



CSBE | SCGAB

ANNUAL REPORT

2024

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2024 AGM Agenda

THE ANNUAL GENERAL MEETING OF

The Canadian Society for Bioengineering

La Société canadienne de génie agroalimentaire et de bioingénierie

Date: July 8, 2024 at 12:00 pm CDT

Meeting Formalities

1. Greetings and call to order by President
2. Attendance sign up
3. Appointment of Chairman & Secretary of 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 Previous Meeting on July 24, 2023
3. Approval of 2024 Council Member Annual Reports and Treasurer Report
4. Unfinished Business
 - a. Society Name Change Progress
5. New business:
 - a. Approval of 2024-2025 Budget
 - b. Approval of Nominating Committee Report
 - c. Introduction of Council Members
 - d. Appointment of Signing Authorities
 - e. Appointment of Auditor (Thornton & Co, Winnipeg, MB) for 2024 Financial Statements
6. Announcements:
 - a. 2025 ASABE-CSBE Joint Meeting in Toronto
 - b. CSBE/SCGAB Foundation
7. Closing Remarks (President Orsat passing the Gavel to President Elect Esau)
8. Adjournment

2023 AGM Minutes

MINUTES OF THE ANNUAL GENERAL MEETING OF MEMBERS OF

The Canadian Society for Bioengineering

La Société canadienne de génie agroalimentaire et de bioingénierie

Held July 24, 2023 – 12:00 to 13:20 pm MDT

Greetings and Call to order (President Adamowski).

Attendance sheets circulated and signed by membership.

CHAIR AND SECRETARY OF THE MEETING

Upon motion made (Shiv Prasher) and duly seconded (Venkatesh Meda), it was unanimously resolved to appoint President Adamowski 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 (Pradeep Goel) and duly seconded (Grant Clark) the agenda was approved.

APPROVAL OF MINUTES OF PREVIOUS MEETING

Upon motion made (Ashutosh Singh) and duly seconded (Fuji Jian), it was unanimously resolved to accept the minutes as distributed. **Approved.**

CORRESPONDENCE

None

ANNUAL REPORT

An Annual Report document (compilation of Council members' Annual reports) was provided to members in advance via email. The Annual Report included the Agenda, the 2022 AGM Minutes, the proposed 2023-2024 Budget and Statement of Revenues, Expenditures and Holdings. It was moved (Grant Clark), duly seconded (Ashutosh Singh), and **Carried** that the Annual Report be approved as distributed.

UNFINISHED BUSINESS

a) Society name change process: Danny Mann presented Society name voting results in favor of Canadian

Society of Agricultural and Biosystems Engineers at the 2022 AGM. During fall 2022, Council retained the attorney firm Taylor McCaffrey (Winnipeg, MB) for help in formalizing the name change for both Society and Foundation. Business Client Info Forms and 2022 Annual Returns were filled and sent to Taylor McCaffrey. The name reservation for "The Canadian Society for Agricultural and Biosystems Engineering" was rejected in April 2023 because the name contains the word "Engineering". Despite it is the same business and model, in order to use this name or another name that includes the word "Engineering", we will require a Consent from Engineers Canada to operate as an engineering company. To do so, we need to obtain consents from each governing regulators (12 at the national level) that we intend to promote our entity. The Society manager then got information from each regulator.

NEW BUSINESS

- a) The budget for 2023 was included in the Annual Report and presented by Treasurer, Senthilkumar Thiruppati. Upon motion made (Ashutosh Singh) and duly seconded (Shiv Prasher), it was unanimously resolved to accept the 2023-2024 budget as distributed. **Approved.**
- b) Upon motion made (Shiv Prasher) and duly seconded (Pradeep Goel), 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 (Danny Mann) and duly seconded (Grant Clark), it was unanimously resolved to accept the Bylaws Changes proposed by the Society Manager. **Approved.** The 2022 Bylaws are now listed as the 2023 Bylaws.
- e) Upon motion made (Fuji Jian) and duly seconded (Lakshman Galagedara), it was unanimously resolved that Sébastien Fournel and Senthilkumar Thiruppati be the signing authorities until the 2024 Annual Meeting. **Approved.**
- f) Upon motion made (Stéphane Godbout) and duly seconded (Valérie Orsat), it was unanimously resolved to reappoint Thornton & Co. as auditors for the 2023 financial activities. **Approved.**

ANNOUNCEMENTS

- a) Danny Mann introduced the location of 2024 CSBE AGM in Winnipeg. Manick Annamalai introduced the location of 2025 ASABE-CSBE Joint Meeting in Toronto and 2026 CSBE AGM in Saskatoon.
- 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 (McGill & Laval) and 4 Scholarships (total of \$2200). With almost \$500 in administration fees, **expenses nearly exceeded donations** (\$2,900).
- c) Sébastien Fournel reminded members **to consider nominating colleague members for next year Awards.** Only few nominations were received this year. Five Awards do not have any recipient and some of them were not awarded for a third year in a row.

CLOSING REMARKS

President passing the Gavel to President Elect (Jan Adamowski to Valérie Orsat)

Remarks from President-Elect

ADJOURNMENT

President Adamowski thanked all participants at the AGM, called for adjournment at 1:20 pm **MST** that the meeting be adjourned (motion = Shiv Prasher; seconded = Ashutosh Singh).

Minutes recorded by:

Sébastien Fournel, Society Manager, Date of approval: August 9, 2023.

ATTACHMENTS

Members and visitor attendance list.

2024 Treasurer Report

The following is the treasurer's report for fiscal 2023 and is based on the year-end audit as compiled by Thornton and Co.

Expenditures, Revenues and Budgets

The expenditures, revenues and budgets are shown in Table 1 for this and the previous years. The shaded column in Table 1 are the actuals for 2023. There was a surplus of \$38,207 for the year. This compares to a deficit of \$38,217 for the previous year. The surplus is mainly because of the revenue from 2023 AGM. Our investment also gained \$20,078 or about 10% of their value. Through this period (Jan 1, 2023, to Dec 31, 2023) both the Canadian and American stock markets increased about 9-10%.

Projected Budgets

At our July 2023 AGM, we budgeted for a deficit of \$15,912 of expenses over revenue for the year, but we gained \$38,207 as an excess revenue. We are expecting some revenue from the 2024 AGM.

Net Assets

Table 2 shows the Assets and Liabilities for CSBE for the past 2 years as taken from the auditor's report. At the end of 2023, net assets stood at \$222,568 which includes the BMO operating account, the Nesbitt Burns long term investment account, accounts receivable and prepaid expenses. This is an increase of \$38,207 over the previous year or about 20%.

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. Through the year, the long-term investments increased mirroring an upbeat in the stock market. We are expecting the same trend for this year.

Summary

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

Table 1. Statement of Revenue, Expenses and Budgets for 2023

Revenue	2022 Budget	2022 Actuals	2023 Budget	2023 Actuals	2024 Budget	2025 Budget
Membership fees	\$19,000	16,881	\$19,000	\$18,564	\$16,000	\$18,000
Annual Gen Meeting (AGM)	\$45,000	101,789	\$45,000	\$86,480	\$80,000	\$80,000
Canadian Bio Systems Journal	\$8,000	\$8,979	\$8,000	\$11,477	\$8,000	\$10,000
Advertising	\$500		\$500		\$0	\$0
Expense recoveries (rebates)	\$0	\$0	\$0	\$1,711	\$0	\$0
Investment income	\$3,500	\$1,841	\$3,500	\$2,258	\$2,000	\$2,000
Unrealized capital gains	\$4,000	(\$19,678)	\$4,000	\$20,078	\$4,000	\$8,000
Total Revenue	\$80,000	\$109,812	\$80,000	\$140,568	\$110,000	\$118,000
Expenditure						
Annual General Meeting (AGM)	\$40,000	\$107,062	\$40,000	\$61,026	\$70,000	\$75,000
President's travel to ASABE	\$3,500	\$806	\$3,500	\$0	\$3,500	\$2,000
CDN Bio systems Journal	\$2,000	\$707	\$2,000	\$2027	\$2,000	\$2,100
Journal reviewer's incentives	\$1,500		\$1,500		\$1,500	\$1,500
Journal Translation	\$600	\$445	\$600		\$600	\$600
CIGR /ASABE Dues	\$1,100	\$1,076	\$1,100	\$788	\$1,100	\$1,100
EIC dues, directors' insurance	\$2,200	\$1,706	\$2,200		\$2,200	\$2,200
EIC project	\$750	\$750	\$0		\$0	\$750
General and student awards	\$5,500	\$8,800	\$5,500	\$7,600	\$9,000	\$8,000
Grad student dues	\$1,500	\$1,202	\$1,500	\$1,470	\$1,500	\$1,500
Insurance	\$812	\$836	\$812	\$3,302	\$900	\$900
Interest, bank /credit charges	\$400	\$283	\$400	\$290	\$400	\$400
CSBE manager honorarium	\$12,000	\$12,000	\$12,000	\$12,000	\$12,000	\$12,000
CSBE manager office	\$3,750	\$2,250	\$3,750	\$189	\$3,750	\$1,000
Professional audit, CRA filing	\$2,000	\$3,649	\$2,000	\$3,704	\$3,750	\$4,000
Reg'l membership recruitment	\$7,000	\$200	\$7,000	\$1,899	\$7,000	\$7,000
Travel to AGM	\$5,000	\$3,294	\$5,000	\$2,116	\$5,000	\$4,000
Contributions and donations	\$1,000	\$0	\$1,000		\$1,000	\$1,000
Manager/president travel	\$4,000	\$0	\$4,000		\$4,000	\$4,000
Web site	\$800	\$463	\$800	\$950	\$800	\$1,000
Webmaster honorarium	\$1,250	\$2,500	\$1,250	\$5,000	\$1,250	\$5,000
TOTAL EXPENDITURE	\$96,662	\$148,029	\$95,912	\$102,361	\$131,250	\$135,050
Revenues over (under) expenses	(\$16,662)	(\$38,217)	(\$15,912)	\$38,207	(\$21,250)	(\$17,050)

Table 2. Statement of Financial Position from Thornton & Co., 2023 Audit

THE CANADIAN SOCIETY FOR BIOENGINEERING
Statement of Financial Position
December 31, 2023

	2023	2022
ASSETS		
CURRENT		
Cash	\$ 76,810	\$ 5,068
Accounts receivable	17,520	9,318
	<u>94,330</u>	14,386
LONG TERM INVESTMENTS (Note 7)	<u>192,012</u>	171,935
	<u>\$ 286,342</u>	\$ 186,321
LIABILITIES AND NET ASSETS		
CURRENT		
Accounts payable	\$ 63,774	\$ 1,960
NET ASSETS	<u>222,568</u>	184,361
LIABILITIES AND NET ASSETS	<u>\$ 286,342</u>	\$ 186,321

Table 3. Bank and Investment Accounts as of Year End

	2023	2022	2021	2020	2019
Investments at Nesbitt Burns					
Cash/short term	\$2,232	\$1,707	\$1,555	\$35,167	\$62,203
Fixed income	\$28,178	\$30,014	\$28,052	\$16,831	\$11,090
Equities	\$163,834	\$141,921	\$163,561	\$90,124	\$95,645
Total of investments	\$192,012	\$171,935	\$193,168	\$142,122	\$168,938
Cash at BMO	\$74,578	\$8,736	\$37,859	\$32,326	\$32,326
Total bank/investment accounts	\$266,590	\$180,671	\$231,027	\$177,706	\$191,571

2024-2025 Council

Nominating Committee Report

Position	Name	Ideal term length	Term start	Term end
President-Elect	Stéphane Godbout	1	2024	2025
President	Travis Esau	1	2024	2025
Past President	Valerie Orsat	1	2024	2025
Past-Past President	Jan Adamowski	1	2024	2025
VP Technical	Manickavasagan Annamalai	3	2022	2025
VP Regional	Pradeep Goel	3	2022	2025
VP Membership	Chelladurai Vellaichamy	3	2020	2025
VP Industry	Garson Law	3	2023	2026
Regional Director Atlantic	Aitazaz Farooque	3	2022	2025
Regional Director QC	Nicholas Lefebvre	3	2022	2025
Regional Director ON	Prasad Daggupati	3	2023	2026
Regional Director MB	Fuji Juan	3	2022	2025
Regional Director SK	Venkatesh Meda	3	2021	2027
Regional Director AB	Chandra Singh	3	2022	2025
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	2025
Editor-In-Chief	Vacant	3	2024	2027
Managing Editor	Ramanathan Sri Ranjan	3	2023	2026
Social Media Manager	Vacant	3	2024	2027
EIC Rep	Chandra Madramootoo	3	2021	2025
CIGR Rep	Stephane Godbout	3	2017	2025

Fellows Committee

Chair	Ramesh Rudra	3	2020	2025
Vice Chair	Yves Choinière	3	2020	2025
Member	Suzelle Barrington	3	2020	2025
Member	Qiang Zhang	3	2020	2025
Member	Rick Atkins	3	2020	2025

Awards Committee

Chair	Anthony Lau	3	2021	2027
Member	Erin Cortus	3	2020	2025
Member	Michael Ngadi	3	2020	2025
Member	Qamar Zaman	3	2019	2025
Member	Nazim Cicek	3	2020	2025
Past-President	Valérie Orsat	1	2024	2025

Nominating Committee

Chair-Past President	Valérie Orsat	1	2024	2025
Past-Past President	Jan Adamowski	1	2024	2025
President	Travis Esau	1	2024	2025
President-Elect	Stéphane Godbout	1	2024	2025
Member-at-large	Pradeep Goel	3	2019	2025

Meeting Committee

Chair-VP Technical	Manickavasagan Annamalai	3	2022	2025
Past LAC Chair	Danny Mann	1	2024	2025
President-Elect	Stéphane Godbout	1	2024	2025
President	Travis Esau	1	2024	2025

Council Member Reports

Chelladurai Vellaichamy – VP Membership

Membership Statistics:

The membership count of our society increased to 835 in 2024, compared to 735 in 2023. This growth is attributed to the dedicated efforts of all Regional Directors and the VP (Regional) in bolstering our membership base. Notably, our international membership count stands at 434, surpassing the count of Canadian members which is 401. The majority of our international members hail from the USA (93 members), with significant contributions from Asian and African countries. A breakdown of membership by province is illustrated in Figure 1.

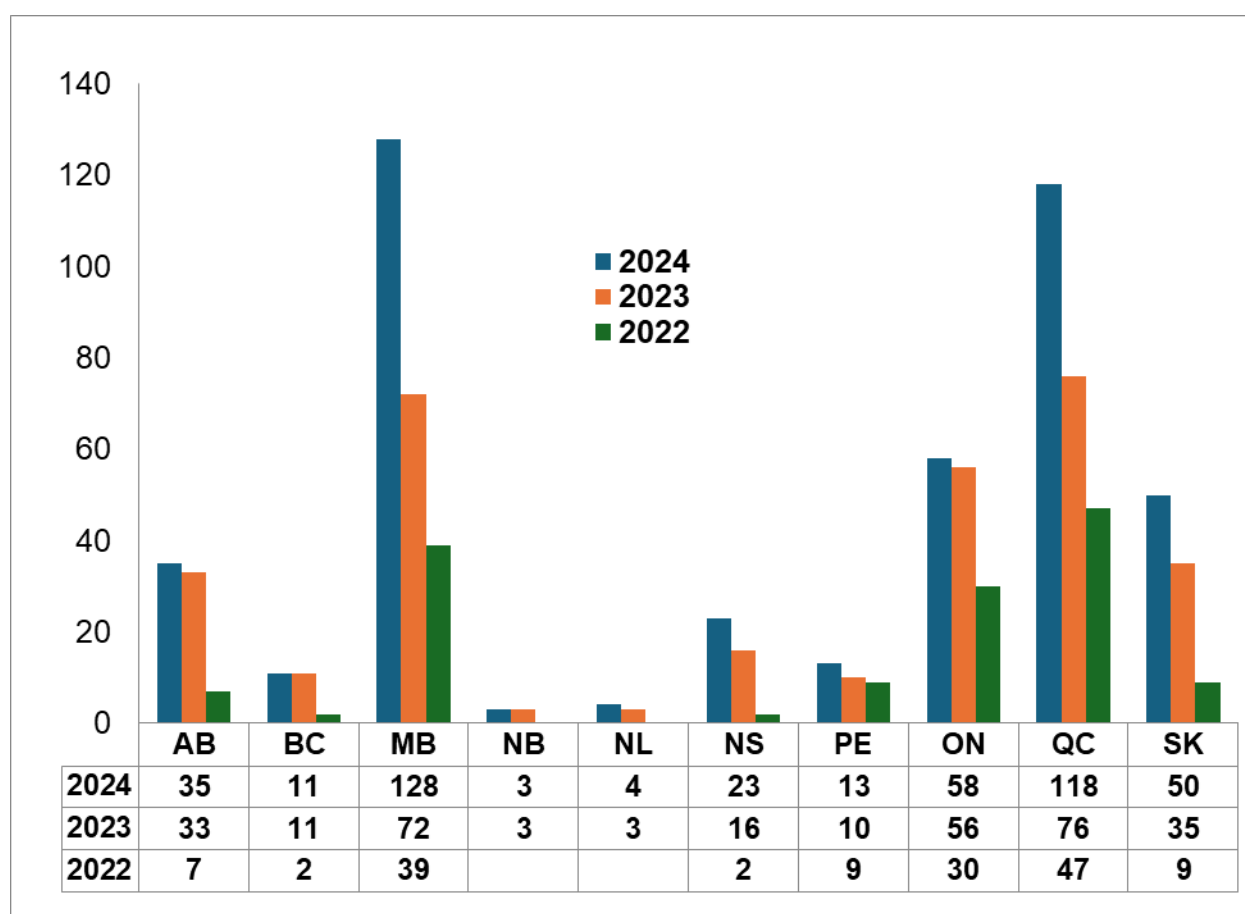


Figure 1. Membership count by Province

Provincial Membership Breakdown:

There has been a substantial increase in membership from Manitoba (78%) and Quebec (55%) in 2024, with these two provinces now accounting for approximately 55% of our total membership. Additionally, there was a significant increase in Saskatchewan.

Membership Type Distribution:

Figure 2 displays statistics on membership types. Interestingly, the number of student members exceeds that of full members, indicating a significant rise in student membership. This surge can be attributed to the attractive student membership offer provided by ASABE.

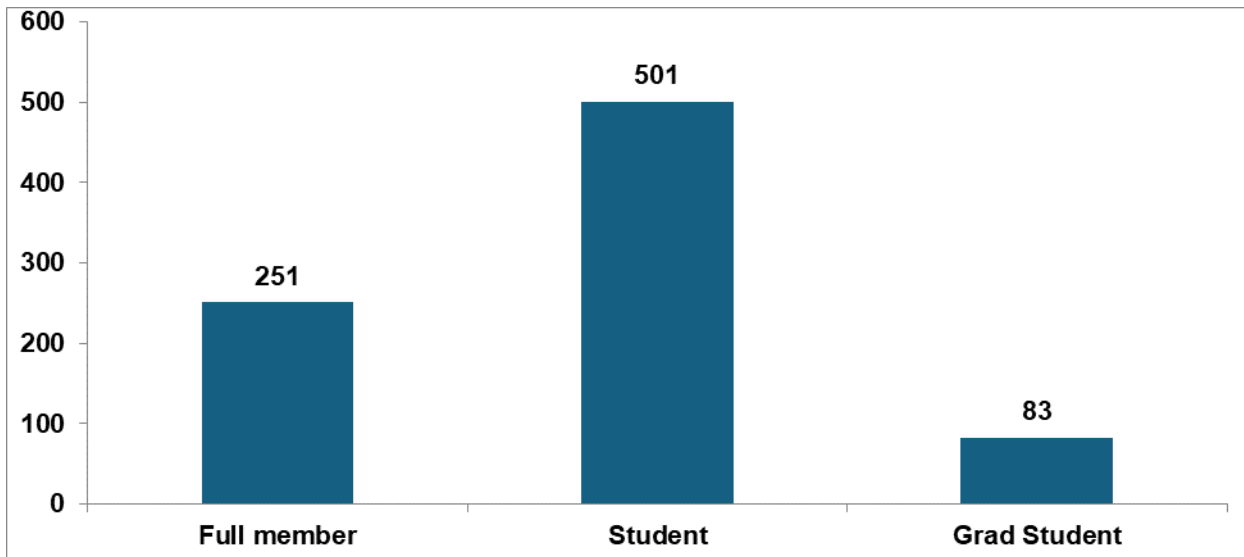


Figure 2. Membership count by membership type

Future Initiatives:

Regional directors are urged to sustain their efforts in membership drive activities, including organizing networking events supported by the society, aimed at further expanding our membership base.

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

Garson Law – VP Industry

I formally joined the CSBE Council as of November, 2023 and am currently the program manager at the Canadian Agri-Food Automation and Intelligence Network (CAAIN), a national not-for-profit agency funded by Innovation Science and Economic Development. CAAIN’s mandate is to support the Canadian agtech sector through investments in digital technologies (robotics, automation, AI/ML, smart farms). CAAIN also has the goal of building a nationwide network of agtech expertise and interest, that includes producers, technology providers, agronomists, investors, researchers and policymakers.

As a council member I have attended one meeting of the ASABE Standards and Technical Council to date as the CSBE representative and have also joined CASSO as an observing member. I also sit on the CSA Advisory Group on Agriculture and Agri-food Automation/Robotics and will bring these learnings to the attention of CSBE as well.

I was pleased to attend the 2022 CSBE annual meeting in Charlottetown as a sponsor and look forward to supporting the members of CSBE further as a council member.

Shahab Sokhansanj – Regional Director British Columbia

News from British Columbia

Center for Agritech Innovation - Simon Fraser University has established the B.C. Center for Agritech Innovation (BCCAI). The Center’s website states that “BCCAI connects small and medium sized

enterprises (SMEs) in the agritech sector with academic researchers, government and industry partners to develop technology solutions that build resilient supply chains and generate global solutions for food security and climate change. The centre, which opened September 2022 at SFU's Surrey campus, is supported with \$10M through Pacific Economic Development Canada (PacifiCan) and \$6.5M through the Province of British Columbia to position B.C. as a world leader in agriculture technology.

John Morgan reports The Canadian MATH CHALLENGERS Society continues to register 800 plus students in grades 8, 9, and 10. Students are welcomed from Victoria, Greater Vancouver, and the Fraser valley with an in class competition available to schools in rural BC, and the rest of Canada, as well as world wide. Question development for the exams continues to be a challenge and we are open to all contributions of question scenarios.

Anthony Lau and graduate student **Sofia Lucero Saucedo** have been working on a research project entitled “Feasibility and pilot study of coupled anaerobic digester and pyrolyzer for processing organic waste to renewable natural gas and biochar”, with focus on the Theme “Co-digestion of organic waste mixtures with biochar in anaerobic digestion (AD)”. The study aims to explore the potential of biochar derived from microwave-assisted catalytic pyrolysis of solid digestate as an additive for enhancing the stability and performance of the AD process. Using manure and food waste as the substrates, the effects of biochar dosage, pyrolysis temperature and pyrolysis catalyst on biomethane yield are investigated.

Venkatesh Meda – Regional Director Saskatchewan

Update from Department of Chemical and Biological Engineering, University of Saskatchewan

During the University of Saskatchewan Spring Convocation on June 7, 2024, there were four PhD graduates in Biological Engineering. Shown below are the four who joined the platform party after they received their respective degree parchment.



L-R: PhD in Biological Engineering graduates, Drs. Reisha D. Peters, Chukwuka A. Onyenwoke, Yue (Rachel) He and Cuong Ngoc (Jean) Dao.

Dr. Peters was supervised by Dr. Scott Noble, Dr. Onyenwoke was co-supervised by Dr. Lope Tabil and Dr. Tim Dumonceaux (AAFC), Dr. He was co-supervised by Dr. Martin Reaney and Dr. Venkatesh Meda, and Dr. Dao was co-supervised by Dr. Lope Tabil and Dr. Edmund Mupondwa (AAFC). Also convocating with a degree in M.Sc. in Biological Engineering was Aishwarya Gurung.

Fuji Jian – Regional Director Manitoba

I began my role as the regional director of Manitoba in July 2022. This is my second time servicing the CSBE as a regional director of Manitoba (I was the regional director from 2019 to 2020). Considering the decrease of CSBE members during the past pandemic period, I mainly focus on encouraging old members to resume their membership and introducing CSBE 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 two in-person events to discuss the CSBE 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 CSBE on the meetings of student association; and 3) joined local committee of CSBE Annual meeting 2024 and mainly worked on the conference site selection and event organizing

Prasad Daggupati – Regional Director Ontario

I am pleased to start as the new Regional Director for Ontario in November 2023. In this role, I have actively interacted with a variety of faculty members from the University of Guelph and other universities across Ontario who does research in various fields related to agricultural engineering. During these interactions, I have encouraged both faculty members and their students to join the society and actively participate in the CSBE annual conference.

In our efforts to increase visibility for CSBE, we were one of the sponsors for the 2nd Annual Food Engineering Conference held on April 5, 2024 in University of Guelph. The conference was attended by students from different departments within the University of Guelph and industry professionals. In the conference, we highlighted the benefits of membership and participation in our annual conferences.

Looking ahead, I am excited to share that I will be chairing the local arrangements committee for the 2025 ASABE/CSBE conference, which will be held in Toronto.

I look forward to continuing my work as Regional Director and to the ongoing growth and success of CSBE in Ontario.

Stéphane Godbout – CIGR Representative

The CSBE has a representative who sits on the commission's Executive Council. There are two meetings per year in virtual mode and one in-person meeting every two years during the commission's international or world congresses. The main follow-ups are linked to the working groups (WG), the technical sections (TS) and the CIGR Journal. In 2023, the latter published 64 articles spread over three editions. Nearly half of these articles deal with post-harvest technologies. The commission is in good financial health with a cash balance of nearly US\$300,000. In the coming years this amount will be used to increase the visibility of the profession and attract young people to the various CIGR member associations.

From May 19 to 23, 2024, the 6th CIGR International conference was held on Jeju Island in South Korea under the theme “Digital Agriculture”. The program brought together 580 conferences or posters from authors from more than 38 different countries. During this congress, the executive held a meeting whose main issue was the selection of the city which would be the host city for the congress. Two associations submitted applications: Indian Society of Agricultural Engineers (ISAE) (host city New Delhi) and CSBE (host city Quebec). Both groups were invited to make a presentation to the executive board and members were invited to vote. Unfortunately, ISAE got the most votes and hence the CIGR International Congress will be held in New Delhi from October 3-6, 2028 under the theme “Engineering Innovations in Small Farms for Food-Secure”.

Mark your calendar that the next CIGR (World Congress) will be held in Torino, Italy in conjunction with the EurAgEng annual congress from July 23 to 26, 2026.

The next executive meeting will be held next fall. I invite you to read the various CIGR News Letters linked to in your CSBE/SCGAB Perspectives Newsletter.

La SCGAB a un représentant qui siège au Conseil Exécutif de la commission. Il y a deux rencontres par année en mode virtuel et une rencontre en personnes aux deux ans lors des congrès internationaux ou mondiaux de la commission. Les principaux suivis sont en lien avec les groupes de travail (WG), les sections techniques (TS) et le CIGR Journal. En 2023, ce dernier a publié 64 articles répartis dans trois éditions. Plus de la moitié de ces articles traitent des technologies post récoltes. La commission est en bonne santé financière avec une encaisse de près de 300 000\$ US. Dans les prochaines années ce montant sera utilisé pour accroître la visibilité de la profession et attirer les jeunes dans les différentes associations membres du CIGR.

Du 19 au 23 mai 2024, se tenait à Jeju Island en Corée du Sud le 6th CIGR International conférence sous la thématique « Digital Agriculture ». Le programme regroupait 580 conférences ou affiches provenant d’auteurs de plus de 38 pays différents. Au cours de ce congrès, l’exécutif a tenu une rencontre dont le principal dossier était la sélection de la ville qui allait être la ville hôte pour le congrès. Deux associations ont déposées des candidatures soient, Indian Society of Agricultural Engineers (ISAE) (ville hôte New Delhi) et la SCGAB (ville hôte Québec). Les deux groupes ont été invitées à faire une présentation au conseil exécutif et les membres étaient invitées à voter. Malheureusement, l’ISAE a obtenu le plus de votes et, par conséquent, le CIGR International Congress se tiendra à New Delhi du 3 au 6 octobre 2028 sous le thème « Engineering Innovations in Small Farms for Food-Secure ».

Notez à votre agenda que le prochain congrès du CIGR (World Congress) se tiendra à Turin en Italie conjointement avec le congrès annuel de EurAgEng du 23 au 26 juillet 2026.

La prochaine rencontre de l’exécutif se tiendra à l’automne prochain. Je vous invite à lire les différents CIGR News Letter dont le lien apparaît dans votre CSBE/SCGAB Perspectives Newsletter.

2024 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).

University of Saskatchewan, Sled Dogs ¼ Scale Tractor Team – Max R. L. Kazuska, Adam P. Jetzke, Brandon A. Pomedli, Conner B. Majic, Daylen E. Feist, Jiaji Li, Jesse J. R. Cline, Kaehlin W. D. Klassen, Kaitlyn Berdahl, Rhett D. L. Petersen, Roan J. Chretien, Sidney Sidloski & Warren Wourms

McGill University, Mutrac Team – Simone Cole, Jasper J. Sieniewicz, John Lan, Liam Parnell, Vincent Boa, Jordan Grosz, Camille Laboisie, Thomas Brunet, Nadia M. Etzinger, Etienne-Nathan Balasingam, Martin Ma, Gunes A. Citak, Imad Boumenna, Sebastien Beaulieu & teammates

Université Laval, Équipe ULtrac – Simon Dallaire, Gabriel Blouin, Alexis Pellerin, Sarah Benabbas, Jacob Drapeau, David Brunelle, Ethan Cadet, Samuel Blouin, Mathieu Deschênes & Alexandrine Trottier

CSBE/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 – Tobias Joshua Gordon Bergmann

Université Laval, Génie agroenvironnemental – Béatrice Dupont-Fortin

Université Laval, Génie alimentaire – Pétula Bernier

Dalhousie University – Riley Johnstone

Undergraduate Awards – \$100

University of Manitoba - Undergraduate Design Project – *Kiara Calista, Jayda M. Cockwell, Hannah Lubi & Kristen R. Semenko* for a project “Design of a novel growing media substrate sourced primarily from Typha for indoor hydroponic systems” (Advisor: N. Jacobson).

Université Laval, Génie agroenvironnemental - Undergraduate Design Project – *É. Tremblay & T. Talbot-Lanciault* for a project “Mécanisation de la récolte d'asclépiade / Mechanization of milkweed harvest” (Advisor: M. Khelifi).

Dalhousie University - Undergraduate Design Project – *Jessie A. Davidson, Simon G. Allen, Brady McIntyre, Joe M. White & Connor G. LaBonte* for a project “Development of an innovative weighing and cloud storage system for curbside compost bins” (Advisor: T. Esau).

University of Manitoba – Undergrad Thesis – *Noah Duguay* for a thesis entitled “Effects of adding shredded disposable paper cups on the mechanical properties of concrete” (Advisor: F. Delijani).

Université Laval, Génie agroenvironnemental - Undergraduate Thesis – *Béatrice Dupont-Fortin, Gabriel Morin & Laurie Chapron* for a project “Biofiltration de l’air vicié d’une porcherie pour son utilisation en serre / Biofiltration of exhaust air from a swine barn for use in a greenhouse” (Advisor: S. Fournel).

Université Laval, Génie alimentaire - Undergraduate Thesis – *Émilie Bédard, Pétula Bernier & Émy Vaillancourt* for a project “Valorisation des coquilles d’œufs issues des couvoirs / Valorization of eggshells from hatcheries” (Advisor: S. Khalloufi).

University of Prince Edward Island, School of Climate Change and Adaptation - Undergraduate Thesis – *Yuvraj Singh Gill* for a thesis entitled “AI transforms RGB drone imagery into advanced vegetation maps” (Advisor: A. Farooque).

Graduate Thesis Award (MSc) – \$200

University of Manitoba – *Logesh Dhanapal* for a thesis entitled “Spectral fingerprinting and chemical mapping of plant-based meat analogues using portable hyperspectral imaging system and multivariate analysis” (Advisor: C. Erkinbaev).

McGill University – *Harmanpreet Singh Grewal* for a thesis entitled “Simulating phosphorous dynamics in tile-drained agricultural fields” (Advisor: Z. Qi).

McGill University – *Shafieh Salehinia* for a thesis entitled “Light emitting diode spectra on the stomatal functioning of lettuce and basil” (Advisor: M. Lefsrud).

Université Laval – *Heidi Dayana Pascagaza Rubio* for a thesis “Développement de stratégies de réduction des pathogènes dans les abreuvoirs des élevages vache-veau / Development of strategies to reduce pathogens in water troughs in cow-calf farms” (Advisor: S. Fournel).

Université Laval – *Yasmin Mbarki* for a thesis “Étude de l’effet des niveaux de compactage sur les propriétés hydrodynamiques d’un sol de sable limoneux dans un contexte d’agriculture de précision / Study of the effect of compaction levels on the hydrodynamic properties of a loamy sand soil in a precision agriculture context” (Advisor: S. J. Gumiere).

Dalhousie University – *Ighodaro K. Emwinghare* for a thesis entitled “Development of a machine vision system to estimate the physical attributes of potato tubers on-the-go at post-harvest stage” (Advisor: A. Al-Mallahi).

University of Prince Edward Island, Faculty of Sustainable Design Engineering – *Zeeshan Haydar* for a thesis entitled “Design and evaluation of wild blueberry harvester header automation system using artificial intelligence and drone technologies” (Advisors: A. Farooque & T. Esau).

Graduate Thesis Award (PhD) – \$200

University of Manitoba – *Vimala S. K. Bharathi* for a thesis entitled “Laboratory and field studies and mathematical modelling of the three-dimensional distribution of adult *Cryptolestes ferrugineus* in wheat bulk” (Advisors: D. Jayas & F. Jian).

University of Manitoba – *Anukiruthika Thangarasu* for a thesis entitled “Quantification of movement of *Cryptolestes ferrugineus* (Coleoptera: Laemophloeidae) adults in one-dimensional columns under different storage conditions in stored wheat” (Advisors: D. Jayas & F. Jian).

University of Guelph – *Sindhu Sindhu* for a thesis “Development of Non-Destructive Testing Techniques for the Detection of glyphosate residue in selected pulses” (Advisor: M. Annamalai).

University of Guelph – *Prabjot Kaur* for a thesis “Valorization of Agro-Industrial Waste for the Production of High-value Components using Green Technology” (Advisor: A. Singh).

McGill University – *Shahin Eskandari* for a thesis entitled “Couple-stress theory for materials with microstructures” (Advisor: A. Akbarzadeh).

Université Laval – *Noura Saied* for a thesis “Optimisation de l’extraction des carbohydrates solubles de la biomasse du sorgho sucré et du millet perlé sucré et valorisation de la bagasse / Optimization of the extraction of soluble carbohydrates from the biomass of sweet sorghum and sweet pearl millet and valorization of the bagasse” (Advisor: M. Khelifi).

Dalhousie University – *Craig MacEachern* for a thesis entitled “Development and evaluation of a precision herbicide applicator for spot application of dichlobenil to control hair fescue in wild blueberry fields” (Advisor: T. Esau).

2024 Member Awards and Fellows

CSBE/SCGAB FELLOWS

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.



Professor Jan Franklin Adamowski is passionate in finding innovative solutions to help address the complex problems facing water resources around the world. His unique research program has resulted in pioneering contributions in the field of sustainable water resources management, and he is internationally recognized as a leader in this field of research, with many widely used approaches and findings that have advanced our understanding of how to reduce the vulnerability, and enhance the resilience and sustainability, of water resources in the context of climate change variability and increasing complexity and uncertainty. Jan is a Professor in the Department of Bioresource Engineering at McGill. At McGill, he is also a William Dawson Scholar, the Liliane and David M. Stewart Scholar in Water Resources, Director of the Integrated Water Resources Management Program, and Associate Director of the Brace Water Centre. Prof. Adamowski has published over 360 peer reviewed journal papers, and supervised over 25 PhD and MSc thesis students, 10 Postdoctoral Fellows, and 350 non-thesis MSc in Water Management students. His interdisciplinary research includes collaborative,

integrated and adaptive water resources management; participatory coupled human-water systems modeling; AI based hydrological forecasting; sustainable agriculture; and water and food security. Prof. Adamowski has been the recipient of numerous recognitions such as being selected as a College Member of the Royal Society of Canada and being appointed as an Adjunct Professor at the United Nations University ‘Think Tank on Water’. Prof. Adamowski has also served as CSBE President and CSBE Vice President - Technical.

Dr. Manick has been an active member of CSBE for the last 21 years and he is serving as Vice President (Technical) and working on the CSBE conference coordination activities and publications.

Dr. Manick, as an independent researcher, has secured \$4.4 million in research grants (\$3.0 million as a Principal Applicant and \$1.4 million as a Co-Applicant/Co-Investigator/Collaborator) through 29 projects. His research has been recognized globally and acknowledged through various awards. He was the recipient of several research merit awards including “Research Excellence Award (2021)” from the UofG; “John Clark Food Engineering Award (2021)” from the Canadian Society for Bioengineering; “Distinguished Researcher (2014)” and “Best Young Researcher – (2012)” from SQU (University level competitive research awards); and “Green Research Award (2014)” from the Oman Green Awards and Summit (National level competitive awards). One of his research projects was selected by the National Innovation Centre, Oman as a “Top 3 innovation in Oman (2011)”.



Dr. Manick has authored 102 scientific articles for peer reviewed journals (95 published/accepted + 7 under review). He has edited 11 books with top ranking publishers (Springer – 4 books; CRC Press Taylor & Francis Group – 3 books; Elsevier – 2; GABI – 1 book; Nova Science –1 book) and published 20 book chapters. He has presented 141 research papers in scientific conferences and symposiums. He has supervised / co-supervised 21 PhD and 46 MS students. At universities and within industries, Manick has served on more than 40 committees in various capacities. His report on “University Central Fund Distribution Protocols” was included in policy development at SQU. Manick has taken initiatives to inculcate research amongst high school students. In this context, he initiated and chaired two workshops for high school students (one in Oman and one in Canada). At present, he coordinates the “Young Researchers Group” at UofG (Founder) for high school students in Guelph.

To promote whole grain consumption, improve their availability, and motivate researchers across the world, he initiated and implemented the “Whole Grains Research Foundation” in 2015 as Founder and President (<http://www.wholegrainsresearch.org/about-us>). The functions of the foundation have been coordinated through Regional Directors in over six regions (South Asia, North Asia, East Asia, West Asia, South–East Asia, and Central Asia). Using this foundation, he has been organizing whole grains conferences and workshops. He has organized 6 international events (Conferences/Symposium/Workshop) on whole grains. He is the Founder and President of Bioimaging Research Solutions Inc. (<https://www.bioimagingresearch.com/>). Through this startup company, he strives to implement the developed technologies in food industries and in the food supply chain. His company has recently received a project from the Government of Canada for an innovation to assure meat safety.

MAPLE LEAF AWARD

This award is given to honour members of the CSBE/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 CSBE/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. Ying Chen, P.Eng. has been a professor at the University of Manitoba since 1997. She joined the academic staff in the Department of Biosystems Engineering after earning a BSc degree in Agricultural Engineering from Jiamusi Agricultural Machinery College in 1981, an MSc degree in Agricultural Engineering from Beijing Agricultural Mechanisation College in 1984, and a PhD in Agricultural Engineering from McGill University in 1992. With her training in agricultural machinery, she developed a successful research program focused primarily on soil tillage. Her efforts generated more than \$3 million in research funding for the University of Manitoba, trained 32 graduate students (10 PhD, 22 MSc), and produced 123 peer-reviewed scientific publications. She was a member of the Manitoba-North Dakota Zero Tillage Farmers Association from 2004-2010, the International Society for Terrain-Vehicle Systems from 2014-2021, and the International Soil Tillage Research Organization from 2003-present. She has given over 30 invited presentations (internationally and within Canada), most related to the topic of soil tillage.

Throughout her career, Ying has received awards reflecting her excellence and commitment to all three components of academic service (i.e., research, teaching, and service). On two separate occasions, she received a Best Paper Award of Superior Paper Award. She received a Merit Award from the University of Manitoba in 2019 for her contributions to research. She has been recognized by CSBE/SCGAB on two separate occasions, receiving the Glenn Downing Award in 2006 and a Fellow Award in 2017. Within the past two years, Ying was also awarded a Fellow of the American Society of Agricultural and Biological Engineering (2023) and a Fellow of the Engineering Institute of Canada (2024). Demonstrating her excellence as a university instructor, Ying received the Faculty of Engineering Award for Excellence in Engineering Education in 2017. Finally, demonstrating her commitment to service, Ying was named a recipient of the Outstanding Service Award by the Association of Overseas Chinese Agricultural, Biological and Food Engineering in 2004 and was named a high-performance reviewer by ASABE in 2019. Within the CSBE/SCGAB community, Ying has been involved with the Canadian Biosystems Engineering journal as Associate Editor, Machinery Systems Section (2005-2008 & 2013-2017), as a member, vice-chair or chair of the Award Committee (2011-2018), and leading the Society as President-Elect, President, and Past-President (2021-2023).

Dr. Ying Chen has been a friend and valued colleague to professors and support staff in the Department of Biosystems Engineering for many years. Within the past three years, she provided leadership to our graduate programs serving as Associate Head (Graduate). Dr. Ying Chen is a worthy recipient of the Maple Leaf Award.

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. Ashutosh Singh is an Associate Professor in the School of Engineering at University of Guelph. He obtained a Bachelor of Technology degree in Biotechnology (2007) from Vellore Institute of Technology, India and a Master (2010) and PhD (2014) Degree in Bioresource Engineering from McGill University. He performed postdoctoral research at Dalhousie University, Truro Campus and joined University of Guelph as an Assistant Professor in 2015. The food research lab headed by Dr. Singh focuses on the valorization of food and agricultural byproducts into consumable food products, functional ingredients and nanoparticles, and design and development of microfluidic electrochemical biosensors for detection of food allergens and contaminants. His research group also works on various multidisciplinary research areas including application of Terahertz radiation for maintenance of food safety and quality, and removal of heavy metals such as chromium VI from wastewater. Dr. Singh is an active member of the Professional Engineers Ontario, of the Canadian Society for Bioengineering and the American Society of Agricultural and Biological Engineers. Till Date Dr. Singh has published over 60 peer reviewed journal papers, 6 books chapters, edited 2 books and has supervised over 20 undergraduate students, 15 M.A.Sc students, 13 MEng students, 1 postdoctoral fellow and has graduated 3 Ph.D. students. Dr. Singh has made remarkable and unmatched contributions to food and agricultural engineering, professional education, mentorship, and leadership.



JOHN TURNBULL AWARD

This award is given annually to the CSBE/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 CSBE/SCGAB and must have been a member of the Society for at least five years.



Sébastien Fournel obtained his BEng (2010) and MSc (2011) degrees in Agri-Environment and Agri-Food Engineering from Laval University, and a PhD in Chemical Engineering from Sherbrooke University (2015). Since 2018, he is a professor in agricultural engineering focusing on farm infrastructures at Université Laval, where he is the Chairholder of the Chair in Educational Leadership on Sustainable Agricultural Buildings, funded by more than 20 agricultural organizations to promote teaching innovation, research and knowledge transfer in the farm building sector. This chair has allowed the supervision of 21 undergraduate students, 3 interns, 8 MSc students, 5 PhD, 3 postdoctoral fellows and 11 research assistants. Dr Fournel currently leads +10 research projects (value of \$2 M) and collaborate to +20 others with the Chair's partners. To this date, he has submitted or published more than 25 papers and 2 book chapters, and participate to more than 80 conferences, including 39 as an invited speaker. Dr. Fournel has been an active member of CSBE/SCGAB and

ASABE since 2006 and has served the society in different roles through the years: 2010 CIGR Conference volunteer, 2020-2021 CIGR Conference Local Arrangement Committee member, 2021-2022 Quebec Regional Director, and Society Manager since 2022. Between 2012 and 2017, he also served as Vice-President and President of the Quebec's Agri-Food Engineers Association (AIAQ). Sébastien is a creative, dynamic and organized engineer. He practices his profession by emphasizing the development of knowledge, autonomy and critical thinking skills. He ensures the development of the next generation by offering them opportunities to stimulate their interests by solving problems rooted in the reality of the major challenges facing the society. For him, the future of our planet depends on the social and professional commitment open-minded and competent young engineers. Through his engineering efforts, his work in R&D and his involvement with CSBE/SCGAB, Dr. Fournel contributes significantly to a more sustainable agriculture in Canada.

GLENN DOWNING AWARD

This award is presented annually to the CSBE/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 CSBE/SCGAB. and must have been a member of the Society for at least five years.

Dr. Kenny Corscadden started his career in the Royal Air Force, followed by other entrepreneurial, business, and technical roles, leading to executive positions in industry in both the United Kingdom and Canada. Following a successful industrial career, he transitioned to academia and served in nine academic and administrative leadership roles in a variety of post-secondary institutions.

As a Vice President-Academic and Research, he represents the Lethbridge College provincially and nationally, engaging post-secondary institutions, such as the University of Prince Edward Island and Dalhousie. He has been extremely active within the local community to develop sustainable applied solutions. His initiative led to creation of an Advanced Postharvest Technology Centre the Lethbridge College. This Centre focuses on reducing the spoilage of local major crops including potatoes, sugar beets and grains, oil seeds, and pulses.



Dr. Corscadden is an experienced multi-disciplinary researcher with a reputation for research achievement and excellence across a range of engineering, applied science and socio-economic projects. Between 2009 and 2021, he secured \$10M from a range of funding sources, including NSERC Discovery, MITACS and CFI. He supervised and trained over 30 post-doctoral fellows, graduate students and research assistants, cooperative undergraduate students, and interns. His research program has a primary focus on renewable and green technology but extends to include multi-disciplinary collaboration in the areas of business, engineering, science, social science, and humanities. He has co-authored over 50 peer-reviewed journal articles, including a white paper with the University of Calgary's School of Public Policy. He has presented the significance of his research at the international conferences, industry meetings, and field days. He has served on numerous professional and technical committees at the college, regional, national and international levels. He has also taught a range of subjects at diploma, undergraduate and graduate levels.

JIM BEAMISH AWARD

This award is given annually to the CSBE/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 CSBE/SCGAB and must have been a member of the Society for at least five years.



Dr. Daggupati is an Associate Professor at the University of Guelph where he has developed research program renowned nationally and internationally for providing sustainable solutions to emerging water quality and quantity challenges across various spatial and temporal scales. His current research receives support from national and provincial funding bodies, independent research funding authorities, and growers' associations. His research has been widely recognized as evidenced by the substantial number of publications (100+) in high-impact journals and increasing citations (about 5300) in the last few years. Dr. Daggupati has presented at regional, national, and international conferences, including delivering keynote speeches. He has supervised a diverse cohort of students from domestic and international backgrounds, spanning various engineering and agricultural disciplines, totaling over 50 Highly Qualified Personnel (HQP) at

undergraduate, MSc, M.Eng, Ph.D., postdoctoral, and research associate levels.

In the past decade, he earned various awards such as the Postdoc of the Year at the 2015 SWAT conference, the Young Agricultural Engineer of the Year in 2016 from the Texas ASABE and was part of the team that received the Standard Development Award at the 2018 ASABE Conference. Additionally, he received the Young Engineer Award from CSBE in 2021 and NABEC in 2022. He is currently serving as Associate editor for ASABE journal, Division editor for CSBE journal, Regional director of Ontario for CSBE and have also spearheaded organizing CSBE and NABEC conferences in 2018 and 2023.

JOHN CLARK AWARD

This award, in memory of John Clark, is given annually to the CSBE/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 CSBE/SCGAB and must have been a member of the Society for at five years.

Dr. Chandra B. Singh is a perfect example for a dedicated researcher, educator and leader in postharvest storage, handling, and processing of crops (cereals, oilseeds, pulses, sugar beets, potatoes, and specialty crops) helping farmers and agri-food processing industries and technology companies. Dr. Chandra has 15 years of combined industry and academic experience. He worked in the industry as Biosystems Engineer and as Associate Professor in the School of Engineering at the University of South Australia, Adelaide, SA, and currently holds Senior Research Chair position in Agricultural Engineering and Technology at the Lethbridge College. Dr. Singh's work in the industry and at academic setup focuses on resolving real-time industry-scale problems faced by crop producers and food processors through his applied research program. Dr. Singh is a Professional Engineer a (P.Eng.) and Professional Agrologist (P.Ag.) registered in Alberta. Dr. Singh is serving as CSBE regional director of Alberta, and he was the chair of the local organizing committee which successfully organized the 2023 CSBE AGM and Technical Conference held in Lethbridge. He is serving the professional engineering community at various levels by providing his service to the journals and educating and training next generation engineering professionals.



Dr. Singh, as a distinguished researcher and a leader in postharvest storage, handling and processing of grains and tuber crops has co-authored more than 45 referred research articles and 12 book chapters, presented his work at 42 international and national conferences and 7 invited talks. Dr. Singh received research funding of more than \$7 million including a CFI grant of \$2.3 million to establish Advanced Postharvest Technology Centre (APHTC) including Food Quality Testing Lab, Biosafety Lab, Grain Testing Lab, Advanced Analytical Lab, Imaging Lab, and On-farm Grain Storage and Drying Research Facility. Dr. Singh's work resulted in many new technologies reaching the farmers and industries; most significant ones are, development of grain management software, adding CO₂ sensors to the grain management system, and developing new sensors for sugar beets and incorporating industry 4.0 to the grain and tuber storage management system. Dr. Chandra developed an automated machine vision system for grading, QA, and safety inspection of almonds. After joining the Lethbridge College in the year 2019 as a research chair, he founded the APHTC and started a new research program.

Dr. Singh has supervised 20 postdoctoral fellows/research associates/visiting academics including 6 current postdoctoral fellows/research associates at the APHTC who are working on various projects related to different aspects of storage, handling and processing of grains, potatoes, sugar beets and specialty crops. As a supervisor, Dr. Chandra's guidance and constant encouragement helped his research fellows to secure prominent academic and research positions at reputable institutes and in the industry. Dr. Chandra Singh taught engineering courses to the undergraduate and graduate students. He always encouraged students to be innovative and introduced real-world problems in classroom setup and played a crucial role in student success. He was regarded highly for his teaching skills by the students.

JOHN OGILVIE RESEARCH INNOVATION AWARD

The CSBE/SCGAB John Ogilvie Research Innovation Award is to acknowledge outstanding contributions to research, in any field of research relevant to CSBE/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.

“Innovative Threshold Event Approach for Management of Agricultural Non-Point Source Pollution” by Ramesh Rudra, Prasad Daggupati & Pradeep Goel



Non-point source (NPS) pollution, mainly from agricultural runoff, poses a significant threat to water bodies, demanding effective mitigation measures. Conventional approaches to mitigating NPS pollution through uniform application of best management practices (BMPs) lack effectiveness due to overlooking critical seasonal variations and specific storm events. To tackle this, a novel approach integrating temporal and spatial aspects of NPS pollution was developed, identifying threshold precipitation events and critical source areas (CSAs) within watersheds. A threshold precipitation event is defined as the maximum storm intensity in which the sediment or phosphorus generated in a watershed is below seasonal tolerance limits of sediment and phosphorus. The proposed approach was tested across diverse agricultural watersheds in southern Ontario utilizing an event based Agricultural Non-Point Source (AGNPS) model which was calibrated against streamflow, sediment, and phosphorus data. The findings reveal that frequent early spring storms occurring every 5 years in upland watersheds and every 12 years in lowland watersheds lead to sediment and phosphorus runoff. Notably, summer storms with return periods of up to 100 years did not result in sediment and phosphorus runoff. Additionally, critical source areas are dispersed throughout the watersheds, with climate-induced hydrological shifts favoring winter occurrences, while late winter and early spring remain primary periods of concern. This study highlights the importance of targeted BMP placement and adaptation strategies to address evolving hydrological patterns and NPS pollution dynamics.