Canadian Society of Soil Science
Société Canadienne de la Science du Sol

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# CSSS Newsletter

## President's Message

Dear all,

Welcome to the August edition of our newsletter.

Since our last virtual AGM in March, members were invited to vote asynchronously on the revised Governance document, and the motions were carried with 58 members voting in favour. The documents will now be revised and reviewed by the permanent Structure and Governance Committee, with a final approval by the Council expected by the end of 2026. One important outcome is the decoupling of our AGM from the CSSS Annual Conference. Beginning next year, the virtual AGM will always be held in the third week of March. Thank you all for your prompt participation whenever we invite you to vote on Society motions.

As you know, the International Union of Soil Sciences (IUSS) presidential election campaign concluded at the end of July. I would like to thank everyone who participated in our national consultation process. I registered our single national vote during the first week of July, and Dr. Richard Heck was the preferred successful candidate of CSSS members, receiving 93% of the Society's vote.

Summer is not only a busy field season but also a busy conference season. Our members attended and helped organize several conferences including the 4th Global Soil Biodiversity Conference in Victoria, BC (April 12-15, 2026); the 23rd World Congress of Soil Science (WCSSS) in Nanjing, China (June 7-12, 2026); the CSSS-CSA joint Conference in Guelph, ON (June 20-26, 2026); and the organic Phosphorus Conference in Charlottetown (July 13-17, 2026).

The CSSS-CSA joint Conference in Guelph was a remarkable success with more than 400 abstracts presented. A special thank you goes to our CSSS members: Dr. Adam Gillespie, Dr. Kari Dunfield, Dr. Laura Van Eerd, Dr. Daniel Saurette, Dr. Asim Biswas, Dr. Kim Schneider, Dr. Richard Heck, Dr. Preston Sorenson who volunteered their time and expertise to make the conference such a success.

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# President's Message (Con't.)

I would also like to congratulate our award recipients: Dr. Angela Bedard-Haughn who was named the 2026 CSSS Fellow, Dr. Melissa Arcand, recipient of the CSSS Soil Science for Society Award; and Dr. Zhengfeng An , recipient of the CSSS Early Career Professional Award. Congratulations as well to the students who received CSSS awards this year. A special thank you goes to our judges, who evaluated the poster and oral presentations. Selecting top three presenters from such a large pool required considerable time and dedication. Congratulations also to Dr. Hongxiu Wang of the BMO Soil Analytical Lab at the University of Saskatchewan, who was nominated by CSSS to represent the Society on the North American Proficiency Testing Program (NAPTP) succeeding Dr. Richard Farrell.

Thank you to all the volunteers who serve the society in so many important roles including council members; Dr. Louis Pierre Comeau and Dr. Blake Weiseth on the Nominations and Elections Committee; Dr. Henry Chau and Dr. Nathan Basiliko on the Structure and Governance Committee; and Dr. Richard Farrell and Dr. Barbara Cade Menum on the Honours and Awards Committee, as well as all CSSS members serving on several other committees that advance soil science. Every year, there are opportunities to serve on council, and a call for nominations will be circulated later this fall.

I wish everyone an enjoyable rest of the summer and hope you have an opportunity to take a well-deserved vacation time.

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# Inspire Graduate Students - Present with CSSS

The CSSS is piloting a graduate-focused seminar series with career development components running between September through March. This series will feature speakers such as scientists, professors, postdoctoral researchers, PhD students, consultants, and professionals working in aggrotech. companies and government agencies.

We are currently seeking presenters. If you are interested in sharing your experience, insights, or career path, we would love to hear from you. We also welcome speaker recommendations. If you know someone who would be a great speaker, please let us know (csss.presidentcouncil@gmail.com).

Graduate students will be the primary audience, but sessions will be open to all CSSS members.

# Canada in the IUSS - Towards the 24th WCSS and Beyond

**By Richard J Heck, IUSS Division 1 Chair & 24WCSS Committee Chair**

Foreword – This represents the eighth installment of reflections and news items from the IUSS, notably on the 2025-26 general elections and the 23rd Congress of Soil Science-WCSS in Nanjing, as well as regarding our ongoing work to prepare for the 24th WCSS in Toronto in 2030.

**FYI…**

* Decade of Soil Science for Sustainable Development: www.iuss.org/decade-of-soil-sciences-for-sustainable-development/
* IUSS World Soil of the Year: www.iuss.org/world-soil-of-the-year/

**2027-2030 IUSS Division & Commission Officers, and Standing Committee Members…**

The election for IUSS Division and Commission Officer positions, as well as for members of the various IUSS Standing Committees, for the period of 2027 to 2030 is now completed. A full listing of elected individuals can be obtained from the IUSS website (www.iuss.org/wp-content/uploads/2026/06/IUSS-Officers_2027-2030.pdf). I would especially like to congratulate Adrian Unc, who was re-elected as Vice-Chair of Joint Commission 1.7/3.8 Permafrost-Affected Soils, and recognized Asim Biswas, who will continue as Chair of Joint-Commission 1.8/2.6 Soil Sensing. I encourage all CSSS members to continue to engage in the activities of the various IUSS Commissions and Working Groups.

**New Official 24th WCSS Logo…**

Following its consultation with CSSS members last year, the 24WCSS Event Branding Working Group (under the leadership of Jacynthe Masse and Asim Biswas) engaged Niaka Agence Creative Autochtone, a Quebec-based design company, to develop a fresh definitive logo for the 24th WCSS. Special thanks to Megan Hébert Lefebvre and Valérie Laforce of Niaka for their work.


**23rd WCSS Congress in Nanjing…**

The 23rd WCSS was successfully realized in Nanjing this past June (www.23wcss.org.cn/). At total of 2845 people participated at the Congress, with 2007 oral and 801 poster presentations, 9 panel discussions, 7 entrepreneurial sessions and 5 workshops. The topics of ‘Carbon Neutrality and Global Climate Change’ (14.8%) and ‘Soil Fertility and Plant Nutrition/Soil-Plant Nutrition/Soil Fertility and Fertilizer’ (13.1%) were the two most popular topics – the first one is notable, considering the theme for the 24th WCSS is ‘Soils in a Warmer World’. The 5th International Soil Judging Contest saw 18 teams from 14 countries participating, with the USA placing top in the ‘Individual’ and ‘Overall’ categories, and Germany placing top in the ‘Groups’ category.

# Canada in the IUSS - Towards the 24th WCSS and Beyond (Con't.)

Canada was represented at the 23rd WCSS by a strong contingent, including several graduate students and early career researchers who were recipients of CSSS and IUSS travel support. Of particulate note, Joann Whalen was one of the 23WCSS keynote speakers ("Rhizobiome Partners to Optimize Nutrient Transfers from Soil to Plants") and Asim Biswas was formally presented with the 2026 Jeju Award.

**24th WCSS Booth in Nanjing…**

With the collaboration and support of Destination Canada and International Conference Services, the CSSS organized and ran a promotional booth for the 24th WCSS. Special thanks to Chloe Lai of ICS, for coordinating the production and assembly of the materials for our booth. Many thanks also to Louis-Pierre Comeau (Chair of the 24WCSS Promotion & Outreach Subcommittee) and Athena Wu (an alumna of the University of Saskatchewan, currently based in the Nanjing region) for designing and preparing our various branded promotional items, which included hats, water bottles, refrigerator magnets and key tags. During the conference, our booth also presented various videos highlighting our venue (MTCC), our host city (Toronto) and other regions of Canada, diverse videos of soil research and teaching from across Canada, as well as the various personalized video invitations that we received from CSSS members from across Canada. I would like to especially thank the many attendees from Canada who dedicated some of their time at the conference to help staff our booth.

# Canada in the IUSS - Towards the 24th WCSS and Beyond (Con't.)

**IUSS Council Nanjing Meeting…**
The IUSS Council met in hybrid mode during the 23rd WCSS. The CSSS was officially represented by our President, Judith Nyiraneza. As Chair of the 24WCSS Committee, I also provided an update on key developments related to our planning for the 2030 Congress in Toronto. Among the various decisions taken by Council was the approval of a new Treasurer for the IUSS (Dr. Dianna Bagnall of the Soil Health Institute, USA), as well as approval of the host for the 25th WCSS in 2034, to be organized in Leipzig by the soil science societies of Germany, Poland and Czech Republic. The next virtual meeting of the IUSS Council will occur before the end of 2026.

**IUSS Divisional 1st & 2nd Vice-Chairs for 2026-30…**
As CSSS members will recall, earlier this year we undertook a process to select individuals to serve as 1st and 2nd Vice-Chairs for each of the four IUSS Divisions, during the period following the close of the 23rd WCSS until the close of the 24th WCSS. As host for the 24th WCSS, Canada is automatically assigned these positions. In addition to participating in the ongoing governance of the Divisions, through their Divisional Committees, the 1st & 2nd IUSS Division Vice-Chairs will also form the core of the 24WCSS Scientific Program Committee. With approval of the IUSS, I am pleased to now present the following list of our Vice-Chairs:

*Division 1 - Soil in Space & Time*
1st Vice Chair: Brandon Heung (Dalhousie University, NS)
2nd Vice Chair: Diogo Spinola (University of Northern British Columbia, BC)

*Division 2 - Soil Properties & Processes*
1st Vice Chair: Adam Gillespie (University of Guelph, ON)
2nd Vice Chair: Inoka Amarakoon (University of Manitoba, MB)

*Division 3 - Soil Use & Management*
1st Vice Chair: Joann Whalen (McGill University, QC)
2nd Vice Chair: Charlotte Norris (Natural Resources Canada, Victoria, BC)

*Division 4 - Role of Soils in Sustaining Society & the Environment*
1st Vice Chair: Amanda Diochon (Lakehead University, ON)
2nd Vice Chair: Catherine Dieleman (University of Guelph, ON)

I would also, again, like to thank all colleagues who put their name forward for these important positions.

**Contracting of Professional Conference Organizer for the 24th WCSS…**
Representatives of the CSSS Council and the 24WCSS Committee are continuing their discussions regarding the contracting of our Professional Conference Organizer for the 24th WCSS. It is expected that this will be concluded by mid-August.

# Canada in the IUSS - Towards the 24th WCSS and Beyond (Con't.)

**It's Real Now, and We Really Need YOU!…**

At the closure of the 23rd WCSS, Dr. Jiabao Zhang (Chair of the Nanjing WCSS) officially transferred responsibility for the next World Congress of Soil Science from China to Canada. Over the next couple of months, with the finalization of our PCO contract, the 24WCSS will be ramping up to organize and deliver the 24th WCSS. Please continue to check out the 24th WCSS website for details: www.24wcss.org and watch for any special notices through the CSSS business office. Anyone who would like to become involved in the activities of the 24WCSS Committee are invited to contact us through the dedicated email address (24wcss@gmail.com) or email me directly (rheck@uoguelph.ca).

International Union of Soil Sciences

# Special Issue - Soil Use and Management BSSS

## Special Issue - Soil Use and Management BSSS (Con't.)


## Inform Future Digital Skills Education - Survey Request

We are looking to gather information from current industry professionals, educators, and post-secondary students on the digital skills required for those working in the agriculture and/or the environmental sector(s). The study also examines how digital skills are taught in post-secondary programs, how familiar learners/workers are with digital tools (e.g. remote sensing, GIS), and the digital competencies needed for employment in these sectors. The objective of the study is to highlight any education gaps when it comes to digital skills and to inform curriculum changes to address any gaps.

It will take about 15-25 minutes to complete the anonymous survey, found here: https://www.surveymonkey.ca/r/HJRSK7J

Any questions about the research project or survey can be sent to andrea.cline@usask.ca or chantel.chizen@usask.ca. I've attached our recruitment poster as well, if you would like to use it.

# Thank you for a wonderful Joint Annual Meeting in Guelph!


The 2026 Joint Meeting of the Canadian Society of Soil Science (CSSS) and the Canadian Society of Agronomy (CSA) was one for the books. Hosted by the University of Guelph from June 20–25, the meeting brought together over 450 researchers, students, industry representatives, government scientists, and producers from across Canada and around the world, far exceeding our expectations.

The scientific program was complemented by three outstanding keynote presentations that challenged us to think differently about the future of agriculture, soils, and food systems. Three hands-on workshops gave participants opportunities to explore soil spectroscopy, greenhouse gas measurements, and drone technologies, while three fantastic field tours showcased southern Ontario's agricultural landscapes, soils, and innovative research.

One of the week's highlights was the continued tradition of the National Soil Judging Competition. Students from across the country demonstrated impressive knowledge, enthusiasm, and teamwork, reminding all of us that the future of soil science in Canada is in excellent hands. It was wonderful to see so many experienced soil scientists mentoring the next generation throughout the competition.

Beyond the science, the conference was filled with opportunities to connect. Whether catching up over coffee between sessions, visiting exhibitors, enjoying the student events, or sharing ideas during poster sessions, the sense of community was unmistakable. The banquet was a fitting celebration of the week, with great food, awards, plenty of laughter, and a live band that kept the dance floor busy well into the evening.

To everyone who attended, presented, volunteered, sponsored, exhibited, or helped organize the meeting, thank you for making Guelph 2026 such an incredible success. We hope you left with new ideas, new collaborators, and lasting memories. We look forward to seeing everyone again in Québec City!

**Adam Gillespie and Josh Nasielski, conference co-chairs**

# Merci pour une excellente conférence à Guelph!


L'Assemblée conjointe 2026 de la Société canadienne de la science du sol (SCSS) et de la Société canadienne d'agronomie (SCA) restera gravée dans les mémoires. Accueillie par l'Université de Guelph du 20 au 25 juin, cette rencontre a réuni plus de 450 chercheurs, étudiants, représentants de l'industrie, scientifiques gouvernementaux et producteurs agricoles provenant de partout au Canada et d'ailleurs dans le monde, dépassant largement toutes nos attentes.

Le programme scientifique a été enrichi par trois conférences plénières exceptionnelles qui nous ont invités à réfléchir autrement à l'avenir de l'agriculture, des sols et des systèmes alimentaires. Trois ateliers pratiques ont permis aux participants de découvrir la spectroscopie des sols, les mesures des gaz à effet de serre et les technologies par drones, tandis que trois formidables excursions sur le terrain ont mis en valeur les paysages agricoles du sud de l'Ontario, la diversité de ses sols et les recherches novatrices qui y sont menées.

L'un des moments forts de la semaine a été la poursuite de la tradition du Concours national de jugement des sols. Des étudiants de partout au pays ont fait preuve de connaissances remarquables, d'un enthousiasme contagieux et d'un excellent esprit d'équipe, nous rappelant que l'avenir de la science du sol au Canada est entre de très bonnes mains. Ce fut également un réel plaisir de voir tant de pédologues expérimentés accompagner et encadrer la relève tout au long de la compétition.

Au-delà du programme scientifique, le congrès a offert de nombreuses occasions d'échanger et de tisser des liens. Que ce soit autour d'un café entre deux séances, en visitant les exposants, en participant aux activités étudiantes ou en discutant lors des séances d'affiches, l'esprit de communauté était partout. Le banquet a constitué une fabuleuse conclusion à cette semaine, avec un excellent repas, la remise de prix, de nombreux moments de convivialité, et un groupe de musique qui a animé la piste de danse jusque tard en soirée.

À toutes les personnes qui ont participé au congrès, présenté leurs travaux, fait du bénévolat, soutenu l'événement, exposé ou contribué à son organisation, un immense merci d'avoir fait de Guelph 2026 un succès aussi remarquable. Nous espérons que vous êtes repartis avec de nouvelles idées, de nouvelles collaborations et des souvenirs mémorables. Au plaisir de vous retrouver à Québec en 2027!

**Adam Gillespie et Josh Nasielski, coprésidents de la conférence**

# Joint meeting of the Canadian Society of Soil Science (CSSS), the Canadian Society of Agronomy (CSA), and the Canadian Society of Agricultural and Forest Meteorology (CSAFM)

## June 20-25, 2026 at the University of Guelph

## CSSS Awards

Canadian Society of Soil Science

Société Canadienne de la Science du Sol

Canadian Society of Agronomy

La Société Canadienne d'Agronomie

csafm

CANADIAN SOCIETY OF AGRICULTURAL AND FOREST METEOROLOGY

SOCIÉTÉ CANADIENNE DE MÉTÉOROLOGIE AGRICOLE ET FORESTIÈRE

scmaf

UNIVERSITY OF GUELPH

# Canadian Society of Soil Science (CSSS) Awards (Con't.)

## 2026 Canadian Society of Soil Science Early Career Professional Award

Dr. Zhengfeng An is currently a Postdoctoral Fellow and Forest Soils Laboratory Manager in the Department of Renewable Resources at the University of Alberta. Zhengfeng completed his Ph.D. in Soil Science at the University of Alberta (Supervisor: Dr. Scott X. Chang), including a research exchange at the University of Pennsylvania (Host: Dr. Alain F. Plante), and his M.Sc. and B.Sc. in Soil and Water Conservation and Desertification Combating from Northwest A&F University and Inner Mongolia Agricultural University, respectively. Zhengfeng's research focuses on soil organic matter stability, carbon and nitrogen cycling, greenhouse gas emissions, and the responses of soil biogeochemical processes to climate extremes across cropland, grassland, and agroforestry systems.

Zhengfeng's research has provided global-scale evidence that crop rotation enhances soil microbial diversity in croplands worldwide, and has advanced understanding of how management practices - including biochar amendments and carbon-based fertilizers - regulate soil organic matter quality and greenhouse gas fluxes. His work further demonstrated that heat wave events significantly alter $CO_2$ and $N_2O$ emissions from agricultural and forest soils, with direct implications for climate-smart soil management. Zhengfeng has published over 30 peer-reviewed articles in journals such as Nature Communications, Geoderma, and Agriculture, Ecosystems & Environment.

## 2026 Canadian Society of Soil Science Soil Science for Society Award

Dr. Melissa Arcand is an Associate Professor in the Department of Soil Science at the University of Saskatchewan and a member of the Muskeg Lake Cree Nation in Treaty 6. She researches soil health, carbon storage, and nutrient cycling in Prairie agroecosystems. She leads the SAGE Project (ē kanātahk askiy), which works with Indigenous communities to share knowledge of soil and agroecosystem health and stewardship practices across the Prairies. She teaches in the Kanawayihetaytan Askiy ("Let us take care of the land" in Plains Cree) Indigenous land and resource management certificate program and is the Academic

# Canadian Society of Soil Science (CSSS) Awards (Con't.)

## 2026 Canadian Society of Soil Science Fellow

Dr. Angela Bedard-Haughn is the Dean of the College of Agriculture and Bioresources and a Professor of Soil Science at the University of Saskatchewan (USask). She was born and raised on a mixed farm in the central parkland region of Saskatchewan, received her BSc and MSc from USask, and completed her PhD at University of California at Davis before returning to USask. She served as a Professor, Graduate Chair, Department Head and Associate Dean (Research and Graduate Studies), before becoming Dean in 2020.

Angela's research focuses on mainly wetland soils and predictive soil mapping, largely supported by NSERC, the Saskatchewan Agriculture Development Research Fund, Environment Canada and several industry groups. She remains active in training, mentoring graduate students and teaching field courses on soil and landscape classification, at both undergraduate and graduate levels.

Angela has been a member of CSSS since 2001. She has been involved in the organization of two CSSS conferences, as a member of the organizing committee (2010), conference co-chair (2019) and field trip leader (2010, 2019). She has also served as CSSS President, CJSS Associate Editor, and inaugural secretary of the Pedology Committee, which she currently co-chairs.

She is currently President-Elect of the national Deans Council of Agriculture, Food, and Veterinary Medicine, Chair of the Meewasin Valley Authority Board, Chair of the Saskatchewan 4-H Foundation, and Director with the Agriculture in the Classroom Canada Board.

Angela's favorite soils are Gleysols, but she has yet to meet a soil profile she didn't like.

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# Canadian Society of Soil Science (CSSS) Awards (Con't.)

## STUDENT AWARDS 2026

### 2026 CSSS Student Book Awards

This award recognizes undergraduates at Canadian universities who demonstrate excellence in Soil Science. Candidates are nominated by their academic department. In 2026, these students will receive a print copy of Digging into Canadian Soils: An Introduction to Soil Science, published by the CSSS:

| | |
|---|---|
| **Noémie Waltzing** | Univ. du Québec à Chicoutimi |
| **Lorie Thibeault** | Université Laval |
| **Victor Reyes de la Rosa** | McGill University |
| **Kiera Coleman** | University of Alberta |
| **Lainie Muir** | University of Saskatchewan |
| **Theo Mohamed** | University of British Columbia |

### 2026 CSSS Student Travel Awards

This award was established in 1991 to promote student attendance at the CSSS Annual Meetings and is available to any graduate student who is a CSSS member. The award is $700 with a maximum of 12 being granted. This year's award recipients are:

| | |
|---|---|
| **Ethan Price,** | Dalhousie University |
| **Vijeta Chatterjee,** | Dalhousie University |
| **Wren (Sarah) Mangelli,** | Lakehead University |
| **Purushottam Dhodary,** | Université Laval |
| **Neem Lal Pandey,** | Université Laval |
| **Prabin Ghimire,** | Université Laval |
| **Nipuni Lelwala Hewage,** | University of Manitoba |
| **Anushika Rathnayake,** | University of Manitoba |
| **Irini Papageorgiou,** | University of Winnipeg |
| **Dhulmy Bandara,** | University of Winnipeg |
| **Yashodha Charuni Weerasekara,** | University of Winnipeg |
| **Nabin Pathak,** | University of Alberta |

### 2026 CSSS Pedology Travel Award

This award supports members to participate in international meetings and workshops, specifically those related to Pedology to secure Canadian presence in international forums. This year's award recipient is:

**Dr. Grace Gowera**
Postdoctoral Researcher (University of Saskatchewan) for WCSS in Nanjing, China, June 7-12, 2026

**Dr. Nastaran Chalabianlou Vayjoyeh** Postdoctoral Researcher (University of Guelph) for WCSS in Nanjing, China, June 7-12, 2026

**Dr. Olatunbosun Ayetan** Postdoctoral Researcher (University of Guelph) for WCSS in Nanjing, China, June 7-12, 2026

# Canadian Society of Soil Science (CSSS) Awards (Con't.)

## 2026 CSSS-CJSS Travel Award for International Soil Science Meetings

The Canadian Society of Soil Science (CSSS) and the Canadian Journal of Soil Science (CJSS) jointly sponsor annual awards to provide travel funds for student members of CSSS to attend international soil science meetings. This year's award recipient is:

**Alessia-Marchesan**
PhD candidate (University of Alberta) for EGU conference in Vienna, May 3-8, 2026

**Gbenga-Daniel-Adejumo**
PhD candidate (University of Saskatchewan) for WCSS in Nanjing, China, June 7-12, 2026

**Rimsha Khan**
PhD candidate (Dalhousie University) for the ASA CSSA & SSSA International Meeting and Conference in Oregon, November 1-4, 2026.

## 2026 Karl C. Ivarson Soil Science Scholarship

This scholarship was created by Dr. Karl C. Ivarson through a gift to then Agricultural Institute of Canada Foundation, which eventually became the Canadian Foundation for Food and Agricultural Education. In 2024, the administration of this scholarship passed to the CSSS. In 2026, a single $2000 scholarship was awarded to:

**Breanna Barrett,** University of Saskatchewan

## C.F. Bentley Award for Oral Presentation 2026

This award was initiated in 1983 to encourage and recognize excellence in oral presentations by students at the CSSS Annual Meetings. It honours Dr. Fred Bentley who was CSSS President in 1956-57 and inducted as a CSSS Fellow in 1973. The award winner receives $500, the first runner-up $300, and the second runner-up $200. Recipients of these awards in 2026 were:

| | |
|---|---|
| Winner: | **Bhabishya Khaniya,** University of Toronto |
| First runner-up: | **Khalid Lemhtrari,** University Mohammed VI Polytechnic |
| Second runner-up: | **Alessia Marchesan**, University of Alberta |

## President's Award for Poster Presentation 2026

This award was established in 1992 to foster excellence in student poster presentations as a means of disseminating research results. Each award winner receives $500, the first runner-up $300, and the second runner-up $200. Recipients of these awards in 2026 were:

| | |
|---|---|
| Winner: | **Neem Pandey**, Université Laval |
| First runner-up: | **Prabhat Pandit**, University of Alberta |
| Second runner-up: | **Taurai Matengu**, University of Manitoba |

# Canadian Society of Soil Science (CSSS) Awards (Con't.)

## Soils at Guelph 2026

These awards recognize students doing outstanding work to advance knowledge of agricultural soil health or to support farmers in adopting practices that build healthier soils, values that sit at the very heart of Soils at Guelph's mission!

The award winner receives $500, the first runner-up $300, and the second runner-up $200. Recipients of these awards in 2026 were:

**Oral Presentation 2026**

| | |
|---|---|
| Winner: | **Iraj Yaghoubian**, University of Guelph |
| First runner-up: | **Jessica Nicksy**, McGill University |
| Second runner-up: | **Dillon Muldoon**, Trent University |

**Poster Presentation 2026**

| | |
|---|---|
| Winner: | **Julianna Tindall**, University of Guelph |
| First runner-up: | **Jedida Chirchir**, University of Alberta |
| Second runner-up: | **Vijay Velusamy**, University of Guelph |

## Canadian Soil Science Society Student Travel Awards for International Soil Science Meetings, September 15, deadline

This award allows student members to broaden the scope of their work and expand their relationships with soil science researchers outside of Canada. The student is reimbursed based on cost for registration, travel, accommodation, and meals up to a maximum of $3,000.

One award is available for the Sept 15 deadline. Award criteria and application details can be found at https://csss.ca/awards-criteria/#StudentPresentationAwards."

## Steve Pawluk Scholarship 2026

An annual scholarship valued at $2000 is given to support graduate students in programs focused on soil science. Interested students can send their application to csss.presidentelectcouncil@csss.ca by September 30th, 2025. For more information, check the award criteria at the link below:
https://csss.ca/awards-criteria/

# Soils and Crops in Focus 2026: Student Research Award Winners

From June 20–25, the University of Guelph hosted SOILS & CROPS IN FOCUS: Critical resources from coast to coast to coast, a joint conference of the Canadian Society of Soil Science (CSSS) and the Canadian Society of Agronomy. Soils At Guelph recognized six deserving CSSS student members with the Soils At Guelph award, three oral presentation winners and three poster presentation winners, each receiving a cash prize. These awards recognize students working to advance our knowledge of agricultural soil health or advance farmers' abilities to implement management practices that support soil health. These topics align with Soils at Guelph's mission to advance sustainable soil management by making research accessible and facilitating knowledge exchange between researchers, farmers, industry, government, and the public. We're excited to showcase the researchers and their award-winning work.

## Poster Presentation Winners

### Julianna Tindall, MSc in Plant Agriculture

**Evaluating the Impact of Crop-Livestock Integration on Soil Health in Elora, Ontario**

Julianna Tindall is a Master's student in the Department of Plant Agriculture at the University of Guelph under the supervision of Dr. Kimberley Schneider, Dr. Kari Dunfield, and other faculty members. She is studying the short-term effects of crop–livestock integration through cover crop grazing using beef cattle. Her research focuses on evaluating the impact of grazing cover crops on soil health and subsequent crop yield. Cover crops have been shown to improve soil health over time, and although integrating livestock through grazing is becoming more common in Ontario, limited local information is available on how this practice affects soil properties.

This research was conducted at the Ontario Beef Research Centre in Elora, where cattle grazed cover crops as part of a crop rotation. Soil samples were collected from grazed and ungrazed areas and analyzed for a range of physical, biological, and chemical soil health indicators. Preliminary results showed that grazing caused few changes to soil properties immediately following fall grazing. Data analysis is underway to determine whether these observed effects persist into the following season, and subsequent crop yield will be measured to evaluate the overall impact of grazing cover crops. This research will help improve understanding of how crop–livestock integration affects soil health and provide information to support management decisions for Ontario producers.

# Soils and Crops in Focus 2026: Student Research Award Winners (Con't.)

## Poster Presentation Winners

### Jedida Chirchir, PhD in Plant Science

**Drivers, Patterns, and Management of Soil pH and Nutrient Stratification in No-Till Cropping Systems**

Jedida Chirchir is a PhD student in the faculty of agricultural, life & environmental sciences at the University of Alberta under Dr. Linda Gorim, studying the drivers, patterns, and management of soil pH and nutrient stratification in no-till cropping systems.

"Under long-term no-till management, soil pH and nutrients are often unevenly distributed. This study analyzed data from North American agricultural systems to identify the causes, effects, and management of uneven distribution of soil pH and nutrients, and to understand vertical distribution patterns between tilled and no-till systems.

The results indicate that the uneven distribution of soil pH and nutrients results from: (1) historical tillage practices that redistributed soil across the landscape, exposing alkaline or acidic subsoils on upper landscape positions and depositing organic matter in lower positions; (2) crop rotations involving crops with different seed sizes sown at varying depths, resulting in fertilizer placement at different soil depths; (3) surplus fertilizer use; and (4) surface retention of crop residues under no-till management. The analyzed data indicate that soil pH varies minimally with depth and between tilled and no-till systems. However, phosphorus and potassium accumulated near the soil surface under no-till systems.

Management options include liming, which may not fully address uneven distribution, and occasional tillage, whose effectiveness and implementation in the Canadian Prairies require further research. Soil pH and nutrient variability can reduce the accuracy of current soil sampling practices, which can lead to less reliable fertilizer recommendations."

# Soils and Crops in Focus 2026: Student Research Award Winners (Con't.)

## Poster Presentation Winners

### Vijay Velusamy, MSc in Environmental Sciences

**Aerobic Biodegradation of Bioplastics in Agricultural Soil under Laboratory and Field Conditions**

Plastic pollution is a growing environmental challenge, particularly in agriculture where plastic mulch films and packaging are widely used. Biodegradable plastics have been developed as a more sustainable alternative; however, there is limited understanding of how well they degrade under real agricultural soil conditions.

Laboratory tests are commonly used to evaluate biodegradable plastics under controlled conditions, but soils in the field are much more complex. Factors such as soil microorganisms, temperature, moisture, and weather can all influence how quickly these materials break down. As a result, laboratory results may not always reflect what happens in agricultural environments.

Under the supervision of Dr. Brandon Gilroyed at the University of Guelph, this research compares the biodegradation of bioplastic materials under standardized laboratory conditions and in agricultural field soils. The study evaluates material degradation through carbon dioxide production, mass loss, physical changes, and changes in material properties to better understand how environmental conditions influence biodegradation. The findings will help improve the evaluation of biodegradable plastics and support the development of more sustainable materials that protect soil health while reducing plastic pollution.

*"The true measure of a biodegradable material is not how it performs in the laboratory, but how it supports the health and resilience of the soil where life begins. Healthy soils are the key to a sustainable future."*

# Soils and Crops in Focus 2026: Student Research Award Winners (Con't.)

## Oral Presentation Winners

### Iraj Yaghoubian, PhD Candidate in Plant Agriculture

**Untangling the Effect of Corn Residue on No-Till Soybean Establishment and Yield: Field and Growth Room Insights**

Iraj Yaghoubian is a PhD Candidate in the Department of Plant Agriculture at the University of Guelph, studying the effect of corn residue on no-till soybean establishment and yield under the supervision of Dr. Joshua Nasielski.

High levels of surface corn residue reduce stand establishment and yield in no-till soybeans. However, the mechanisms by which residue interferes with soybean establishment remain unclear. Surface residue can interfere with planter performance, reduce seedbed quality (e.g., act as a physical barrier to emergence) and also affect seedbed temperature and moisture. Disentangling these mechanisms has not been done.

Iraj conducted a field trial (RCBD, 4 replicates) in Winchester, ON, comparing spring tillage to no-till with different residue manipulation treatments. Residue was removed before planting, after planting, and removed before planting but added back after planting. Planter performance, seedbed soil physical properties, emergence rate, plant population and yield were evaluated in the field. Iraj found that when corn residue was removed before planting in the no-till system and added back after planting, the number of planted seeds, plant population, and final yield increased by 55%, 38%, and 11%, respectively, compared to no-till with surface residue, outperforming spring tillage.

Iraj ran a parallel growth chamber experiment evaluating the effect of residue placement, placed on the surface or mixed with soil at different depths (above, below and surrounding the seed). Germination, emergence, hypocotyl length and biomass partitioning were evaluated in the growth chamber. In the growth chamber, emergence, final population and leaf:stem biomass ratio were reduced only when residue was mixed into the soil.

Together, Iraj's results suggest that the negative effect of corn residue on no-till soybean establishment is due to residue being mixed into the seedbed soil. Improving soybean establishment in no-till to levels comparable to tilled systems requires planter modifications that ensure residue is removed from the seedbed during planting.

# Soils and Crops in Focus 2026: Student Research Award Winners (Con't.)

## Oral Presentation Winners

### Jessica Nicksy, PhD Candidate

**Legume Intercropping Supplies N and Shifts Soil Processes in Novel Perennial Grain Kernza™**

Jessica Nicksy is a PhD candidate in the faculty of agricultural and environmental sciences at McGill University under Dr. Cynthia Kallenbach.

Jessica's presentation spotlighted increasing perenniality (crops that survive and produce season after season) and diversity (different species and functions of plants) in agricultural systems may enhance ecosystem services and reduce disservices.

Jessica's research investigates how a novel perennial cereal crop, Kernza®, interacts with a legume intercrop to shift soil processes and enhance nitrogen cycling. Legume intercropping supplied nitrogen to the main Kernza® crop, increased soil N pools and cycling, and shifted the composition of soil organic matter. This research helps to establish the benefits of intercropping for crop and soil health.

# Soils and Crops in Focus 2026: Student Research Award Winners (Con't.)

## Oral Presentation Winners

### Dillon Muldoon, PhD in Environmental and Life Science

**From Surface to Subsoil: Management Effects on Soil Carbon Dynamics**


Dillon Muldoon is a PhD Candidate in the Environmental and Life Science Graduate Program at Trent University under the supervision of Dr. Karen Thompson. He is investigating how agricultural management practices and land use impact soil carbon dynamics and the arbuscular mycorrhizal fungal connection in surface and deep soils. His project is in collaboration with Dr. Micaela Tosi and Dr. Daniela León Velandia, in partnership and supported by the Society for the Protection of Underground Networks.

Dillon sampled both the surface (0-25 cm) and deep (80-105 cm) soils from five different agricultural management practices and two undisturbed land uses on the same working farm in Caven, Ontario. The agricultural management practices included a no rotation (corn-bean), rotation (corn-bean-small grain), rotation with cover crops, rotation with organic amendments, and rotation with cover crops and organic amendments. The undisturbed sites consisted of a hay field and a mixed maple-beech forest. These soils were then transported to the lab and sent out for soil analysis, including carbon fractionation to assess particulate organic matter and mineral-associated organic matter pools. Soils were also sent out for sequencing to measure arbuscular mycorrhizal fungal community diversity.

To date, Dillon's results have shown that depth by treatment interaction influences where soil carbon is partitioned in soil pools, that total carbon is higher in deep soils under agricultural management, and that forest soils behave differently from managed agricultural systems. While he is still waiting for sequencing data to investigate the impact of agricultural management and land use on arbuscular mycorrhizal fungi communities, these findings highlight that without sampling deep soils, we are missing the whole picture of carbon pools in agricultural soils.

***Congratulations to all of the Soils At Guelph award winners for their outstanding contributions to soil science research.***

# 2026 Soil Judging Contest

The 2026 CSSS Soil Judging Contest was a 2-day training and competition event hosted at the Soils & Crops in Focus conference co-hosted by the Canadian Society of Soil Science and the Canadian Society of Agronomy. On Day 1, participants (**Photo 1**) attended in-class lectures to learn more about the geology, parent materials, soil forming factors, and soil taxonomy of Southern Ontario. Abigail Burt, Quaternary Geoscientist with the Ontario Geological Survey, Ontario Ministry of Energy and Mines, provided an overview of bedrock geology and quaternary geology in Southern Ontario, providing critical information to participants about the origins and composition of surficial deposits, the parent materials from which soils have developed. Dr. Richard Heck from the University of Guelph then provided students with a lecture on the most important soil forming factors in Ontario, those exerting the greatest influence on soil formation in soils common to Southern Ontario. Finally, Dr. Heck provided an overview of soil taxonomy in Canada, with focus on soil orders that occur in Ontario.


Photo 1. Soil judging participants at the Ontario Crops Research Centre near Elora, Ontario.

Following the in-class lectures, the participants were shuttled to Woodrill Farms, just outside Guelph, Ontario, where 2 soil pits (**Photo 2**) were prepared for training and practicing. Land Resource Specialists from OMAFA were on hand to provide an overview of the soil profiles to the participants, and teams were then provided with tools and materials to practice ahead of competition day.

The 2026 contest had five teams registered with representation from British Columbia, Saskatchewan, Manitoba, Ontario, and Quebec:

**Team Luvisol:** Allison Murphy, Amanda Mitchell, Kara Looyenga and Sky Chen

**Team Chernozem:** Rijwan Sair, Lelwala Nipuni, Stewart Fuoco and Alexis Gloutney

**Team Solonetz:** Garynechele Saimpha, Asha Wareham, Kelsey Acton, Felix L'Heureux-Bilodeau

**Team Gleysol:** Andrea Surprenant, Breanna Barrett, Lainie Muir and Brittany Claeys

# 2026 Soil Judging Contest (Con't.)

The teams, affectionately named for soil orders in the Canadian System of Soil Classification (Brunisol, Chernozem, Podzol, and Vertisol) were challenged across five stations to test their skills. This included three soil pits (**Photos 3, 4 and 5**), a fourth station designed by Dr. David Lobb (University of Manitoba) to provide insight on how to understand topography and effectively measure topographic features critical to understanding soil spatial variability, such as slope gradients, using several different approaches, and a fifth station where participants were tasked with soil interpretation, specifically testing their ability to use the Canada Land Inventory Soil Capability for Agriculture rating system based on several soil and landscape sites.

Photo 2. Two teams working in one of the soil practice pits at Woodrill Farms, just east of Guelph, Ontario.

Photo 3. Image of a Gleyed Brunisolic Gray Brown Luvisol, known as the "North Pit".

Photo 4. Image of a Brunisolic Gray Brown Luvisol, known as the "Upper Pit"

# 2026 Soil Judging Contest (Con't.)

Photo 5. Image of an Orthic Humic Gleysol, known as the "Lower Pit"

Photo 6. The Orthic Humic Gleysol soil pit was turned into an oversized bathtub after the rain. This soil pit was 110 cm deep, but the water table was only about 20 cm from the surface. Note the sump pump in the bottom right of the image.

Last year, the contest in Manitoba was held during an extremely dry stretch of the summer, with extreme heat on the day of the contest. This year, we had ideal conditions with mostly sunny skies and temperatures in the mid-twenties. The real challenge came the week prior to the contest, when almost 51 mm (2 inches) of rain fell at the Elora Research Station. Most of the soil pits quickly filled with water, and volunteers spent several hours over the week pumping out the pits (**Photo 6**) to ensure participants could actually see the soil profile on contest day!

# 2026 Soil Judging Contest (Con't.)

The winners were the University of Guelph's Team Luvisol (from left to right: Allison Murphy, Amanda Mitchell, Kara Looyenga and Sky Chen). Winners were awarded with a custom engraved soil knife!!

Photo 7. Winners of the 2026 CSSS Soil Judging Contest – University of Guelph's Team Luvisol (from left to right: Allison Murphy, Amanda Mitchell, Kara Looyenga and Sky Chen).

The organizing team for the soil judging would like to acknowledge the contributions of numerous volunteers (academics, government employees, interns and summer students) who made this such a successful event. Finally, we would like to thank the sponsors for this year's soil judging event: Soil Resource Group, Dualem, Groundwork, Ontario Ministry of Agriculture, Food, and Agribusiness, the Canadian Society of Agronomy and the Canadian Society of Soil Science. Join us for the 2027 Soil Judging Contest in Quebec!!

# Canadian Society of Soil Science - Canadian Society of Agronomy
# 2026 Post-Congress Tour: Pedology & Soil Classification
# Guelph, Ontario, June 25, 2026

**By Daniel Saurette & Richard Heck**

**Overview and Route**

The focus of this field tour was to review and discuss modifications being incorporated into the 4th Edition of the Canadian System of Soil Classification. Starting from the University of Guelph, tour participants visited several sites to discuss important changes to our taxonomic system and apply these new concepts to classify the soil profiles. These included:

Stop 1. Shallow soils over bedrock (Leptosolic Order)
Stop 2. Human-constructed soils (Anthroposolic Order)
Stop 3. Gleysolic soil (standardizing terminology and nomenclature in redoximorphic soils)
Stop 4. Soil with coprogenous earth (Limnisol Great Group, Organic Order)


Figure 1. Route and stops visited during the Pedology and Soil Classification field tour.

# 2026 Post-Congress Tour: Pedology & Soil Classification (Con't.)

**Stop #1: Kirkwall, Ontario**

Shallow soils occur throughout the world and are recognized as Leptosols at the highest level in the World Reference Base (WRB). Leptosols are recognized at the highest level in the WRB classification and are the most extensive group of soils in the WRB, with an estimated world-wide areal extent of 1.655 billion ha. Lithic Leptosols are the most extensive Leptosol, which are exceedingly shallow soils with <10 cm of unconsolidated mineral material overlying continuous bedrock. Within the Canadian System of Soil Classification (CSSC), shallow soils are currently handled at the family level according to the depth at which the lithic contact is encountered. At the series level these soils are usually designated as a shallow phase of a non-shallow soil series. The presence of bedrock close to the surface impacts drainage, the amount of available moisture, depth for rooting, and has a major influence on soil formation. For the CSSC v4, it was proposed that soils belonging to the Leptosolic order be defined as any mineral soil ≤25 cm in thickness above a leptic contact, for consistency with the WRB, or any organic (>17% organic C by weight) soil materials <60 cm in thickness if composed of fibric materials above a leptic contact or other organic (>17% organic C by weight) soil materials <40 cm in thickness above a leptic contact. A leptic contact includes bedrock (lithic), paralithic (soft rock), and fragmental materials (>90% coarse fragments). For more information on the proposed new Leptosolic Order, please see the special issue of the Canadian Journal of Soil Science (https://cdnsciencepub.com/topic/cjss-soil-survey).

The soil profile at Kirkwall (Figure 2) is composed simply of an Ah horizon which rests directly over the bedrock. At the location it was sampled, the Ah was 15 cm thick. This profile would key out as a Leptosol because it has <25 cm of soil over a leptic contact. This soil would key out as a Leptosol, because it has >10 cm of soil. Finally, at the subgroup level, this soil keys out as an Orthic Eutric Leptosol due to a pH ≥5.5.

Figure 2. Photos of the Kirkwall, ON soil profile which is classified as an Orthic Eutric Leptosol.
Photo credit: D. Saurette

# 2026 Post-Congress Tour: Pedology & Soil Classification (Con't.)

**Stop #2: Dufferin Aggregates, Mill Creek Pit**

The property known as the Dufferin Aggregates Mill Creek Pit consists of 188 hectares in the Township of Puslinch, County of Wellington. Dufferin has leased the property from the University of Guelph since 1990. The site is located on a significant glacial outwash deposit and is currently used for aggregate extraction, with several areas of the operation having been rehabilitated up to 2 decades ago.

Soil Pit #1 at Mill Creek Pit (Figure 3) was classified as a Fusco Spolic Anthroposol. The Dp, D, and Do horizons are composed of salvaged soil materials from the aggregate extraction site, while the Dg horizon is the top of a silt bed deposited by pumping a silt-dominated slurry from aggregate washing operations. The Dg horizon has many prominent mottles, but falls outside the control section defined for the Anthroposolic Order (100 cm, or lithic or terro contact, whichever is shallower). The profile does not have any horizons within the control section which show signs of pedogenesis, resulting in the Anthroposolic Order. The material does not have artefacts and is not dominantly organic (>17% organic carbon), therefore resulting in the Spolic great group. The Dp horizon has >2% organic carbon, resulting in the Fusco subgroup.

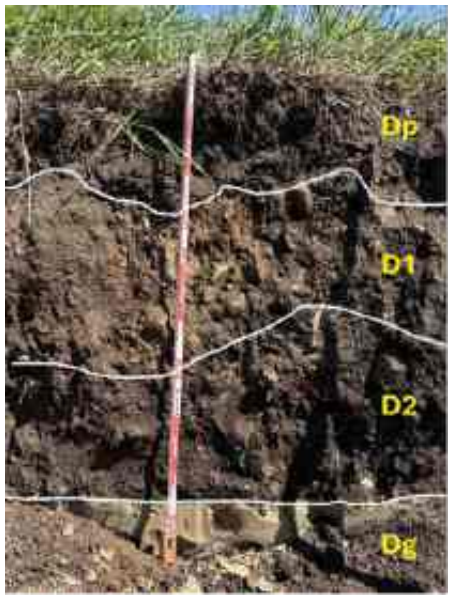


Figure 3. Soil pit #1 at the Dufferin Aggregates Site, classified as a Fusco Spolic Anthroposol. Photo credit: D. Saurette

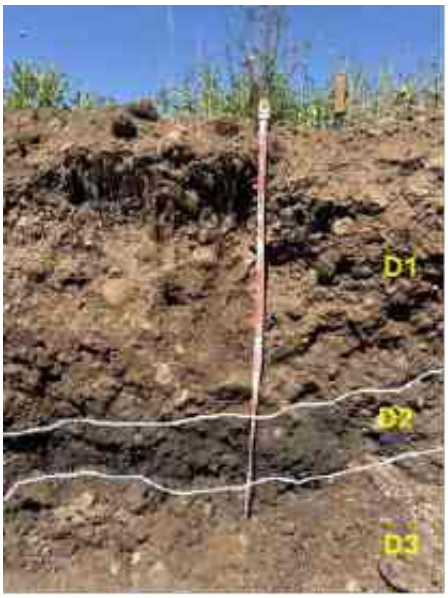


Figure 4. Soil pit #2 at the Dufferin Aggregates Site, classified as an Albo Spolic Anthroposol. Photo credit: D. Saurette

Soil Pit #2 at Mill Creek Pit (Figure 4) was classified as an Albo Spolic Anthroposol. All horizons are composed of salvaged soil materials from the aggregate extraction site. In contrast to Soil Pit #1, this profile is higher in the landscape and does not reach the silt bed at depth. At the order and great group levels, this profile is the same as Soil Pit #1 (Spolic Anthroposol). However, at the subgroup level, the D1 horizon has less than 2% organic carbon, resulting in the Albo subgroup

For more information on the proposed new Anthroposolic Order, please see the special issue of the Canadian Journal of Soil Science https://cdnsciencepub.com/topic/cjss-soil-survey.

# 2026 Post-Congress Tour: Pedology & Soil Classification (Con't.)

**Stop #3: Elora Research Station**

The Soil Redoximorphic Features Working Group has continued to work on revisions to our framework for the characterization and classification of redoximorphic soils. This includes recommended clarifications of relevant terminology, as well as refinements to concepts and criteria for the field characterization of redoximorphic features in Canadian soils. Proposed redefinitions and applications of 'g' horizon designations, based on the concepts of 'degree of mottling' and 'degree of gleying', was discussed.

| Horizon | Depth | Description |
|---|---|---|
| Ap1 | 0 – 19 cm | Loam, very dark greyish brown (10YR 3/2 m), weak fine subangular blocky structure, non-stony. |
| Ap2 | 19 – 34 cm | Silty clay loam, very dark greyish brown (10YR 3/2 m), weak medium platy structure. |
| Ahb | 34 – 69 cm | Silty clay loam, very dark grey (10YR 3/1 m), strong medium granular structure. |
| Bg | 69 – 100 cm | Silty clay, light brownish grey (2.5Y 6/1 m), moderate coarse subangular blocky structure, many coarse prominent mottles. |
| IICkg | 100 cm + | Gravelly clay loam, light brownish grey (2.5Y 6/2 m), massive structure, many coarse prominent mottles, strong effervescence. |

Degree of Mottling (Proposed): A classification of the expression of mottling in soils which incorporates both the colour contrast (relative to the adjacent matrix) and abundance (areal coverage) of a specified type of mottles.

| Abundance \ Contrast | Faint | Distinct | Prominent |
|---|---|---|---|
| Few | Very Weak | Weak | Moderate |
| Common | Weak | Moderate | Strong |
| Many | Moderate | Strong | Very Strong |

Degree of Gleying (Proposed): This classification is based on the apparent degree of reductive depletion of Fe3+ oxides from soil based on the expression of reductimorphic colours.

| Reductimorphic Colour (Munsell notation) | Class |
|---|---|
| 'N' Chromas or hues of GY, G, BG, B or PB | Extreme Gleying or Extremely Gleyed |
| Chromas ≤1 (regardless of hue), or the colour of the reductimorph contrasts prominently from the adjacent matrix | Strong Gleying or Strongly Gleyed |
| Chromas >1 to ≤2 (regardless of hue), or the colour of the reductimorph contrasts distinctly from the adjacent matrix | Moderate Gleying or Moderately Gleyed |
| Chromas >2 to ≤3 (regardless of hue), or the colour of the reductimorph contrasts faintly from the adjacent matrix | Weak Gleying or Weakly Gleyed or "Gleyish" |

# 2026 Post-Congress Tour: Pedology & Soil Classification (Con't.)

According to the proposed framework, the Bg and IICkg horizons exhibit very strong degree of mottling. Similarly, the Bg horizon exhibited a strong degree of gleying and the IICkg horizon exhibited a moderate degree of gleying.

**Reductimorphic Horizon Diagnostic Criteria (Proposed):**

| Degree of Mottling of Oximorphs → / Areal Expression of Reductimorphs ↓ | Very Weak | Weak | Moderate | Strong | Very Strong |
|---|---|---|---|---|---|
| > 1/2 must be at least strongly gleyed | gr | gr | gr | g | g |
| > 2/3 must be at least moderately gleyed | gr | gr | gr | g | g |
| 1/3 to 1/2 must be at least strongly gleyed | gi | gi | gi | go | go |
| 1/2 to 2/3 must be at least moderately gleyed | gi | gi | gi | go | go |
| other Munsell colorations | na | na | gi | go | go |


Based on the proposed framework for new reductimorphic horizon designations, the tour group determined that the Bg and IICkg horizons would continue to qualify for 'g' designation, as they satisfied the '> 2/3 must be at least moderately gleyed' areal expression of reductimorphs and exhibited 'very strong' degrees of mottling of oximorphs.

Finally, according to the Proposed Revised Key to Gleysolic Order, this profile would continue to be classified in that order:

> E. Other soils which exhibit a gr or a g horizon, or a cumulative combination of both, that is at least 10 cm thick and either:
>
> > 1) if the combined Ah &/or Ap horizon thickness is greater than 50 cm, starts immediately below said horizons; or
> > 2) starts within 50 cm of the mineral surface…
> > Gleysolic Order

# 2026 Post-Congress Tour: Pedology & Soil Classification (Con't.)

**Figure 5. Soil pit at the Elora Research Station, classified an Orthic Humic Gleysol developed on a fine glaciolacustrine deposit overlying a moderately fine glacial till. Photo credit: D. Saurette**

**Stop #4: Daynard Farm, Guelph, Ontario**

For classification purposes, Organic soils have a control section that extends from the surface to a depth of 1.6 m or to a lithic contact, which is divided into three tiers: surface (0 to 40 cm), middle (40 to 120 cm) and bottom (120 to 160 cm). Great group classification is based on the dominant material in the middle tier, except when a terric, lithic, or hydric substratum is present within the middle tier, in which case the dominant material in the middle and surface tiers are both considered. Organic horizons in wetland organic deposits are designated with the letter O and are further refined with four lowercase suffixes: f (fibric), m (mesic), h (humic) or co (coprogenous). Whereas the first three suffixes refer to the degree of decomposition of the organic material, the fourth suffix, "co", refers to a specific type of limnic deposit, coprogenous earth, or sedimentary peat, which is formed in an aquatic environment from aquatic organisms and fecal material derived from aquatic animals. Other types of limnic deposits are also recognized within the Organic order, including diatomaceous earth and marl. These layers are designated as C and Ck horizons, respectively. Fibric, mesic, and humic organic materials are recognized as organic horizons (i.e., Of, Om and Oh) and form the basis for the soil great groups of the Organic order. Despite coprogenous materials being recognized as an organic horizon (i.e., Oco), they are not considered at the great group level. In soils with significant limnic deposits and a terric layer within the control section, effectively the limnic materials are ignored.

To address these shortcomings, a series of modifications to the Organic order were proposed for inclusion in the 4th edition:

1. Modifying the Key to Soil Orders to allow for soils with dominantly limnic materials to be included in the Organic order and including limnic materials to be counted towards the depth requirements for Organic soils.
2. Adding the Limnisol great group to accommodate Organic soils where the middle tier, or middle and surface tiers, are dominantly composed of limnic materials.
3. Adding subgroups under the new Limnisol great group.
4. Further integrating Limnic at the subgroup level in the Fibrisol, Mesisol and Humisol great groups.

The soil profile at the Daynard Farm is composed of an Oh horizon (0-40 cm), followed by an Oco horizon (40-90 cm), resting over a terric contact in which two horizons were described. The presence of an Oh horizon 40 cm thick places this soil in the Organic Order. Since the soil has a terric contact in the middle tier, all materials above the terric contact are considered for the great group classification. The material above the terric contact is dominantly limnic, therefore at the great group level, this soil is a Limnisol. Finally, the subdominant humic layer > 12 cm thick and the terric contact within the control section result in a subgroup classification of Terric Humic Limnisol.

# 2026 Post-Congress Tour: Pedology & Soil Classification (Con't.)


**Figure 6. Soil core from Daynard Farm, classified as a Terric Humic Limnisol. The profile, from top (left) to bottom (right) showing the Oh (black), Oco (olive) and Ckg horizons (grey). Photo credit: A. Surprenant**

For more information on the proposed new Limnisol great group, please see the special issue of the Canadian Journal of Soil Science https://cdnsciencepub.com/topic/cjss-soil-survey

Canadian Society of Soil Science

Société Canadienne de la Science du Sol

# Research Study - Developing and Integrating a Social Water Use Model

The University of Vermont, in partnership with the University of Saskatchewan, is conducting a research study titled **Developing and Integrating a Social Water Use Model**, funded by the U.S. Geological Survey (USGS).

The project aims to develop a coupled natural and human systems model that better captures community and sector decision-making related to water use. The model will help improve forecasting and planning for water resources under changing climate conditions.

As professionals with expertise in soil, water, and land management, your input is valuable. The researchers are seeking perspectives on:

- Current water management strategies and challenges
- Climate-related risks and threats
- Short-, medium-, and long-term adaptation strategies

The information collected will help improve water resource models by better accounting for human decision-making, sector trade-offs, and community needs in the face of climate change.
If you are interested in participating, please access the survey using the link below.
Thank you for considering this opportunity to contribute to an important research initiative.

English Link: https://mcusercontent.com/ca7fd4410b9dab34e3ef8b381/files/5c556343-2606-e60a-53f6-af5efaffab13/Water_Use_Survey_Poster.pdf

French Link: https://mcusercontent.com/ca7fd4410b9dab34e3ef8b381/files/8c36c726-387e-b5ab-6ba7-dae1f8133318/E_TUDE_SUR_L_039_UTILISATION_DE_L_039_EAU.pdf

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# Employment Opportunities

**Funded PhD position studying the impacts of exposure to soil pesticide residues on soil dependent bees**

The University of Guelph is seeking a highly motivated and enthusiastic student for a 4-year funded PhD position investigating the risks and impacts of pesticide residues in soil on soil-dependent bees.

For more information click the link below:

https://mcusercontent.com/ca7fd4410b9dab34e3ef8b381/files/2ef2067f-775d-96fc-ab9d-a19eea7ff163/PhD_advert_Raine.pdf

# CSSS Council New Emails

**For your reference, the new Council email addresses are listed below.**

Ikechukwu Agomoh, Eastern Councillor, csss.easterncouncil@csss.ca
Mervin St. Luce, Western Councillor, csss.westerncouncil@csss.ca
Judith Nyiraneza, President, csss.presidentcouncil@csss.ca
Adrian Unc, President-Elect, csss.presidentelectcouncil@csss.ca
Richard Heck, Past-President, csss.pastpresidentcouncil@csss.ca
Lee-Ann Bauman, Secretary, csss.secretarycouncil@csss.ca
Preston Sorenson, Treasurer, csss.treasurercouncil@csss.ca
Anne Naeth, CJSS Editor, csss.cjsseditorcouncil@csss.ca
Dillon Muldoon, Student Representative, csss.gradrepcouncil@csss.ca
Nancy Zubriski, Business Manager, csss.officemanagercouncil@csss.ca
Susan Fisk, Social Media Coordinator, csss.socialmediacouncil@csss.ca

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# Grounded in Soils Blog

Promote your work in CSSS' Grounded In Soils blog! The blog enjoys an average of 600 readers per month! In addition, blogs are promoted on our Twitter and Facebook social media channels.

Any members can participate in either category:

**Blog posts about your research projects!** Work with our social media manager to compile a relatable blog post about your research (at any level). The only requirement is that we need two photos for the blog (for graphic interest and social media promotion). Email csss.soils@gmail.com for more information! Example: https://groundedinsoils.wordpress.com/2024/03/03/high-organic-matter-soils-in-southwestern-quebec-are-good-for-agriculture/

**Life as a soil scientist** encourages students to pursue a career in soil science by showing what real-life soil scientists do! We need your help to let them know what it's like to be a professional soil scientist! Be like Maren Oelberman, Grace Gowera, Daniel Saurette and more by filling out a simple set of questions, and providing two photos of you in "action" shots. These can be in the field or lab. Here is an example: https://groundedinsoils.wordpress.com/2023/11/04/life-as-a-soil-scientist-daniel-saurette/. Email csss.soils@gmail.com for more information!

# Conferences | Events | Meetings

**CANVAS (formerly ASA, CSSA and SSSA International Joint Meeting)**
https://www.sciencesocieties.org/canvas

November 1 - 4, 2026
Portland, Oregon

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**10th International Nitrogen Conference**
https://www.sciencesocieties.org/canvas

November 2 - 6, 2026
Kyoto, Japan

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**The Agri-Food Innovation Council Conference**
Nation Building 2.0 – AI powered Agri-Food: Transforming Crop, Animal & AgTech Systems
https://www.aic.ca/2027-conference/

May 17 & 18, 2027
Sheraton Hotel – Ottawa, ON

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**International Symposium on Climate-Resilient Agri-Environmental Systems**
https://www.iscraes.org/

June 21-23, 2027
UCD Health Sciences Centre, Dublin 4, Ireland

# Canadian Journal of Soil Science Active Collections

The Canadian Journal of Soil Science (CJSS) has openings and remains interested in your paper contributions to the following active collections.

**Soils and Disasters: Towards Resilience:** We are interested in your papers that show how any natural disaster and human use such as fire, industry, agriculture, forestry, flooding, drought, natural resource development, overgrazing, volcanic eruption, mining, climate change, urbanization, and warfare impact our soils. Tell us about the resulting changes in soil chemical, physical, and biological properties, and basic soil processes. We are also interested in your papers that show how to address these impacts (mitigation, soil and land reclamation, contaminant remediation, soil building for Anthroposols, nature based climate solutions) for sustainable resource development and utilization, food and fibre production, ecosystem functioning, and food security.

**Soil Life and Function: Advances in Soil Microbiology and Biogeochemistry:** We are interested in your papers on advances in soil microbial ecology, biogeochemistry, and their functional implications for natural and managed systems. Topics could include soil microbial activity and community dynamics, rhizosphere processes and plant-microbial interactions**,** soil enzymes and biochemical pathways**,** soil health indicators**,** disease resistance in plants**,** biogeochemistry and bioremediation of contaminated soils**,** functional roles of the soil microbiome, soil properties influencing microbial processes**,** characterizing soil biology and biochemistry**,** and applications of soil biology to agricultural sustainability and ecosystem restoration.

**On-Farm Experimentation: Sustaining Soil Health and Productivity:** We are interested in your papers on small plot research farms and on-farm experiments share knowledge among farmers and researchers, leading to innovations that can transform agriculture.Tell us about beneficial management practices to enhance physical, chemical, and biological soil properties, to reduce soil erosion and nutrient loading, and to decrease greenhouse gas emissions. We seek your papers that discuss data collected on-farm under different management practices or describe collaborations between farmers, researchers, and/or other partners to develop research proposals.

We look forward to seeing your paper submissions!

M. Anne Naeth, CJSS Editor In Chief

# Soil Spectroscopy Workshop

## Soil Spectroscopy Workshop and the Initiative to Establish a Soil Spectroscopy Sub-Commission Under the CSSS Pedology Commission

The pre-conference workshop, **"Soil Spectroscopy: The Nuts and Bolts of Soil Spectroscopy Science and Applications"** was jointly organized in recognition of the growing importance of soil spectroscopy as a cornerstone of modern soil science and pedometrics. Soil spectroscopy enables rapid, non-destructive, and scalable assessment of soil properties. Advances in visible-near infrared (Vis-NIR) and mid-infrared (MIR) spectroscopy, coupled with developments in chemometrics and machine-learning approaches, have greatly expanded the application of soil spectroscopy over the past two decades.

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This full-day workshop, held prior to the CSSS-CSA 2026 Conference, was co-organized by experts from the Ontario Ministry of Agriculture, Food and Agribusiness (OMAFA), the University of Guelph, Dalhousie University, the Woodwell Climate Research Center, and collaborating institutions. The workshop was designed to provide participants with a comprehensive, end-to-end understanding of soil spectroscopy, from spectral data acquisition and instrumentation to modelling, interpretation, and data management. Through a combination of presentations, demonstrations, and hands-on activities, participants gained practical experience while learning best practices for integrating advanced analytical approaches into soil research.

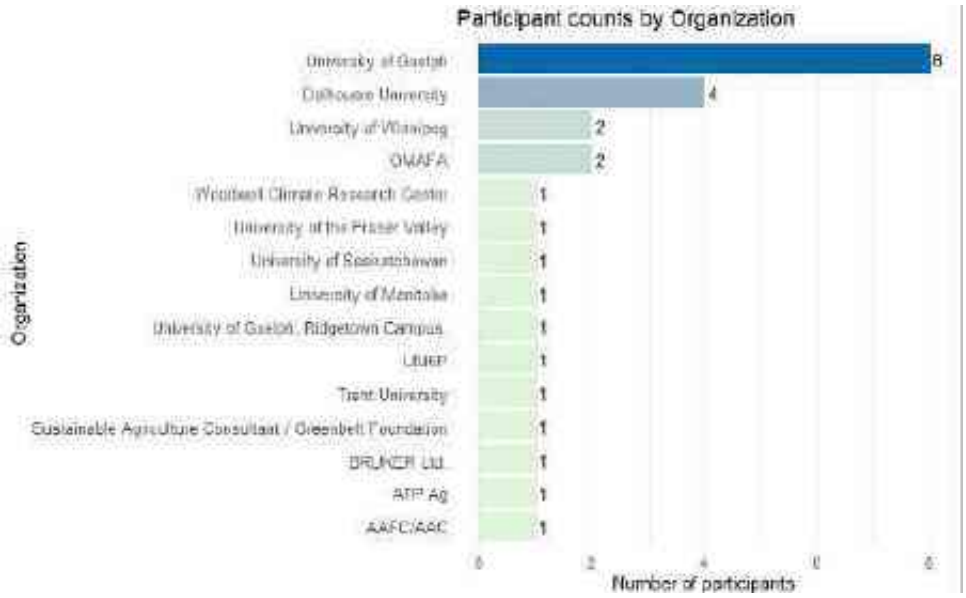


**Figure 1.** Soil spectroscopy workshop participants by organization at CSSS-CSA 2026

The workshop attracted participants from across Canada representing academia, government, and the private sector, as well as an international participant. In total, 27 participants (including invited participant) attended the workshop Figure 1.

# Soil Spectroscopy Workshop (Con't.)

### Learning from Global and Canadian Experiences

**Figure 2**. Moazame Mesgar (Postdoctoral Fellow, University of Guelph) demonstrating the Bruker Invenio HTS-XT MIR instrument in the Soil Organic Matter Dynamics and Analysis Laboratory (Dr. Adam Gillespie).

The workshop was organized into three main sessions, while the Opening and closing remarks were delivered by **Drs. Asim Biswas and Adam Gillespie**, respectively.

The first session featured a keynote presentation by **Dr. Jose Lucas Safanelli**, Research Scientist at the Woodwell Climate Research Center (Massachusetts, USA), who shared global perspectives on soil spectroscopy and highlighted developments associated with the **Open Soil Spectral Library (OSSL)** initiative.

The second session focused on foundational soil spectroscopy concepts and practical applications. A "Spectroscopy 101" presentation was delivered by **Anshu Beri, Ashley Hornby, and Moazame Mesgar** (University of Guelph), providing participants with an introduction to spectroscopy principles and their application in soil science.

This was followed by hands-on demonstrations of soil spectroscopy instrumentation, including Vis-NIR and MIR systems, hosted in the laboratories of **Dr. Asim Biswas** and **Dr. Adam Gillespie**, respectively **(Figures 2-4)**. Participants also observed a demonstration by Bruker showcasing newly released Quant-3 software functionality for rapid model development and prediction.

**Figure 3**. Anshu Beri (PhD Candidate, University of Guelph) demonstrating the ASD FieldSpec 4 Vis-NIR instrument in the BiswasSoilLab (Dr. Asim Biswas).

# Soil Spectroscopy Workshop (Con't.)

## Advanced Data Analysis and Modelling

The afternoon session provided a deeper exploration of advanced soil spectral data analysis and modelling. Dr. Safanelli led participants through practical applications of chemometric and machine-learning techniques using structured training materials from the **Predictive Soil Spectroscopy** program and the **OSSL** initiative. Participants gained exposure to practical R- and Python-based workflows for developing predictive soil models.

In addition, **Dr. Weixi Shu**, Postdoctoral Fellow at Dalhousie University, presented findings from inter-laboratory comparability assessments conducted through the **Canadian Soil Data Portal (CSDP)** project. The presentation highlighted differences in analytical methods and measurement variability among collaborating institutions, emphasizing the importance of ring-testing, quality assurance/quality control (QA/QC), and standardized operating procedures (SOPs) to ensure the generation of high-quality, nationally representative soil data.

**Figure 4**. Participants of the Soil Spectroscopy Workshop at the CSSS-CSA 2026 Conference, University of Guelph. (*Note: Not all co-organizers were available for the group photo due to overlapping conference responsibilities*).

# Soil Spectroscopy Workshop (Con't.)

## Building a Canadian Soil Spectroscopy Community

Beyond the technical training, the workshop also served as a platform for discussing the future of soil spectroscopy in Canada. Following a presentation by **Tegbaru Gobezie** on the topic, participants expressed strong interest in strengthening collaboration and establishing a national community of practice focused on soil spectroscopy.

As a result, the concept of creating a **Canadian Soil Spectroscopy Sub-Commission under the CSSS Pedology Commission** was introduced and received enthusiastic support from workshop participants. The proposal was subsequently presented during the Pedology Commission meeting on June 22, where it received positive endorsement and approval to move forward.

The inaugural meeting of the proposed sub-commission will be organized in the coming months. CSSS members interested in participating are encouraged to contact:

- **Tegbaru Gobezie** – tegbaru.gobezie@ontario.ca
- **Gordon Price** – gprice@dal.ca

This initiative represents an exciting opportunity to strengthen collaboration, promote knowledge exchange, and advance innovation in soil spectroscopy across Canada.

**Acknowledgements**
The organizers would like to sincerely thank all participants, speakers, and collaborators who contributed to the success of the workshop. Special thanks are extended to **Dr. Jose Safanelli** for generously sharing his expertise and contributing to the hands-on training activities.

We gratefully acknowledge **Dr. Brandon Heung** for supporting Dr. Safanelli's travel expenses through the CSDP project. We also thank Dr. Gillespie for providing a University of Guelph token of appreciation to Dr. Safanelli.

**Co-organizers**

- Tegbaru Gobezie (OMAFA)
- Adam Gillespie (University of Guelph)
- Asim Biswas (University of Guelph)
- Moazame Mesgar (University of Guelph)
- Ashley Hornby (University of Guelph)
- Weixi Shu (Dalhousie University)
- Xinrong Du (Dalhousie University)

# 🇨🇦 Canadian Soil Science Resource List

*A curated reference for members to bookmark and revisit throughout the year.*

**National Organizations**

- Canadian Society of Soil Science (CSSS) - https://csss.ca
- Canadian Soil Biodiversity Observatory - https://sis.agr.gc.ca/cansis/biome/index.html
- Canadian Land Reclamation Association (CLRA) - https://www.clra.ca
- Soil Health Network - https://www.soilhealthnetwork.ca

**Provincial Organizations**

- Manitoba Soil Science Society (MSSS) - https://mbsoils.ca
- Pacific Regional Society of Soil Science - https://www.prsss.ca
- Ontario Soil and Crop Improvement - https://www.ontariosoilcrop.org

**Key Resources**

- CSSS - Soil Health Committee - https://csss.ca/csss-soil-health-committee-2/
- Canadian Soil Classification Committee - https://csss.ca/pedology-committee/
- Centre for Sustainable Soil Management - https://www.sustainablesoils.ca

**Help us grow this list.**
If you have additional Canadian soil science organizations, events, or resources to suggest, please share them for inclusion in future editions by emailing csss.officemanagercouncil@csss.ca.

# Student Photo Contest

Are you a student interested in visually projecting your research? Do you have interesting and memorable research photos you would like to share? Then look no further as the CSSS is accepting submissions for the Canadian Journal of Soil Science (CJSS) student photo contest.

Students may submit more than one image per competition and may enter more than one competition.

One photo will be selected each year for the cover of the CJSS. This photo will be used on the covers of all four issues for a given year.

Other photos may be used for promotional activities of the journal such as special collections or calls for papers.

**Submission deadlines**
General submissions will be accepted at any time.
Submissions for the annual CJSS cover are required no later than October 1.

**Submissions specifications**
· Image must focus on some aspect of soil science to reflect CJSS content.
· Image must not include people.
· Image size and resolution must be at least 8.5 x 11 inches at 300 dpi or better.
· Images must be a single photo; no collages.
· Cell phone photographs are acceptable as long as they meet the criteria.
· Acceptable image formats are .jpg, .png, or .tif.

**Submission contacts**
Send all entries to the CJSS Editor-in-Chief (csss.cjsseditorcouncil@csss.ca) and the Graduate Student Representative (csss.gradrepcouncil@csss.ca).

**Prizes**
The submission selected for the CJSS cover will receive a $250 cash prize. The winning photograph will be featured on the cover of the Canadian Journal of Soil Science for all four issues of the year, and on the CSSS website. Up to four submissions per year will receive $125 each if selected for other purposes of CJSS such to promote special issues or collections. Students may submit more than one image per competition.

## CJSS Photo Submissions

If you are interested in submitting photos for consideration by the CJSS as an issue cover or as advertising material but not as part of the student photo contest please send directly to M. Anne Naeth (csss.cjsseditorcouncil@csss.ca). Any interested party can submit images provided that the images meet the criteria outlined for the student competition.

CANADIAN SOCIETY OF SOIL SCIENCE

SOCIÉTÉ CANADIENNE DE SCIENCE DU SOL

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