

# CSSS Annual Conference Program

## Oral Presentations

### Session 1.1: Advances in Digital Soil Data Management & Predictive Modelling

**Convenor** Brandon Heung

**Date** Wednesday, June 28, 2023

**Time Slot** 8:00 am – 10:00 am

**Presenter** **Abstract**

Chantel Chizen	Soil Carbon Stock Estimates for Saskatchewan's Prairie Pothole Wetlands
Han Fu	A Continuous Isotope Mixing Model for Determining Root Water Uptake
James Kobina Mensah Biney	Digital Soil Mapping and Image Fusion for Enhanced Soil Organic Carbon Estimation in Croplands
Travis Pennell	Using a Hurdle Approach to Address Zero-Inflation in Digital Soil Mapping of Depth to Bedrock
Caleb Niemeyer	Digital Soil Mapping Predicts Spatial Patterns in Economic Yield Response to Foliar Fungicide in Maize
Tegbaru B. Gobezie	Data Stewardship for Radically Greater Credits
Kamal Ziaul Islam	Evaluating the Performance of the SWAT Model in a Boreal watershed: A Case Study of the Upper Humber River Watershed, NL, Canada
Waqar Ali	Land Use (LU) and Land Cover (LC) Change Assessments using Remote Sensing and GIS at Rawal Lake Watershed, Islamabad, Pakistan

### Session 1.2: Advances in Digital Soil Data Management & Predictive Modelling

**Convenor** Brandon Heung

**Date** Wednesday, June 28, 2023

**Time Slot** 10:30 am – 12:30 pm

**Presenter** **Abstract**

Jin Zhang	Predictive Surficial Material and Landform Mapping, British Columbia
Jeremy Kiss	User Data Sharing Considerations for a Web-Based Predictive Soil Mapping Service Platform
Preston Sorenson	Soil Carbon Sequestration Potential: Linking Process Models with Predictive Soil Maps
Jim Warren	Updating and Renewal of Soil Resource Inventory in Ontario
Jin Zhang	Developing Pedotransfer Functions for Soil Nutrient Regimes for Ontario
Marc-Oliver Gasser	Predicting Soil Organic Matter Evolution under Climate Change in Quebec.
Brandon Heung	Towards a Framework for Interpretable Machine Learning in Digital Soil Mapping

## Session 4: Effects of Microplastics within Terrestrial Systems

**Convenors** Serra-Willow Buchanan, Eric Kanold

**Date** Monday, June 26, 2023

**Time Slot** 9:30 am – 11:30 am

**Presenter** **Abstract**

Jordan Grigg	Characterization of Microplastics Found in Agricultural Soils Amended with Municipal Compost.
Nicholas Letwin	A Polyester Problem: A Look Into the Microplastic Contents of Biosolids and Biosolid-Amended Fields
Liam O'Hara	Sorption of Three Pesticides to Pristine and Weathered LDPE and PLA Microplastics
Eric Kanold	Polyester Microplastic Fibres Impact Arbuscular Mycorrhizal Fungi and Plant Performance
Serra-Willow Buchanan	Root Functional Trait Expression and Mycorrhizal Colonization under Realistic Microplastic Additions

## Session 6.1: General Soil Science

**Convenors** TBD

**Date** Monday, June 26, 2023

**Time Slot** 1:00 pm - 3:00 pm

**Presenter** **Abstract**

Tristan Chambers	Effect of KCl Addition on Crop Growth and Disease Incidence in Durum, Mustard, and Chickpea Grown at Two Different Landscape Positions in a South SK Farm Field
Caitlin McCavour	Early Effects of Helicopter Liming on Soil and Vegetation In Two Acidified Forest Stands In Nova Scotia, Canada
Tram Thai	Belowground Nitrogen Transfer from Forage Legumes to Neighboring Grass in Grass-Legume Binary Mixtures
Quinn Hlus	Phosphorus in Simulated Rainfall Run-Off From Landscapes Receiving Variable and Constant Rate Applications of Cattle Manure
David Kwesi Abebrese	A Comparative Study of Conventional Tillage and Multi-Tillage Treatments under Multiple Soil Physicochemical Characteristics
Kuthandige Salani Uththara Fernando	Selecting the Most Suitable Lysimeter Type and Cleaning Method for the Optimal Determination of Trace Elements in Soil Solutions
Kingsley John	Detailed Investigation of Soil Properties and Elemental Concentration Variation Along a Hillslope Landscape using Multivariate Approaches

## Session 6.2: General Soil Science

**Convenors** TBD

**Date** Tuesday, June 27, 2023

**Time Slot** 1:00 pm – 3:00 pm

**Presenter** **Abstract**

Andrew Hammermeister (30 min)	From Priorities to Practice: A Review of Organic Agriculture and its Contributions to Soil Science.
D Keith Reid (30 min)	Phosphorus Fast or Slow: Lessons from Thirty-Five Years of Phosphorus Modelling.
Seth Lundell	Effects of Mutualistic Soil Bacteria on Growth of Salt-Adapted Alfalfa ( <i>Medicago sativa</i> ) in Saline Soil
Genevieve Telmosse	Saprotroph And Ericoid Mycorrhizal Fungi in a Wild Blueberry Farm Subject to Fertilization and Fungicide Applications
Blake Weiseth	Impact of Fertilizer Phosphorus (P) Source, Rate, and Placement Strategy On Pea Yield, Nutrient Uptake, and P Losses in Snowmelt Runoff Water Across Variable Topographies in Saskatchewan.
Claude Mindorff	Agrivoltaics Canada: Pan-Canadian Research, Implementation and a Call to Collaborate

### Session 7: Hydrogeophysics to Support Precision Agriculture

**Convenors** Lakshman Galagedara, Aitazaz Farooque, Asim Biswas

**Date** Tuesday, June 27, 2023

**Time Slot** 1:00 pm – 3:00 pm

**Presenter** **Abstract**

Golam Rabbani	Estimation of Soil Organic Matter (SOM) using Electromagnetic Induction (EMI) Sensors
Sashini Pathirana	Potential of Utilizing Ground-Penetrating Radar to Calibrate Electromagnetic Induction for Shallow Soil Water Content Estimation
Raphael Deragon	Exploring Physical and Chemical Properties of Coprogenous Layers to Guide Proximal Sensing in Cultivated Organic Soils
Juwonlo Emmanuel Dahunsi	Evaluating the Relationship between Soil Infiltration Process and Ground Penetrating Radar Travel Time in Podzolic Soils

### Session 8: Implementing Research on Farms

**Convenors** Rosalie Madden, Caitlin McCavour, Carolyn Marshall

**Date** Wednesday, June 28, 2023

**Time Slot** 10:30 am – 12:30 pm

**Presenter** **Abstract**

Jordan Grigg	Experimental Acres: A Municipal Pilot Incentivizing Sustainable Agricultural Practices in Wellington County, Ontario.
Stephanie Lavergne	When Researchers, Producers and Stakeholders Work Hand in Hand to Develop the Organic Field Crop Sector: A Story from Abitibi-Temiscamingue (Quebec, Canada)
Judith Nyiraneza	Primary Non-Inversion Shallow Tillage Versus Moldboard Plow Prior to Growing Potatoes: Impacts on Potato Yield and Soil Properties in Prince Edward Island, Canada
Michael Preston	Living Labs: Evaluating the Impact of Forage Best Management Practices on Soil Organic Stocks and N <sub>2</sub> O Emissions in Northern British Columbia
Sheng Li	Controlled Traffic Farming on Commercial Potato Fields in Atlantic Canada – Preliminary Results of Soil Hydrological Properties and Potato Biomass a
Sirajum Munira	Misinformation and Disinformation in Agriculture: Why Does it Matter?

### Session 9: Measuring and Predicting Soil Nitrogen Mineralization

**Convenor** David Burton

**Date** Wednesday, June 28, 2023

**Time Slot** 8:00 am – 10:00 am

**Presenter** **Abstract**

Kate Congreves (30 min)	Turning Over a New Leaf for Nitrogen Management
Luke Laurence	Scaling Up Estimates of Growing Season N Mineralization: Increasing Accessibility Through Spatial and Non-Spatial Based Approaches
Hardy Strom	Biological Nitrogen Availability Testing on PEI
Mervin St. Luce	Effect of Canola Frequency and Nitrogen Fertilization on Nitrogen Mineralization Potential
Qianhan Le	Effect of Different Biosolids on Soil N Mineralization and N-acquiring Enzyme Activities in an Acidic Soil
Yvonee Uwituze	Carbon, Nitrogen, Phosphorus and Extracellular Soil Enzyme Responses to Different Land Use
Teri Balser	The N cycle as a Learning Challenge: Using a Game-Based Approach to Improve Understanding and Increase Interest

## Session 10: Mechanized Approaches to Supporting Precision Soil Management

**Convenors** Travis Esau, Aitazaz Farooque

**Date** Tuesday, June 27, 2023

**Time Slot** 9:30 am – 11:30 am

**Presenter** **Abstract**

Craig MacEachern	Development and Potential of a Precision Spot Applicator for Spot Specific Soil Amendment Using Granular Agrochemicals
Patrick Hennessy	Real-Time Variable Rate Application System for Soil Applied Fertilizer using a 9-Axis Internal Measurement Unit
Zeeshan Haydar	Assessing the Feasibility of UAV-Based Imagery and Lidar Sensor for Digital Elevation Model Estimation: Adaptation for Wild Blueberry Harvester Automation
Andrew Fraser	Electrical Conductivity and Remotely Piloted Aircraft for Detection of Soil Compaction and Monitoring Crop Growth
Mathieu Bilodeau	Advancing Topographic Feature Mapping: Utilizing Mask R-CNN and LiDAR for Dykelands Extraction in Eastern Canada
Evan MacDonald	Soil, Water, and Topography Maps as a Management Tool to Improve Profitability and Sustainability within the Potato Industry

## Session 11.1: Mitigation of Soil Nitrous Oxide Emissions from Canadian Agriculture

**Convenors** David Pelster, Erin Smith

**Date** Tuesday, June 27, 2023

**Time Slot** 9:30 am – 11:30 am

**Presenter** **Abstract**

Craig Drury (30 min)	From "Hole-in-the-Pipe" to "Pipes & Valves": Managing Fertilizer Nitrogen Loss from Soils
Laura Carruthers	Nitrogen Use Efficiency and Nitrous Oxide Dynamics in Prairie Potato Production
Sithabile Nyathi	Efficacy of New Nitrogen Stabilizer Products in Reducing nitrous oxide emission from urea
Haben Asgedom	Meta-Analysis: Nitrous Oxide Emission and Nitrogen Management Practices of Canadian Studies
Mario Tenuta	Fertilizer Nitrogen Source and Application Timing Reduce N <sub>2</sub> O Emissions from Spring Wheat Production in Manitoba

## Session 11.2: Mitigation of Soil Nitrous Oxide Emissions from Canadian Agriculture

**Convenors** David Pelster, Erin Smith

**Date** Tuesday, June 27, 2023

**Time Slot** 1:00 pm – 3:00 pm

**Presenter** **Abstract**

Azeem Tariq	Increase in N <sub>2</sub> O emissions with cover crops in diverse crop rotations can be mediated with dual fertiliser inhibitors
Olivia Blumenthal	Diversified Crop Rotation Impacts Nitrous Oxide Producing Microbes During Spring Thaw
Dilrukshi Kombala Liyanage	Getting to the root of it: detailed lab and field investigations of cover crop root effects on N <sub>2</sub> O emissions from agricultural soils
Chih-Yu Hung	Canada's Progress in Understanding N <sub>2</sub> O And Other GHGs Emissions from Manure-Amended Soils
Shannon Mustard	N <sub>2</sub> O Emissions from The Long-Term TGAS MAN Research Site in The Red River Valley: A Challenging 2022 Growing Season
Jessica Chadwick	Reducing Nutrient Losses from Agricultural Soils Through Nanomaterial Co-Application with Fertiliser
Anthony Pelletier	Impact of Conventional and Industrial By-Products Fertilization on Greenhouse Gas Emissions from a Wild Lowbush Blueberry Field

### Session 11.3: Mitigation of Soil Nitrous Oxide Emissions from Canadian Agriculture

**Convenors** David Pelster, Erin Smith  
**Date** Wednesday, June 28, 2023  
**Time Slot** 10:30 am – 12:30 pm

Presenter	Abstract
Mario Tenuta	Placement and N Source Effects on N <sub>2</sub> O Emissions from Canola Production in Manitoba
Sean Smukler	Meeting GHG Emission Targets with Natural Climate Solutions for British Columbia Agriculture
Pedro Vitor Ferrari Machado	Nitrous Oxide Emissions from Grazing Animal Excreta In Pastures Under Dry Climate
Lucy Ross-Blevis	Wood Mulch Controls N <sub>2</sub> O Emission from Arable Organic Soil
Richard Farrell	Discovering the Optimal Rate of a Dual-Inhibitor N-Fertilizer for Maximum N <sub>2</sub> O Emissions Reduction
Xiaopeng Gao	A Global Meta-Analysis of the Effect of Livestock Grazing on Soil N <sub>2</sub> O Emissions and Associated Functional Genes

### Session 13: Roles of Cover Crops in Enhancing Soil Health and Nutrient Cycling

**Convenors** Judith Nyiraneza, Mervin St. Luce  
**Date** Wednesday, June 28, 2023  
**Time Slot** 8:00 am – 10:00 am

Presenter	Abstract
Caroline Halde	Solar Corridor Cropping Systems: Effects of Row Spacings and Interseeded Cover Crops on Soil Health, Nitrous Oxide Emissions, and Crop Yields
Arati Sapkota	Crop Residue Effect on Carbon Mineralization and Aggregate Stability: An Incubation Study
Cameron Wagg	Cover Crop Dominance and Trait Diversity Effects on Soil Health
Daniel Colcuc	Harvesting a Cover Crop for Forage Slightly Increased Corn Nitrogen Fertilizer Requirement in Successive Year in Ontario, Canada.
Xueming Yang	Summer-Seeding Legumes and Termination Methods Impact on Corn Yields: 2 Case Studies in Southwestern Ontario
Jingyi Yang	Impact of Climate Change on Crop Yield, Soil Organic C N and Nitrate Leaching
Kennedy Choo-Foo	Can Pea-Oat and Pea-Canola Intercrops Reduce Nitrogen Fertilizer Applications Without Compromising Yield?

### Session 14.1: Soil Amendments in Agricultural Environments

**Convenor** Gordon Price  
**Date** Tuesday, June 27, 2023  
**Time Slot** 9:30 am – 11:30 am

Presenter	Abstract
Landon Orenchuk	Landscape Variations in Surface Soil Phosphorus Forms Across Farm Fields in Saskatchewan
Viranga Weerasinghe	Spring Snowmelt Runoff of Phosphorus and Metals from Manured Soils.
Dasinaa Subramaniam	Influence of Stocking Density of Eisenia Fetida on Vermistabilization Process of Paper Mill Sludge
Gnanakaran Maheswaran	Potentials and Limitations for Using Wood Ash from Industry for Agriculture and Forestry Use in Canada
Indeewari Ashirwadini Bandara	Paper-Sludge Vermicompost Amendment for Improved Yield of Kale, and Physicochemical Properties in Newfoundland Podzolic Soils
Weixi Shu	Fate and Transport of Non-Steroidal Anti-Inflammatory Drugs (NSAIDs) in Soils and Soils Receiving Land Applied Alkaline Treated Biosolids In Nova Scotia.
Zheya Lin	Effect of Municipal Biosolids Land Application on Soil Carbon Storage
Yeukai Katanda	Potential Utilization of Paper Mill Wood Ash as a Soil Amendment for Liming and Quality Improvement of Podzolic Soils.

## Session 14.2: Soil Amendments in Agricultural Environments

**Convenor** Gordon Price  
**Date** Tuesday, June 27, 2023  
**Time Slot** 1:00 pm – 3:00 pm

**Presenter** **Abstract**

Gnanakarean Maheswaran	Alfalfa Growth and Cadmium Uptake from Podzol Soil Amended with Ash, Biochar, and Compost
Alejandro Quezada	Carbon Sequestration Potential and Carbon Footprint Impact of Municipal Organic Waste Management Strategies into Applied Soils.
Okundia Rex Osabougbe	Response Of <i>Telfairia Occidentalis</i> to The Combined Application of Rubber Effluent and Urea in an Ultisol, Southern Nigeria
Rebecca Oiza Enesi	Liming Remediates Soil Acidity And Improves Crop Yields and Profitability- A Meta-Analysis.
Yvonne Uwituze	Soil Nutrient and Microbial Community Dynamics After Shrub Willow Chips Application
Busayo Kodaolu	Phosphorus Availability and Corn ( <i>Zea Mays</i> L.) Response to Application of P-Base Commercial Organic Fertilizers to a Calcareous Soil
Gurpal Toor	Characterization of Phosphorus Pools in Biosolids and Biosolids-Amended Soils

## Session 14.3: Soil Amendments in Agricultural Environments

**Convenor** Gordon Price  
**Date** Wednesday, June 28, 2023  
**Time Slot** 1:30 pm – 3:30 pm

**Presenter** **Abstract**

Darshani Kumaragamage	Crop Responses to Phosphorus-Sorbing Inorganic Chemical Amendments in an Alkaline Soil
Darshani Kumaragamage	Soil Amendment of Alum, Gypsum, and Magnesium Sulfate in the Fall to Mitigate Phosphorus Loss to Snowmelt in the Following Consecutive Spring Seasons
Anel Dannhauser	Biochar and Ash Amendments on Prairie Soils to Improve Soil Properties, Productivity And Reduce Nutrient Losses in Runoff
Srimathie Indraratne	Reduction of P Losses by Treating Manure with Alum, Gypsum Or Epsom-Salt From Manured Soils Under Simulated Snowmelt Flooding
Daniel Emiru Olana	Valorizing Alternative Organic Sources for Soil Amendments in Ethiopia.

## Session 15.1: Soil Health - Measurement & Management

**Convenors** Derek Mackenzie, Bobbi Helgason  
**Date** Monday, June 26, 2023  
**Time Slot** 9:30 am – 11:30 am

**Presenter** **Abstract**

R. Gary Kachanoski	Managing Farm Field Variability: Soil Health/Quality and Crop Response
David Lobb	Conservation Tillage Has Limited Impact In Restoring Crop Yields On Severely Eroded Landscapes
Barbara Cade-Menun	Does Management to Improve Soil Health Negatively Affect Soil Phosphorus Cycling?
Miles Dyck	Sensitivity of Physical Soil Health Indicators to Long-Term Crop Rotation and Fertilization
Maren Oelbermann	A Low Dosage and One-Time Application of Biochar and its Impact on Temperate Soil Health
Laura L. Van Eerd	New Investments in Ontario on Soil Health And Ecologically-Based Beneficial Management Practices (EcoBMPs).
Jean-Benoit Mathieu	Evolution of Soil Health in Quebec Between 1990 And 2020.
Marc-Oliver Gasser	The Physical Condition of Soils Revealed In Québec's Soil Health Study Of Agricultural Soils.

## Session 15.2: Soil Health - Measurement & Management

**Convenors** Derek Mackenzie, Bobbi Helgason

**Date** Monday, June 26, 2023

**Time Slot** 1:00 pm – 3:00 pm

**Presenter** **Abstract**

Charlotte Norris (30 min)	Soil Health Measurements for Canada – Perspectives from Boreal Forests to Cotton Fields
Erika Helen Young	A Survey of Free-Living Nematodes of the Atlantic Region of Canada and a Comparison of Morphological and Molecular Methods
Melanie Gauthier	Developing Scoring Functions Based on Soil Texture to Assess Soil Health at a Provincial Scale In Quebec
Nazanin Ghavami Shirehjin	Survey and Development of Molecular Soil Test for Soybean Cyst Nematode in Manitoba
Neem Lal Pandey	Establishing a Benchmark for Soil Health in High Organic Matter (Muck) Soils
Roya Faramarzi	How do Management Practices Across Ecoregions Impact Soil Microbial Diversity and Aggregate Stability as Soil Health Indicators?

## Session 15.3: Soil Health - Measurement & Management

**Convenors** Derek Mackenzie, Bobbi Helgason

**Date** Monday, June 26, 2023

**Time Slot** 3:30 pm – 5:30 pm

**Presenter** **Abstract**

Laura van Eerd (30 min)	Soil health measurement and management: Is there a link to plant health and yield?
Stephanie Lavergne	Does Intensive Organic Farming Promote Soil Health?
Thidarat Rupngam	Changes in Soil Phosphorus Availability in Response to Dairy Manure Application and Soil Moisture Regimes
Ehsan Zarrinabadi	Assessment of Soil Erosion using <sup>137</sup> Cs in the Canadian Prairie Pothole Region
Clemence Muitire	Temporary Changes in Soil Health Indicators Following Reclamation of Natural Gas Pipeline Right-Of-Ways on Cropland
Michael Paulauskas	Assessing Land-Use Legacy Effects on Soil Physico-Chemical Properties in Urban Parks

## Session 17.1: Soil Organic Matter Characterization, Cycling, and Stability

**Convenors** Adam Gillespie, Sevendeeep Kaur

**Date** Monday, June 26, 2023

**Time Slot** 9:30 am – 11:30 am

**Presenter** **Abstract**

Amanda Mitchell	Buried Surface Horizons Provide Insight into C Stability
Erin Burton	Soil Organic Matter Can Protect Yield - A Multisite and Multiyear Field Analysis
Hongjie Zhang	Understanding the Persistence of Soil Organic Carbon with Land Use in Prairie Agroecosystems
Jeremiah Vallotton	Soil Respiration Across Land Uses in Atlantic Canada
Jordan Kersey	Long-Term use of Regenerative Management Practices to Mitigate And Adapt to Climate Breakdown in Coastal Agricultural Systems Of Southwestern British Columbia
Richard Tingskou	Differential Carbon Cycling in Plough Layer of Podzol Designated for Land-Use Conversion
De Shorn Bramble	Mineral Type, Land Use and Management Intensity Control the Formation of Mineral-Associated Organic Matter in Temperate Soils

## Session 17.2: Soil Organic Matter Characterization, Cycling, and Stability

**Convenors** Adam Gillespie, Sevendeep Kaur

**Date** Monday, June 26, 2023

**Time Slot** 1:00 pm – 3:00 pm

<b>Presenter</b>	<b>Abstract</b>
Yajun Peng	Method Matters: Long-Term Tillage Experiment Reveals that Fixed Depth Overestimates Carbon Stocks within Soil Profile
Brent Seuradge	Northern Boreal Forest Conversion to Agricultural Landscapes Alters Soil Microbial Carbon and Nitrogen Cycling Potential
Kehinde Adams	Carbon Mineralization of Root Exudate Proxies in Soils from Different Depths
Jessica Mehre	Adaptive Multi-Paddock Grazing Is a Climate-Smart Practice in Southern Ontario
Paul Manning	Quantifying the Impact of Dung Beetle Activity on Greenhouse Gas Emissions from Mink Manure
Jeremiah Vallotton	Variability In the Soil Carbon Stocks and Carbon Lability Across Management Gradients: A Pan-Global Survey of Boreal Regions

## Session 17.3: Soil Organic Matter Characterization, Cycling, and Stability

**Convenors** Adam Gillespie, Sevendeep Kaur

**Date** Monday, June 26, 2023

**Time Slot** 3:30 pm – 5:30 pm

<b>Presenter</b>	<b>Abstract</b>
M. A. C. K. Hansima	Effect of Humic and Fulvic Acids from Dissolved Organic Carbon Fraction of Swine Manure on The Sorption of Sulfamethoxazole onto Smectite Clays
Lori Phillips	Biotic and Abiotic Drivers of Soil <sup>13</sup> C Isotope Abundance in an Agricultural Field
Moazame Mesgar	Soil Organic Matter Stability as Evidence of Solid-State <sup>13</sup> C NMR and Laboratory Mineralization Study
Francis Durnin-Vermette	Using Bayesian Techniques to Parameterize Manure Amendments for Soil Carbon Models and Improve Canada's Carbon Sequestration Estimations
Maren Oelbermann	Long-Term Soil Organic Carbon Dynamics in Perennial Bioenergy Crops using the Century Model
Roland Kroebe	An Added Anaerobic Digestion Component to the Holos V4 Whole-Farm Model
Charlotte Norris	Post-Fire and Harvest Legacy on Soil Carbon And Microbial Communities in Boreal Forest Soils



## Session 18: Soil Spectroscopy

**Convenor** Gordon Price  
**Date** Tuesday, June 27, 2023  
**Time Slot** 9:30 am – 11:30 am

**Presenter** **Abstract**

Catherine Chavez Kinetics and Adsorption of Organic Phosphorous Compounds onto Ferrihydrite using In Situ ATR-FTIR Spectroscopy

Gbenga Daniel Adejumo Soils Go Digital: Is FT-NIR Spectroscopy a Realistic Alternative for Agricultural Soil Analysis in Saskatchewan?

Grace Gowera Estimating Soil Carbon and Total Nitrogen Using Soil Spectroscopy

Stuart Downie Application of Mid-Infrared Spectroscopy to Monitor Changes in Soil Parameters in Soil Receiving Five Organic Amendments

Ibrahim Mohammed Application of Two-Dimensional NMR Spectroscopy for Probing Structural Environment of Humic Acid From Soils Amended with Different Organic Amendments Over 17 years in a Long-Term Soil Experiment

## Special Session: Preparing the Next Generation of Canadian Field Soil Scientists

**Convenor** Richard Heck  
**Date** Wednesday, June 28, 2023  
**Time Slot** 1:30 pm – 3:30 pm

**Presenter** **Abstract**

CSSS Education Committee Perspectives of the CSSS Education Committee

CSSS Pedology Committee Perspectives of the CSSS Pedology Committee

Konstantin Dlusskiy & Jim Warren Practicing Soil Science in Canada

Dawn Gibas 'Certified Professional Soil Scientists' Program

John M. Galbraith 'International Soil Judging Contest'

Richard Heck & Jacynthe Masse Leveraging the 24th WCSS