



CANADIAN SOCIETY OF SOIL SCIENCE  
SOCIÉTÉ CANADIENNE DE LA SCIENCE DU SOL

# CSSS 2023 Annual Meeting Program



**June 25 - 29, 2023**  
**Truro, Nova Scotia**  
**Dalhousie University Agricultural Campus**  
**10 Horseshoe Crescent, Truro, NS**  
**[csss2023.ca](http://csss2023.ca)**

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# Sponsors

We would like to thank and acknowledge the sponsors of this conference.

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SOILOPTIX 

## **2023 Annual Meeting of the CSSS**

### **Truro, NS**

#### ***Preparing the Next Generation of Canadian Field Soil Scientists***

**Session Convenor: Richard J. Heck, P.Ag., University of Guelph**

**Session Moderator: David Lobb, University of Manitoba**

Over recent decades there have been substantial changes in soil science programs at post-secondary institutions in Canada, in the needs and challenges associated with our soils, as well as in our science and practice. Through invited presentations, we will highlight the situation and trends at our universities and colleges, the evolving nature of pedology in Canada, as well as the needs of our private and public sectors. We will also explore the question of accreditation of soil scientists, our participation in International Soil Judging Contests, as well as opportunities that will emerge from our hosting of the 24<sup>th</sup> World Congress of Soil Science in 2030. This session will include a round table discussion on relevant directions and strategies that the CSSS may take to ensure our readiness to effectively respond to future sectoral needs.

#### **Proposed Session Program:**

***‘Comments and Updates on Trends in Soil Science Education in Canada’*** (15 minutes) – (i.e., Maja Krzic, University of British Columbia; Amanda Diochon, Lakehead University, \*Tom Yates, University of Saskatchewan) – 15 minutes

This presentation will review the results of three surveys conducted by the Soils Education Committee of the CSSS and published 2016 to 2019. At that time, soil science education across Canada was profiled in terms of academic units, introductory courses, and the knowledge gap between what our graduates have and the needs of industry. Where available, updates will be given, and comments made on soil science education in Canada post-pandemic.

***‘Not your grandparents’ soil survey: Pedology in the 21st century’*** (15 minutes) – (\*Angela Bedard-Haughn, University of Saskatchewan; Brandon Heung, Dalhousie university; Daniel Saurette, Ontario Ministry of Agriculture and Rural Affairs) – 15 minutes

This presentation will provide a high-level overview of some of the approaches increasingly incorporated into the pedologists’ toolkit. We will discuss some of the challenges associated with field-based training as well as the opportunities associated with digital tools, including predictive mapping and proximal and remote sensing. We will also highlight some of the risks associated with the burgeoning digital space and how the next generation can be better trained to evaluate technology and mitigate these risks.

***‘Practicing Pedology in Canada from a Consulting and Government Perspective’*** (\*Konstantin Dlusskiy, Paragon Soil & Environmental Consulting; C. James Warren, Ontario Ministry of Agriculture and Rural Affairs) – 15 minutes

There are two fundamental issues that universally affect the availability of pedologists for employment: 1) Most universities in Canada traditionally offering a soil science curriculum no longer do so. As a result, recent university graduates do not have the field experience required to practice as pedologists. Students may only have a single introductory course in soil science, sometimes a pedology course taken during their BSc program, and few, if any, have courses in geology, geomorphology, or cartography. 2)

The new generation of university graduates does not expect and does not want to work extensively in field programs looking for office-based positions after 2-3 years of periodical fieldwork, and many of these become on-the-job trainers for newer employees, perpetuating the problem.

***‘Certified Professional Soil Scientists Program’*** (\*Dawn Gibas, Director of Certifications, ASA-CSSA-SSSA) – 15 minutes (virtual participation)

A brief history of the Soil Science Certification and Licensing Programs under the Soil Science Society of American will be provided along with an overview of the current exam program. Discussion will include the progression of the certification program in keeping with advances in testing as well as soil science education and the profession. Challenges with soil science being a somewhat small profession in the U.S. and Australia and the implications for the certification program will also be discussed.

***‘Soil Judging Contests as Training for Canadian Soil Scientists’*** (\*John Galbraith, Virginia Tech) – 15 minutes (virtual participation)

National and international soil judging contests have been conducted since 2014, involving about a dozen countries and hundreds of participants. The contest week preparation allows teaching of soil description principles and interpretation of soil behavior in the host country. Shared meals, travel, discussion, training, and social events encourage camaraderie among participants and colleagues, who return home afterwards with enhanced skills and understanding to share in their home countries.

***‘Leveraging the 24<sup>th</sup> WCSS for Enhancing Field Soil Science Training in Canada’*** (\*Richard J Heck, University of Guelph; Jacynthe Masse, Agriculture and AgriFood Canada; David Lobb, University of Manitoba, Daniel Saurette, Ontario Ministry of Agriculture and Rural Affairs) – 15 minutes

Through a bid submitted by the Canadian Society of Soil Science, the 24<sup>th</sup> World Congress of Soil Science will be hosted in Toronto in July of 2030. As part of this Congress, various pre-congress, in-congress and post-congress soil tours will be organized. During the pre-congress week, an International Soil Judging Contest will also be organized. These activities offer opportunities to enhance our national capacity to deliver field training for the next generation of Canadian soil scientists and practitioners.

***‘Round Table Discussion – CSSS Going Forward’*** – 30 minutes



## Annual Conference Program

### Saturday, June 24, 2023

8:00 am – 8:00 pm	Soils Tour	Annapolis Valley
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### Sunday, June 25, 2023

8:00 am – 6:00 pm	Soils Tour	Annapolis Valley
9:00 am – 4:00 pm	GHG Workshop	Cox 383
7:00 pm – 10:00 pm	Opening Reception	Riverview Room

### Monday, June 26, 2023

7:00 am – 8:00 am	Breakfast	Jenkins Hall
8:00 am – 9:00 am	Conference Welcome and Keynote: Soil Health – Senator Rob Black	Alumni Theatre
9:00 am – 9:30 am	Break and Posters	Break: Cumming Hall Foyer Posters: Cox 354 & 356
9:30 am – 11:30 am	Session 15.1: Soil Health - Measurement & Management	Cox 134
	Session 4: Effects of Microplastics within Terrestrial Systems	Cox 153
	Session 17.1: Soil Organic Matter Characterization, Cycling, and Stability	Cox 383
11:30 am – 1:00 pm	Pedology Committee Lunch and Posters	Lunch: Jenkins Hall Posters: Cox 354 & 356
1:00 pm – 3:00 pm	Session 15.2: Soil Health - Measurement & Management	Cox 134
	Session 6.1: General Soil Science	Cox 153
	Session 17.2: Soil Organic Matter Characterization, Cycling, and Stability	Cox 383
3:00 pm – 3:30 pm	Break and Posters	Break: Cumming Hall Foyer Posters: Cox 354 & 356

## Monday, June 26, 2023

3:30 pm – 5:30 pm	Session 15.3: Soil Health - Measurement & Management	Cox 143
	Session 17.3: Soil Organic Matter Characterization, Cycling, and Stability	Cox 383
7:00 pm – 10:00 pm	Graduate Student Social	Riverview Room

## Tuesday, June 27, 2023

7:00 am - 8:30 am	IUSS Breakfast	Riverview Room Jenkins Hall
8:00 am – 9:00 am	Keynote: Spectroscopy – Rich Ferguson	Alumni Theatre
9:00 am – 9:30 am	Break and Posters	Break: Cumming Hall Foyer Posters: Cox 354 & 356
9:30 am – 11:30 am	Session 18: Soil Spectroscopy	Cox 134
	Session 10: Mechanized Approaches to Supporting Precision Soil Management	Cox 153
	Session 11.1: Mitigation of Soil Nitrous Oxide Emissions from Canadian Agriculture	Cox 383
	Session 14.1: Soil Amendments in Agricultural Environments	Cox 358
11:30 am – 1:00 pm	Education Committee Lunch and Posters	Lunch: Jenkins Hall Posters: Cox 354 & 356
1:00 pm – 3:00 pm	Session 6.2: General Soil Science	Cox 134
	Session 7: Hydrogeophysics to Support Precision Agriculture	Cox 153
	Session 11.2: Mitigation of Soil Nitrous Oxide Emissions from Canadian Agriculture	Cox 383
	Session 14.2: Soil Amendments in Agricultural Environments	Cox 358
3:00 pm – 3:30 pm	Break and Posters	Break: Cox Institute Foyer Posters: Cox 354 & 356
3:30 pm – 5:00 pm	CSSS AGM	Cox 134



## Wednesday, June 28, 2023

7:00 am - 8:00 am	Breakfast	Jenkins Hall
8:00 am – 10:00 am	Session 1.1: Advances in Digital Soil Data Management & Predictive Modelling	Cox 134
	Session 13: Roles of Cover Crops in Enhancing Soil Health and Nutrient Cycling	Cox 153
	Session 9: Measuring and Predicting Soil Nitrogen Mineralization	Cox 383
10:00 am – 10:30 am	Break and Posters	Break: Cox Institute Foyer Posters: Cox 354 & 356
10:30 am – 12:30 pm	Session 1.2: Advances in Digital Soil Data Management & Predictive Modelling	Cox 134
	Session 8: Implementing Research on Farms	Cox 153
	Session 11.3: Mitigation of Soil Nitrous Oxide Emissions from Canadian Agriculture	Cox 383
12:30 pm – 1:30 pm	Lunch and Posters	Lunch: Jenkins Hall Posters: Cox 354 & 356
1:30 pm – 3:30 pm	Special Session: Preparing the Next Generation of Canadian Field Soil Scientists	Cox 134
	Session 14.3: Soil Amendments in Agricultural Environments	Cox 153
3:30 pm – 4:30 pm	Break and Posters	Break: Cox Institute Foyer Posters: Cox 354 & 356
7:00 pm – 10:00 pm	Awards Gala	Round Barn Farm 3214 NS-236 Old Barns, NS

## Thursday, June 29, 2023

8:00 am – 5:00 pm	Cropping Systems Tour	TBA
9:00 am – 4:00 pm	Soil Spectroscopy Workshop	Cox 383
	Digital Mapping Workshop	Cox 184