



CSABE | SCGAB

ANNUAL REPORT

2025

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2025 AGM Agenda

THE ANNUAL GENERAL MEETING OF
The Canadian Society for Agricultural and Biosystems Engineering
La Société canadienne de génie agroalimentaire et des biosystèmes

Date: July 14, 2025 at noon EDT

Meeting Formalities

1. Greetings and call to order by the President
2. Attendance sign-up
3. Appointment of Chairman & Secretary of the meeting
4. Verification of Notice of the Meeting (requirement is 14 days)
5. Verification of Quorum (25 members, including at least 5 Council members)
6. Additions to the Agenda

Agenda

1. Approval of Agenda
2. Approval of Minutes of the previous Meeting on July 8, 2024
3. Unfinished Business
 - a. Society Name Change Progress
4. New business:
 - a. New Editor-In-Chief, Journal restructuring, and modifications to Bylaws
 - b. Approval of 2025 Council Member Annual Reports and Treasurer Report
 - c. Approval of 2025-2026 Budget
 - d. Approval of Nominating Committee Report
 - e. Introduction of Council Members
 - f. Appointment of Signing Authorities
 - g. Appointment of Auditor (Thornton & Co, Winnipeg, MB) for 2025 Financial Statements
5. Announcements:
 - a. CIGR Presidium
 - b. 2026 CSABE Meeting in Saskatchewan
 - c. CSABE/SCGAB Foundation
6. Closing Remarks (President Esau passing the Gavel to President Elect Godbout)
7. Adjournment

2024 AGM Minutes

MINUTES OF THE ANNUAL GENERAL MEETING OF MEMBERS OF
The Canadian Society for Agricultural and Biosystems Engineering
La Société canadienne de génie agroalimentaire et des biosystèmes

Held July 8, 2024 – 12:08 to 12:32 pm CDT

Greetings and Call to order (President Orsat).

Attendance sheets circulated and signed by membership.

CHAIR AND SECRETARY OF THE MEETING

Upon motion made (Stéphane Godbout) and duly seconded (Nicholas Lefebvre), it was unanimously resolved to appoint President Orsat and Sébastien Fournel as chairman and secretary of the meeting. **Approved.**

NOTICE OF MEETING

The Notice of Meeting requirement (14 days) was met.

QUORUM

The quorum requirements were met.

ADDITIONS TO THE AGENDA

None.

APPROVAL OF AGENDA

Upon motion made (Valérie Orsat) and duly seconded (Shiv Prasher) the agenda was approved.

APPROVAL OF MINUTES OF PREVIOUS MEETING

Upon motion made (Valérie Orsat) and duly seconded (Grant Clark), it was unanimously resolved to accept the minutes as distributed. **Approved.**

ANNUAL REPORT

An Annual Report document (compilation of Council members' Annual reports) was provided to members in advance via the newsletter. The Annual Report included the Agenda, the 2023 AGM Minutes, the proposed 2024-2025 Budget and Statement of Revenues, Expenditures and Holdings. It

was moved (Valérie Orsat), duly seconded (Keith Duhaime), and **Carried** that the Annual Report be approved as distributed.

UNFINISHED BUSINESS

- a) Society name change process: At the 2022 AGM, Danny Mann presented Society name voting results in favor of Canadian Society of Agricultural and Biosystems Engineers. During the fall 2022, the Council retained the attorney firm Taylor McCaffrey (Winnipeg, MB) for help in formalizing the name change for both Society and Foundation. In winter 2023, the name reservation for "The Canadian Society for Agricultural and Biosystems Engineering" was rejected because the name contains the word "Engineering". During the spring 2023, the Society manager got information from each governing regulator. During the year 2023-2024, he contacted the 12 bodies and got consent letters for both entities (Society and Foundation) for the English and French names. We are waiting the consent from Engineers Canada.

NEW BUSINESS

- a) The budget for 2024 was included in the Annual Report and presented by Treasurer, Senthilkumar Thiruppati. Upon motion made (Valérie Orsat) and duly seconded (Keith Duhaime), it was unanimously resolved to accept the 2024-2025 budget as distributed. **Approved.**
- b) Upon motion made (Valérie Orsat) and duly seconded (Vijaya Raghavan), it was unanimously resolved to accept the Nominating Committee Report as included in the Annual Report. **Approved.**
- c) New Council members were introduced.
- d) Upon motion made (Valérie Orsat) and duly seconded (Ramanathan Sri Ranjan), it was unanimously resolved that Sébastien Fournel and Senthilkumar Thiruppati be the signing authorities until the 2025 Annual Meeting. **Approved.**
- e) Upon motion made (Valérie Orsat) and duly seconded (Stéphane Godbout), it was unanimously resolved to reappoint Thornton & Co. as auditors for the 2024 financial activities. **Approved.**

ANNOUNCEMENTS

- a) Valérie Orsat introduced the location of 2025 ASABE-CSABE Joint Meeting AGM in Toronto.
- b) Sébastien Fournel reminded members to consider donating to the Foundation at the time of membership renewal. Last year, the Foundation supported 2 Quarter Scale Tractor Teams (Saskatchewan & Laval) and 4 Scholarships (total of \$2200). With almost \$500 in administration fees, **expenses nearly exceeded donations** (\$2,000).

CLOSING REMARKS

President passing the Gavel to President Elect (Valérie Orsat to Travis Esau)

ADJOURNMENT

President Orsat thanked all participants at the AGM, called for adjournment at 12:32 pm **CDT** that the meeting be adjourned (motion = Valérie Orsat; seconded = Travis Esau).

Minutes recorded by:

Sébastien Fournel, Society Manager, Date of approval: July 8, 2024.

2025 Treasurer Report

The following is the treasurer's report for fiscal 2024 and is based on the year-end audit as compiled by Thornton and Co.

Expenditures, Revenues and Budgets

The expenditure, revenues and budgets are shown in Table 1 for this and the previous years. The shaded column in Table 1 is the actuals for 2024. There was a surplus of \$24,782 for the year. This compares to a surplus of \$38,207 for the previous year. The surplus is mainly because of our investment gaining \$39,649 or about 19 % of its value. Through this period (Jan 1, 2024, to Dec 31, 2024), both the Canadian and American stock markets performed extremely well.

Projected Budgets

At our July 2024 AGM, we budgeted for a deficit of \$21,250 of expenses over revenue for the year, but we gained \$24,782 as an excess revenue. We are expecting some revenue from the 2025 combined ASABE/CSABE event.

Net Assets

Table 2 shows the Assets and Liabilities for CSABE for the past 2 years as taken from the auditor's report. At the end of 2024, net assets stood at \$246,726, which includes the BMO operating account, the Nesbitt Burns long-term investment account, accounts receivable and prepaid expenses. This is an increase of \$24,782 over the previous year, or about 11%.

Bank and Investment Accounts

Table 3 shows a breakdown of the cash and investment assets at year's end compared to the previous 3 years. Throughout the year, the long-term investments increased, mirroring an uptick in the stock market. We are expecting a tough 2025.

Summary

CSABE has sufficient investments to prudently carry on in the near term. However, membership revenue is going down or staying the same, and revenue from the conferences going down is a concern going forward. The revenue from the CSABE journal has also reduced significantly.

Table 1. Statement of Revenue, Expenses and Budgets for 2024.

Revenue	2023 Budget	2023 Actuals	2024 Budget	2024 Actuals	2025 Budget	2026 Budget
Membership fees	\$19,000	\$18,564	\$16,000	\$19,717	\$18,000	\$18,000
Annual Gen Meeting (AGM)	\$45,000	\$86,480	\$80,000	\$84,886	\$80,000	\$80,000
Canadian Bio Systems Journal	\$8,000	\$11,477	\$8,000	\$4,651	\$10,000	\$5,000
Advertising	\$500		\$0		\$0	
Expense recoveries (rebates)	\$0	\$1,711	\$0	\$2,678	\$0	
Investment income	\$3,500	\$2,258	\$2,000	\$39,649	\$2,000	\$5,000
Unrealized capital gains	\$4,000	\$20,078	\$4,000		\$8,000	
Total Revenue	\$80,000	\$140,568	\$110,000	\$151,581	\$118,000	\$108,000
Expenditure						
Annual General Meeting (AGM)	\$40,000	\$61,026	\$70,000	\$75,089	\$75,000	\$75,000
President's travel to ASABE	\$3,500	\$0	\$3,500	\$4,006	\$2,000	\$4,000
CDN Bio systems Journal	\$2,000	\$2,027	\$2,000	\$587	\$2,100	\$1,500
Journal reviewer's incentives	\$1,500		\$1,500		\$1,500	
Journal Translation	\$600		\$600		\$600	
CIGR /ASABE Dues	\$1,100	\$788	\$1,100	\$845	\$1,100	\$1,000
EIC dues, directors' insurance	\$2,200		\$2,200	\$4,058	\$2,200	\$4,100
EIC project	\$0		\$0		\$750	
General and student awards	\$5,500	\$7,600	\$9,000	\$9,550	\$8,000	\$9,500
Grad student dues	\$1,500	\$1,470	\$1,500	\$373	\$1,500	
Insurance	\$812	\$3,302	\$900		\$900	
Interest, bank /credit charges	\$400	\$290	\$400	\$296	\$400	\$400
CSABE manager honorarium	\$12,000	\$12,000	\$12,000	\$12,000	\$12,000	\$12,000
CSABE manager office	\$3,750	\$189	\$3,750	\$154	\$1,000	\$1,000
Professional audit, CRA filing	\$2,000	\$3,704	\$3,750	\$4,257	\$4,000	\$4,500
Reg'l membership recruitment	\$7,000	\$1,899	\$7,000	\$800	\$7,000	\$7,000
Travel to AGM	\$5,000	\$2,116	\$5,000		\$4,000	
Contributions and donations	\$1,000		\$1,000	\$5,091	\$1,000	\$1,000
Manager/president travel	\$4,000		\$4,000	\$2,065	\$4,000	\$2,500
Web site	\$800	\$950	\$800		\$1,000	
Webmaster honorarium	\$1,250	\$5,000	\$1,250	\$7,628	\$5,000	\$8,000
TOTAL EXPENDITURE	\$95,912	\$102,361	\$131,250	\$126,799	\$135,050	\$131,500
Revenues over (under) expenses	(\$15,912)	\$38,207	(\$21,250)	\$24,782	(\$17,050)	(\$23,500)

Table 2. Statement of Financial Position from Thornton & Co., 2024, Audit.

THE CANADIAN SOCIETY FOR BIOENGINEERING
Statement of Financial Position
December 31, 2024

	2024	2023
ASSETS		
CURRENT		
Cash	\$ 8,913	\$ 76,810
Accounts receivable	11,145	18,758
	20,058	95,568
LONG TERM INVESTMENTS (Note 7)	229,953	192,012
	\$ 250,011	\$ 287,580
LIABILITIES AND NET ASSETS		
CURRENT		
Accounts payable	\$ 3,285	\$ 65,636
NET ASSETS	246,726	221,944
LIABILITIES AND NET ASSETS	\$ 250,011	\$ 287,580

Table 3. Bank and Investment Accounts as of Year End.

	2024	2023	2022	2021	2020
Investments at Nesbitt Burns					
Cash/short term	\$1,923	\$2,232	\$1,707	\$1,555	\$35,167
Fixed income	\$29,080	\$28,178	\$30,014	\$28,052	\$16,831
Equities	\$200,873	\$163,834	\$141,921	\$163,561	\$90,124
Total of investments	\$231,876	\$194,245	\$171,935	\$193,168	\$142,122
Cash at BMO	\$6,990	\$74,578	\$8,736	\$37,859	\$32,326
Total bank/investment accounts	\$238,866	\$268,823	\$180,671	\$231,027	\$177,706

2025-2026 Council

Nominating Committee Report

Position	Name	Term length	Term start	Term end
President-Elect	Venkatesh Meda	1	2025	2026
President	Stéphane Godbout	1	2025	2026
Past President	Travis Esau	1	2025	2026
Past-Past President	Valerie Orsat	1	2025	2026
VP Technical	Manickavasagan Annamalai	3	2022	2028
VP Regional	Pradeep Goel	3	2022	2028
VP Membership	Vacant	3	2025	2028
VP Industry	Garson Law	3	2023	2026
Regional Director Atlantic	Aitazaz Farooque	3	2022	2028
Regional Director QC	Nicholas Lefebvre	3	2022	2028
Regional Director ON	Prasad Daggupati	3	2023	2026
Regional Director MB	Fuji Juan	3	2022	2028
Regional Director SK	Vacant	3	2025	2028
Regional Director AB	Chandra Singh	3	2022	2028
Regional Director BC	Shahab Sokhansanj	3	2023	2026

Appointed Council Members or Representatives

Secretary Manager	Sébastien Fournel	5	2022	2027
Treasurer	Senthilkumar Thiruppathi	3	2023	2026
Web Master	René Morissette	3	2008	2028
Editor-In-Chief	Qiang Chang	3	2024	2026
Managing Editor	Ramanathan Sri Ranjan	3	2023	2026
Social Media Manager	Vacant	3	2025	2028
EIC Rep	Travis Esau	3	2025	2028
CIGR Rep	Stephane Godbout	3	2017	2028

Fellows Committee

Chair	Ramesh Rudra	3	2020	2028
Vice Chair	Yves Choinière	3	2020	2028
Member	Suzelle Barrington	3	2020	2028
Member	Qiang Zhang	3	2020	2028
Member	Vacant	3	2025	2028

Awards Committee

Chair	Anthony Lau	3	2021	2027
Member	Erin Cortus	3	2020	2028
Member	Michael Ngadi	3	2020	2028
Member	Qamar Zaman	3	2019	2028
Member	Nazim Cicek	3	2020	2028
Past-President	Travis Esau	1	2025	2026

Nominating Committee

Chair-Past President	Travis Esau	1	2025	2026
Past-Past President	Valerie Orsat	1	2025	2026
President	Stéphane Godbout	1	2025	2026
President-Elect	Venkatesh Meda	1	2025	2026
Member-at-large	Pradeep Goel	3	2019	2028

Meeting Committee

Chair-VP Technical	Manickavasagan Annamalai	3	2022	2028
Past LAC Chair	Prasad Daggupati	1	2025	2026
President-Elect	Venkatesh Meda	1	2025	2026
President	Stéphane Godbout	1	2025	2026

Council Member Reports

Travis Esau – President

During 2024-2025, I carried out the following activities:

- Led CSABE council meetings;
- Took on the role as the CSABE representative for the Engineering Institute of Canada (EIC);
- Selected new CSABE Vice-President Industry;
- Formally appointed new Editor-in-Chief of the Canadian Biosystems Engineering Journal, effective October 11, 2024;
- Liaised with ASABE, including participation on their Board of Trustees;
- Helped facilitate the ASABE/CSABE joint conference, including contractual agreement, participation on the sponsorship committee and recruitment of student volunteers;
- Represented CSABE on the ASABE Strategic Initiatives Council;
- Helped with the CSABE name change process and formally signed off with Corporations Canada.

Chelladurai Vellaichamy – Vice-President, Membership

Membership Statistics:

As of May 27, 2025, the total membership of our society stands at 909, including 457 student members. Notably, 204 of our student members are international students, with a strong representation from Asian and African countries. The total number of members from Canada is 612. A detailed breakdown of membership by province is presented in Figure 1.

Provincial Membership Breakdown:

We have observed a substantial increase in membership across most provinces. Notably, membership in Nova Scotia has doubled, rising from 23 in 2024 to 47 in 2025. Manitoba leads with the highest number of members (172), followed closely by Quebec with 169 members. There has also been a significant 68% increase in membership from Ontario.

Future Initiatives:

The impact of events organized by our Regional Directors is clearly reflected in the growing membership numbers from Canada. The Council encourages all Regional Directors to continue their valuable efforts in the membership drive by organizing networking and outreach events supported by the society, with the aim of further expanding our membership base.

We extend our sincere gratitude to all members for their continued support and contribution to the growth and success of our society.

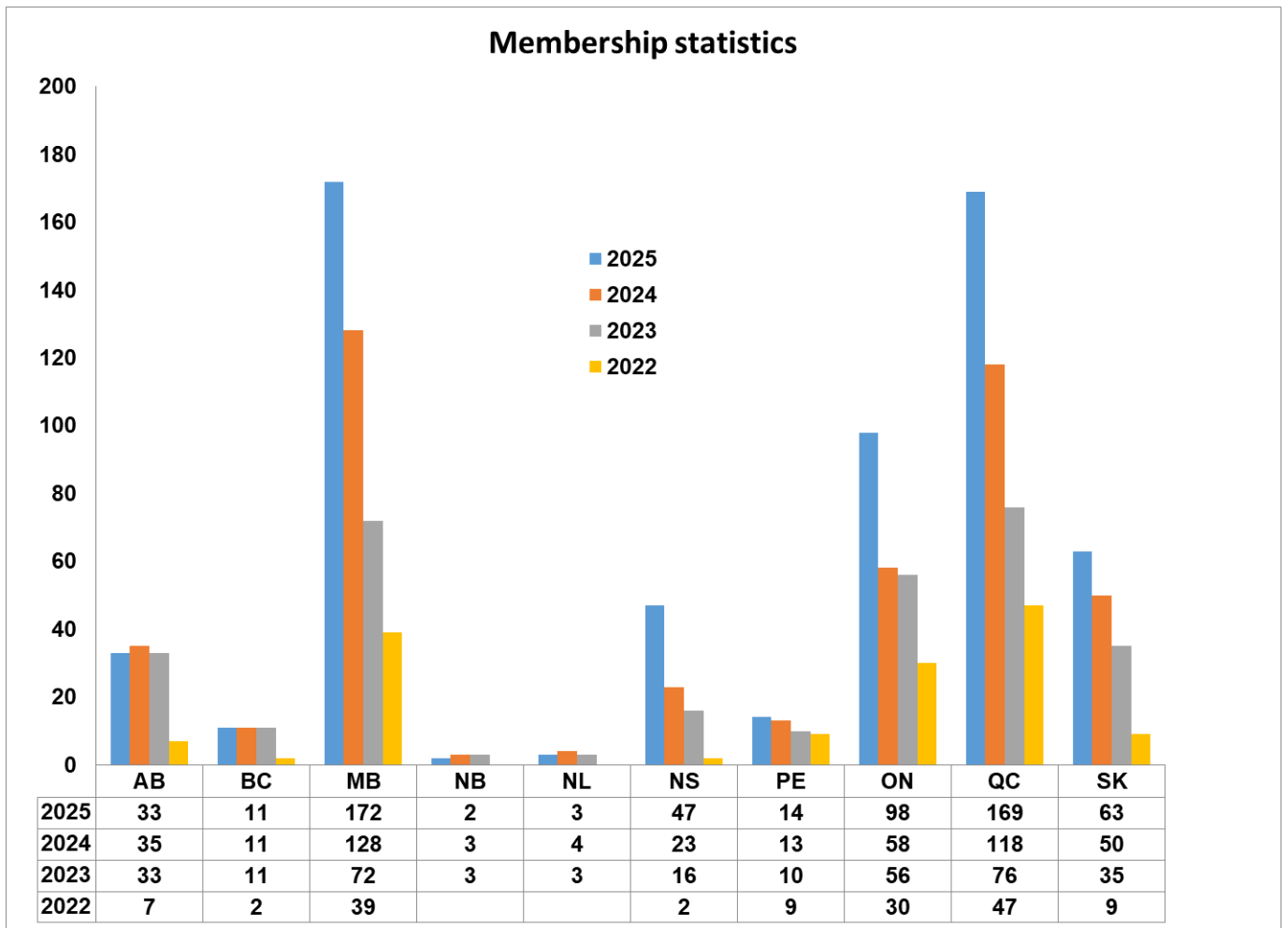


Figure 1. Membership count by province.

Garson Law – Vice-President, Industry

The past year has seen much activity in the landscape of agricultural technologies. While private funding of startups has decreased worldwide, the agriculture sector remains particularly underserved. Consolidation of smaller companies, including Canadian entities on the forefront of agtech continues, and it remains to be seen how these innovations will reach Canadian producers. At the same time, the ingenuity and level of activity of Canadian researchers and startups remain impressive. There continue to exist many opportunities for technical expertise in robotics, engineering, mechatronics, computer vision, remote sensing, IoT devices, AI systems and more. These technologies are now touching all aspects of Canadian agriculture, including large acres of cereal crops, high-value orchards and vineyards, livestock, dairy, greenhouse and Controlled Environment Agriculture.

A critical piece of the innovation ecosystem remains the testing and validation of technologies under real-world production conditions, i.e. on commercial farms and ranches, integrating with other aspects of farm operations to determine their true value. Looking forward, this will remain a key focus of innovation development, with strategic importance in the development of new innovations in collaboration with the end users of the technology.

Fuji Jian – Regional Director Manitoba

I began my role as the regional director of Manitoba in July 2022. This is my second term servicing the CSABE as a regional director of Manitoba (I was the regional director from 2019 to 2020). Considering the decrease of CSABE members during the past pandemic period, I mainly focus on encouraging old members to resume their membership and introducing CSABE to our current undergraduate and graduate students because current students will be our future members. I mainly did the following works in the past year: 1) organized one in-person event to discuss the CSABE such as societies mission, potential career opportunities, and other activities such as the newsletter writing and student award evaluation; 2) conducted two presentations to introduce CSABE on the meetings of student association; and 3) joined local committee of CSABE Annual meeting 2024 and mainly worked on the conference site selection and event organizing.

René Morissette – Webmaster

The CSABE-SCGAB website has been quite active over the last 12 months, with more than 40 news articles published, reaching over 12,000 users worldwide, primarily from Canada, the USA, and India. The traffic is slightly lower compared to last year, as the Annual Meeting is being organized by ASABE in 2025. Four newsletters were sent out to our members. Our publication library, which provides access to CBE Journal papers and Meeting papers, has been viewed by 4,800 users.

The Society name change has been made on the main website. The website platform has been updated partially, and we are scheduled to upgrade it to the latest engine version (5).

We are still actively looking to recruit a social media manager. If you are interested in promoting the Society through social media, contact us at manager@csbe-scgab.ca.

I renewed my term as Webmaster for a 3-year period until 2028. I started in this position in 2008; the web has undergone significant changes since then.

Qiang Zhang – Editor-In-Chief (CBE)

The journal has received a total of seven manuscripts, of which five are still in the review process and one in revision. It has been very challenging to attract papers and find reviewers. To deal with the challenges, a new Editorial Board structure was proposed and is being established. The proposed Editorial Board consists of an Editor-in-Chief (EIC), a Managing Editor (ME), and Members of Editorial Board (EBM) (up to 40). While EIC and ME are appointed by the CSABE council, EBMs are appointed by EIC. Each board member is expected to recruit one paper per year, which would result in a total of 40 papers per year for the journal. EIC has been recruiting board members, and 27 candidates have agreed to serve on the Editorial Board at the time of reporting.

2025 Member Awards and Fellows

CSABE/SCGAB FELLOW & MAPLE LEAF AWARD

The designation of Fellow has honorary status to which members of distinction may be elected, but for which they may not apply. A Fellow shall be a member of outstanding and extraordinary qualifications and experience in the field of agricultural, food or biological engineering. A Fellow shall have been a member of the Society for ten years and have twenty years of active practice in the profession.

The Maple Leaf Award is given to honour members of the CSABE/SCGAB who have distinguished themselves as leaders in the profession. It is the highest award made by the Society in recognition of leadership in the profession. The award is given for outstanding personal qualities, society activities, and professional abilities. The award recipient is selected from nominations from five members of the CSABE/SCGAB and must receive the unanimous consent of the Awards Committee. The recipient must have been a member of the Society for at least ten years.

Dr. **Qamar Zaman**, Professor and Precision Agriculture Research Chair at Dalhousie University, has made significant contributions to the field of PA through his innovative research, teaching, and outreach initiatives. His work has notably advanced the wild blueberry industry in northeastern North America by developing technologies that enhance harvesting efficiency, improve crop yield and quality, and reduce production costs. The Wild Blueberry Harvester Efficiency Program, a collaboration between Dr. Zaman's team and the Nova Scotia Department of Agriculture, exemplifies his commitment to applying research to real-world challenges, offering financial assistance to producers for adopting advanced harvester technologies. Dr. Zaman's research focuses on sustainable agriculture, bioinstrumentation, environmental stewardship, and automation, utilizing GPS, GIS, and variable rate technologies to optimize agricultural production systems. His development of automated variable-rate sprayers for spot application of agrochemicals addresses issues of over-application and under-application, leading to cost savings and environmental benefits. Through his teaching and mentoring contributions, Dr. Zaman imparts knowledge on PA technologies to students, preparing the next generation of agricultural engineers. His mentorship extends globally, fostering international collaborations and knowledge exchange. Dr. Zaman's work exemplifies the integration of research, education, and community engagement to achieve sustainable and economically viable agricultural practices, benefiting both local and global communities.



YOUNG ENGINEER OF THE YEAR AWARD

This award is given to recognize and encourage outstanding work by younger members of the Society. The award is given to members under 40 years of age. It is given for outstanding contributions to agricultural, food and/or biological engineering through design and development, extension and management, or research and teaching.



Dr. **Senthilkumar Thirupathi** (Dr. Senthil) P. Eng is a Professional Agricultural Engineer. Dr. Senthil obtained his Bachelor of Agricultural Engineering from Tamil Nadu Agricultural University, India, and his M.Sc. (Biosystems Engineering) and Ph.D. (Biosystems Engineering) from the University of Manitoba. Dr. Senthil applied engineering principles in both industry and academic settings. In the last 8 years, all the research projects Dr. Senthil was involved in either occurred entirely in the industry or were validated at the industry level. Dr. Senthil is currently an Assistant Professor at UPEI and has secured the most competitive and prestigious Industry Research Chair position to establish the sustainable food automation program at UPEI. Dr. Senthil also holds an adjunct research scientist position at Lethbridge College. As a distinguished researcher, Dr. Senthil holds a worldwide published patent, authored 37 refereed research papers, 16 book chapters, and presented his work at 50 international and national conferences. Dr. Senthil received numerous awards for his

research contributions: CSABE best thesis award, best journal paper award, W.E. Muir scholarship, Edward R. Toporek fellowship, and the most competitive University of Manitoba graduate fellowship and biosystems engineering merit award. Dr. Senthil has been serving as the treasurer of CSABE for the last 3.5 years, and he was a local organizing committee member for the recently concluded CSABE AGM at Lethbridge, AB. Dr. Senthil played a crucial role in securing the sponsorship for the event and put in extra effort to successfully plan and execute the conference. He also served as a judge and moderator for the poster and oral sessions during the CSABE conferences and as a reviewer for the CSABE journal. Dr. Senthil also served as a Biosystems Graduate Student Association president, councillor, and finance committee member, and he conducted numerous membership recruitment events along with the Manitoba regional director. In addition to that, Dr. Senthil was also an adjudicator for the NSERC CGS M 2024 Awards, a member of the Senate Committee on Appeals, a member of the Senate Committee on Curriculum and Course Changes, and a member of the Faculty of Graduate Studies Appeals Committee. Dr. Senthil has served as a member-at-large for the APEGA council for the last two years, and he is trying to bridge the gap between the APEGA and CSABE towards achieving common goals. Dr. Senthil developed new courses as a subject matter expert and delivered courses at the undergraduate and graduate levels by incorporating new active learning techniques as an instructor. He always takes the students to the industries and commercial grain bins, so that students can learn in a real-time environment. He encouraged students to be innovative and ready to take on real-time challenges.

JOHN TURNBULL AWARD

This award is given annually to the CSABE/SCGAB member who, in the opinion of the Awards Committee, has produced outstanding work in building systems, or waste management in industry, teaching, research, or extension. Prior to 1993, this award was known as the CSAE/Canadian Sheet Steel Building Institute (CSAE-CSSBI) Award. The award recipient is selected from nominations from at least three members of CSABE/SCGAB and must have been a member of the Society for at least five years.

Dr. **Patrick Brassard** holds a degree in agri-environmental engineering from Université Laval (Canada) and completed a Ph.D. in Bioresource Engineering at McGill University. His doctoral research focused on pyrolysis and the use of biochar for soil amendment and carbon sequestration. During his postdoctoral research internship at the National Institute of Applied Sciences (INSA) in Toulouse (France), he gained valuable expertise in life cycle assessment (LCA).

Currently a researcher at the Research and Development Institute for the Agri-Environment (IRDA), Patrick is committed to advancing sustainable agricultural practices. His work focuses on developing innovative approaches for the management and valorization of agricultural residues, manure, and slurry. He has contributed to numerous manure management projects, including mechanical separation system testing and the establishment of complete mass balances for manure treatment processes. Recently, he has been studying an integrated management chain combining in-barn separation, aerobic treatment of the liquid phase and dry anaerobic digestion of the solid phase. He has also played a key role in developing several technical reference documents for manure storage tank design.



In addition to his research activities, Patrick contributes to the training of future professionals by supervising graduate students as an adjunct professor at Université Laval, reflecting his strong commitment to the field of agricultural engineering.

GLENN DOWNING AWARD

This award is presented annually to the CSABE/SCGAB member who, in the opinion of the Awards Committee, has produced outstanding work in industry, teaching, research, or extension in the area of machinery systems, or bioenergy systems. The recipient is selected from nominations from at least three members of CSABE/SCGAB. and must have been a member of the Society for at least five years.



Dr. **Travis Esau** is a Professor at the Department of Engineering in the Faculty of Agriculture, Dalhousie University. Dr. Esau is a Licensed Professional Engineer and a Professional Agrologist, and currently the president of the CSABE/SCGAB. Dr. Esau is a mechanical engineer specializing in machine systems and automation engineering, focusing on agricultural mechanized systems, digital agriculture, precision agriculture, remote sensing, agricultural drones, automation of farming operations and data-driven decision analysis for complex agricultural and biological systems. Traditional agricultural farming is not sustainable and requires new engineering advancements to remain competitive in local and global markets. His mechanized systems research increases farm efficiency and uses environmental resources more effectively. His research team is comprised of Postdocs, PhD and MSc students, research staff and undergraduate

students. He has published over 75 peer-reviewed journal publications and actively participates in international conferences and regional farmer field day events. Dr. Esau teaches undergraduate courses, including engineering design, vector mechanics, technology for precision agriculture, and agricultural machinery and building technology courses. Dr. Esau has received several awards from Dalhousie University, including the Engineering Society Faculty Momentum Award, Award, Early Career Research Excellence Award, and Early Career Teaching Excellence Award. Additionally, he has received the Outstanding Young Agrologist Award from the NS Institute of Agrologists and the Young Engineer of the Year Award from the CSABE/SCGAB. Dr. Esau is also involved with graduate student supervision at the University of Maine and the University of PEI, where he holds adjunct positions.

JIM BEAMISH AWARD

This award is given annually to the CSABE/SCGAB member who, in the opinion of the Awards Committee, has produced outstanding work in industry, teaching, research, or extension in the area of soil and water, or environmental sciences. The recipient is selected from nominations from at least three members of CSABE/SCGAB and must have been a member of the Society for at least five years.

No recipient

JOHN CLARK AWARD

This award, in memory of John Clark, is given annually to the CSABE/SCGAB member who, in the opinion of the Awards Committee, has produced outstanding work in industry, teaching, research, or extension in one or more of the fields of food engineering, or related industry. The award recipient is selected from nominations from at least three members of CSABE/SCGAB and must have been a member of the Society for at five years.



Dr. **Ashutosh Singh** is an Associate Professor and Area Head of the Biological and Biomedical Engineering program in the School of Engineering at University of Guelph, Ontario, Canada. He holds a Ph.D. degree in Bioresource Engineering from McGill University, Quebec, Canada, where his research work focused on design, development, and application of electrohydrodynamic drying system for dehydration of heat-labile food products. His Ph.D. work also explored the application of molecular dynamic modeling systems to study the effect of external food processing stressors on the conformation of food proteins. From 2014 to 2015, he participated in the research of innovative food processing technology and entrepreneurial development as a postdoctoral

researcher at Dalhousie University in Canada. At University of Guelph, Dr. Singh's leads the Agri -Food Engineering Research Lab, where his research group works on development of novel food processing methods and the use of physical, chemical, engineering, bioinformatics, and biotechnological tools to improve the understanding of the nutritional component of food at the molecular level. In recent years, Dr. Singh's research group has expanded its research domain to include fabrication and application of biosensors including electrochemical, Quartz-Crystal Microbalance (QCM) and colorimetric biosensors to identify food allergens and toxins. His research group also specializes in the development of novel nanoparticles from agri-food by-products and their application to improve agricultural and environmental sustainability. He has authored over 70 peer-reviewed research articles, 11 books chapters, edited 2 books and has supervised over 20 undergraduate students, 15 M.Sc. students, 15 MEng students, 2 postdoctoral fellow and has graduated 4 Ph.D. students. Dr. Singh has received research funding of more than \$1.5 million funded by National Sciences and Engineering Research Council of Canada (NSERC), Ontario Ministry of Agriculture, Food and Rural Affairs (OMAFRA), Canada Foundation for Innovation (CFI) and MITACS.

JOHN OGILVIE RESEARCH INNOVATION AWARDS

The CSABE/SCGAB John Ogilvie Research Innovation Award is to acknowledge outstanding contributions to research, in any field of research relevant to CSABE/SCGAB, by an individual or team of researchers (which may include graduate or undergraduate students). The Research Innovation Award is not intended to acknowledge the cumulative impact of a career's worth of research contributions; rather, it is intended to recognize the innovation or ingenuity of a single research project.

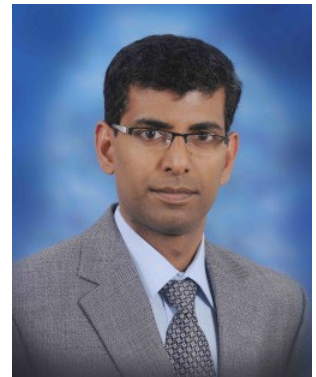
“Development of AI-Assisted Imaging and Spectroscopic Techniques for Pulse Quality Assurance Systems” by Manickavasagan Annamalai, Senthilkumar Thiruppathi & Chandra Singh

Canada is the world's second-largest producer of pulses, exporting approximately 6 million tonnes annually to over 150 countries, with a net export value of \$4.2 billion. However, nearly 30% of international pulse trade contracts lead to disputes requiring arbitration, primarily due to inconsistencies in quality standards, methodologies, and nomenclature.

To address these challenges, a five-year collaborative research project (2020–2025) was launched by a consortium comprising the University of Guelph (ON), the University of Prince Edward Island (PEI), and Lethbridge Polytechnic (AB). The project focused on developing artificial intelligence-driven, non-destructive testing technologies for pulse quality assessment, targeting critical factors such as adulteration, pesticide residue, protein content, and varietal purity.

This initiative led to an industry-academic partnership with Hensall Co-op/Hensall Foods and NSERC Alliance, securing \$540,000 in funding. The project has resulted in over thirteen peer-reviewed publications in leading journals and 20 conference presentations. Additionally, it provided advanced training in pulse quality assurance to eleven highly qualified personnel (HQPs) and numerous undergraduate students.

The developed technologies are now in the implementation phase, being deployed in small and medium-sized enterprises across the pulse supply chain both in Canada and globally. The HQPs trained through this initiative are securing positions in the pulse industry and the broader food processing sector, underscoring the project's significant contributions to workforce development and industry innovation.



“Development of RZWQM2-P model for reducing phosphorus loading from agricultural field to surface water bodies” by Zhiming Qi



Agricultural soils in the humid temperate regions of Canada—particularly in Ontario and Quebec—are a major source of non-point phosphorus (P) pollution in freshwater rivers and lakes, especially when treated with chemical fertilizers, manures, or biosolids. Over the past several decades, the frequency and severity of cyanobacterial blooms have increased significantly. These blooms, along with broader eutrophication issues in freshwater bodies, have been closely linked to the enrichment of phosphorus (P) and nitrogen (N) via subsurface drainage effluent. Subsurface drainage systems are a primary pathway for P transport from agricultural fields in these regions. In response, various strategies have been developed to manage agricultural

practices and mitigate P pollution. Among these strategies is the development of computer models capable of simulating and assessing P loss from agricultural lands. Although some models have been updated or newly developed, most lack integration of field management practices and crop growth dynamics, limiting their effectiveness as decision-support tools. Moreover, none currently simulate both dissolved and particulate P losses through subsurface drains simultaneously. To address these limitations, a new phosphorus management tool—RZWQM2-P—was developed. This tool builds upon the Root Zone Water Quality Model 2 (RZWQM2) by incorporating the latest scientific advances in soil and water phosphorus dynamics, while leveraging the model’s existing hydrologic and agricultural management capabilities. The performance of RZWQM2-P was evaluated using data from tile-drained agricultural fields treated with both organic and inorganic phosphorus sources across the Lake Erie watershed (encompassing Ontario, Ohio, and Michigan). Results showed that the model reliably simulated monthly dissolved reactive P and total P losses via surface runoff and tile drainage, achieving a Nash-Sutcliffe efficiency coefficient greater than 0.35, percent bias within $\pm 25\%$, and an index of agreement exceeding 0.75 across the study sites. RZWQM2-P represents a promising advancement in phosphorus management, particularly for subsurface-drained agricultural systems.

“Sustainable approaches for upcycling of industrial pea-starch waste into nanomaterials for potential agricultural and food applications” by Ashutosh Singh, Abdallah Elsayed, Guneet Kaur & Rahul Islam Barbhuiya

Pea starch obtained from pea protein processing industries has a high amylose content (40 %, w/w) rendering them unsuitable for direct food applications as ingredients. Starch is one of the natural encapsulant materials widely used in food, pharmaceutical and cosmetic industries. Starch with high amylose content (above 40 %, w/w) is prone to form single helices *V*-type allomorph with a hydrophilic outer surface and a hydrophobic inner cavity making them suitable for encapsulation of hydrophobic compounds such as essential oils, fatty acids, and vitamins. Therefore, in this project, an in-house spraying procedure was used to synthesize nanoparticles using pea starch, to encapsulate neem oil, a natural antimicrobial compound obtained from neem plant (*Azadirachta indica*) seed. The synthesis of the oil-



encapsulated starch nanoparticles (OESNP) was optimized using a Box-Behnken experimental design to study the influence of the processing parameters such as the initial starch concentration, homogenization speed, duration of homogenization, sample injection rate, and quantity of antisolvent (ethanol). The optimized samples showed an 80–90 % encapsulation efficiency and particle size of <500 nm. The spherical OESNPs also demonstrated sustained release of the oil compared to free oil when dispersed in water. X-ray diffraction analysis revealed the coexistence of C-type and *V*-type polymorphs in the loaded and unloaded nanoparticles. It is concluded that the synthesized OESNPs with controlled release hold the potential to utilize industrial pea starch waste for the delivery of natural pesticides in agriculture.

2025 Student Awards

ASABE ¼ Scale Tractor Student Design Competition – \$500

Design and construction of a four-wheel-drive tractor taking into consideration the rules specified by the American Society of Agricultural and Biological Engineers (ASABE).

McGill University, MuTrac Team – Liam Parnell, Nadia Etzinger, Camille Laboisie, Martin Ma, Vincent Boa, Thomas Brunet, Olivia M. Giguère, Imad Boumenna, Alyson Meadows, Madeleine C. Héту, Kyle R. Geddes, Étienne-Nathan Balasingam & Catherine Grammond

Université Laval, Équipe ULtrac – Simon Dallaire, Alexis Pellerin, Éméric Prince, Ethan Cadet, Antoine Néron, Élodie Tremblay, Amélie Fecteau, Jacob Drapeau, Sarah Benabbas & David Brunelle

CSABE/SCGAB Foundation Undergraduate Scholarship – \$300

Recognizes academic excellence among student members of the Society. The Scholarship is awarded each year to the student member of the Society with the highest GPA in the preceding semester.

University of Manitoba – Ben Martens

McGill University – Grace McDougall-Vick

Université Laval, Génie agroenvironnemental – Antoine Turcotte

Université Laval, Génie alimentaire – Livia Bolduc Painchaud

Dalhousie University – Akshit Bhalla

University of Prince Edward Island – Yuvraj S. Gill

Undergraduate Awards – \$100

University of Manitoba - Undergraduate Design Project – Madan I. Frolek, Izabella L. Marquez, Katrina Purcha, Amber Schinkel & Karisma Vyas for a project “Transtibial socket production optimization” (Advisor: N. Jacobson).

McGill University - Undergraduate Design Project – Danaé Gilbert, Sara Lapointe & Jasper J. Sieniewicz for a project “Optimizing apple usage with advanced maturation monitoring” (Advisor: Y. Gariépy).

Université Laval, Génie agroenvironnemental - Undergraduate Design Project – Rébecca Beauchamp & Allyson B. Brassard for a project “Élaboration d'une approche mécanisée du

bouletage du biochar (Development of a mechanized approach to biochar pelletization)” (Advisor: P. Brassard).

Université Laval, Génie alimentaire - Undergraduate Design Project – *Laurent Demers, Anne-Sophie Laplante & Marylee Paré* for a project “*Conception d’une usine de lyophilisation de fraises enrobées de chocolat* (Design of a freeze-dried chocolate-covered strawberry production plant)” (Advisor: C. Ratti).

Dalhousie University - Undergraduate Design Project – *Akshit Bhalla, Robert Holmes, Rachel Hawkes & Gabriel J. Natividad* for a project “Development of an innovative trailer parking and storage system” (Advisor: C. Toombs).

University of Manitoba – Undergrad Thesis – *Ben Martens* for a thesis entitled “Design and verification of a fed-batch model to improve production of functionalized biopolymers” (Advisor: W. Blunt).

McGill University - Undergraduate Thesis – *Tristan A. Brunger, Kevin Fitzsimmons, Catherine Quinty & Chendan Zhang* for a project “Digestate management for biogas-ZE” (Advisor: G. Clark).

University of Prince Edward Island - Undergraduate Thesis – *Karan Goel* for a thesis entitled “Enhancing soybean yield through AI-based weed and disease management” (Advisor: A.A. Farooque).

Graduate Thesis Award (MSc) – \$200

University of Saskatchewan – *Jeongmin Lee* for a thesis entitled “Eco-friendly non-thermal inactivation of *Escherichia coli* in wheat flour using cold plasma technology” (Advisor: O. D. Baik).

University of Manitoba – *Harshini Boopathy* for a thesis entitled “Three-dimensional movement and distribution of *Tribolium castaneum* and *Cryptolestes ferrugineus* in stored wheat at different temperatures and at different times” (Advisors: D. Jayas & F. Jian).

University of Guelph – *Erich C. Fischer* for a thesis “A neural network model for the prediction of deoxynivalenol (DON) contamination in corn grain using remotely sensed weather and agronomic data” (Advisor: M. Annamalai).

University of Guelph – *Makary Nasser* for a thesis “Bioprocess strategies for the production of designer rhamnolipid biosurfactants” (Advisor: G. Kaur).

McGill University – *Calista Brown* for a thesis entitled “Development of a preliminary nitrogen index for different soil types in Quebec” (Advisor: C. Madramootoo).

Université Laval – *Ines Dhib* for a thesis “*Implantation de stratégies de mitigation des émissions de gaz, de poussières et de bioaérosols en étable à stabulation libre* (Implementation

of strategies to mitigate gas, dust, and bioaerosol emissions in free-stall barns)” (Advisors: S. Fournel & A. D. Larios Martinez).

Université Laval – Mathieu Deschênes for a thesis “*Modélisation énergétique de serre permettant d’évaluer l’impact des matériaux de recouvrement* (Greenhouse energy modeling to assess the impact of covering materials)” (Advisors: S. Fournel & M. Bendouma).

Dalhousie University – Connor Mullins for a thesis entitled “Mechanical wild blueberry (*Vaccinium angustifolium* Ait.) harvester tote volume estimation using time-of-flight imagery for automated yield monitoring” (Advisor: T. Esau).

University of Prince Edward Island – Charanpreet Singh for a thesis entitled “Combating potato virus Y (PVY) through deep learning and robotics” (Advisors: G. S. Randhawa & A. A. Farooque).

Graduate Thesis Award (PhD) – \$200

University of Saskatchewan – Cuong N. Dao for a thesis entitled “Microbial pretreatment of camelina straw and switchgrass for the production of solid biofuel pellets and bioethanol” (Advisors: L. Tabil & E. Mupondwa).

University of Manitoba – Chitra Sivakumar for a thesis entitled “Comprehensive characterization of pulse flour microstructure using advanced non-destructive techniques” (Advisor: J. Paliwal).

University of Guelph – Rahul I. Barbhuiya for a thesis “Development, optimization, and characterization of organic nanomaterials for potential agricultural applications” (Advisors: A. Singh & A. Elsayed).

University of Guelph – Hamid Mohebzadeh for a thesis “Ephemeral gully erosion mapping and modeling using topographic indices, machine learning, and hydrological/water quality modeling” (Advisors: P. Daggupati & A. Biswas).

McGill University – Haoyu Chen for a thesis entitled “Energy harvesting and energy absorbing/dissipating triboelectric mechanical metamaterials” (Advisor: A. Akbarzadeh).

McGill University – Surabhi Pandey for a thesis entitled “Production of 2,5-furandicarboxylic acid from whey permeate powder and its application in fluorescent sensor” (Advisors: V. Orsat & M. J. Dumont).

Université Laval – Herman Douglas Jougou Nkala for a thesis “*Stratégies d’atténuation de l’hornification des fibres alimentaires : Une approche pour la valorisation des coproduits de l’industrie agroalimentaire* (Mitigation strategies for dietary fiber hornification: An approach for the valorization of agri-food industry co-products)” (Advisor: S. Khalloufi).

Dalhousie University – *Mathieu Bilodeau* for a thesis entitled “Assessing equipment and technologies for use in the development of dykeland in Atlantic Canada for sustainable agricultural production” (Advisor: T. Esau).

University of Prince Edward Island – *Fatima Imtiaz* for a thesis entitled “Integration of machine learning and remote sensing data for evaluating climate extremes in the agricultural production system of Prince Edward Island” (Advisor: A.A. Farooque).

Memorial University of Newfoundland – *Sashini Pathirana* for a thesis entitled “Integrated ground penetrating radar – Electromagnetic induction techniques to support precision agriculture by assessing the effects of agricultural practices” (Advisor: L. W. Galagedara).