotia Seafood Alliance and the NS Government for maintaining health and sustainability in the live lobster holding and shipping sector.
- Dr. Jing Lu and Dr. Stephanie Collins in the Department of Animal Science and Aquaculture continued their research on early nutritional programming to enhance the health of broiler chickens raised without antibiotics.
- Dr. Younes Miar and his team are improving pig feed efficiency with support from NSERC, Ontario Pork, and the Pig Improvement Company by analyzing over 1.4 million feeding records from 19,000 pigs. They developed residual feed intake as a feed-efficiency indicator, showed it is moderately heritable, and demonstrated it can be selected for without harming other production traits. The team is now using genomics and machine learning, in collaboration with CCSI and PIC, to apply this indicator in breeding programs.

Health and Well-Being

The Faculty of Agriculture is committed to supporting health and well-being locally and globally and improving public trust in the role agriculture plays in sustaining healthy communities and ecosystems.

- Aggie WIL hosted its largest Career Fair connecting nearly 400 students with employers.
- Secured a three-year renewal with CORCAN supporting horticultural competency-based education and therapeutic horticulture for incarcerated women in federal prison.
- Three top graduate students were awarded BMO Financial Group Graduate Scholarships in Agriculture and are being empowered to tackle sustainable food production and global health.
- The provincially funded R. Elmer MacDonald Agricultural Scholarship was established to provide PEI undergraduate students attending the Faculty of Agriculture with $1,500 in student financial support annually.
- Now in its fourth year, the Truro Start program has experienced consistent growth in enrolment, reflecting its increasing popularity among incoming students. Participating faculties include Science, Arts and Social Sciences and Recreation Management. In Fall 2025, the campus welcomed 63 new students through the Truro Start program, further strengthening its role as a vibrant and inclusive academic hub within the university community.
- Rams summer camp programs welcomed 281 youth to campus to participate in Active Kids Volleyball, Soccer, Badminton, Basketball and Mini University.
- Zach Comber won the ACAA Cross Country Championships and placed 22nd at the CCAA National Championships, one of the top finishes of all time by an ACAA athlete.

Mi'kmaw Natural Resources will introduce students to Indigenous practices of being custodians of the land and of animals. Students will have the opportunity to interact with Mi'kmaw community leaders and gain a greater understanding of what it means to live and learn in Mi'kam'ki. Topics will include economic development, land, aquaculture, fisheries, animals, environment, climate change, forestry, green communities and plants.

Health and Well-Being

- Men's Loggersports won the 2025 Canadian Intercollegiate Lumberjacking Association National Championship.
- The Rams hosted the 2025 ACAA Badminton Championships and placed third in the Conference Championships.
- Joel and Mikel Cote placed second at the ACAA Badminton National Qualifier on route to a fifth-place finish in Men's Doubles at the CCAA National Badminton Championships.
- Dalhousie Rams Women's Volleyball made it to the semi-finals at the ACAA Championships.
- Ms. Cyndi Parks inspired the community through her education and outreach activities with a Girl Guide evening soils workshop, Grade 3 Agriculture Literacy program in Scotsburn Elementary, and Westville Walter Duggan Elementary. She presented a soils session at Awkitat youth camp, as well as volunteering as a 4-H public speaking leader / Horticulture leader.
- Dr. Ji Lu advanced research on sustainable food consumption, exploring how dietary choices improve individual health, support environmental sustainability, enhance consumer well-being and contribute to rural community development and social equity.
- Community Education hosted interactive field trips, got involved within community and oversaw the planning of special events on campus such as AgZone, Grow Where You're Planted and Community Day.
- Dr. Kathleen Kevany leads a national, collaborative effort to reimagine public food systems in Canada, bringing together researchers and partners to promote delicious, appealing foods that support both human and planetary health while measuring the impacts of food systems change.
- Suresh Neethirajan and the mooanalytica research group uniquely positions animal welfare as central to production agriculture. The mixed-reality demonstrations as part of community day at Truro campus reduce animal stress during education; the Millbrook partnership connects Indigenous wisdom with technology; the dairy focus addresses farmer mental health explicitly.

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