

**69th Annual
Manitoba Soil Science Society Conference
and Annual General Meeting**

SOIL HEALTH STRATEGIES FOR MANITOBA SOILS

**February 5-6, 2026
Winnipeg, Manitoba**

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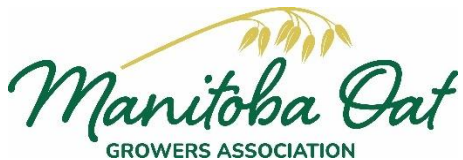
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CONFERENCE PROGRAM

Thursday, February 5, 2026

7:45 am **Registration**

8:25 am **Conference Commences**
Opening Remarks – Henrique Carvalho, MSSS President

PLENARY SESSION: SOIL HEALTH STRATEGIES FOR MANITOBA SOILS

Chairperson: TBD

KEYNOTE SPEAKERS

8:30 am **Title: TBD**
Laura Van Eerd
School of Environmental Sciences, University of Guelph, Guelph, Ontario

9:15 am **The Ins and Outs of Soil Carbon**
Brian Amiro
Professor Emeritus, Department of Soil Science, University of Manitoba, Winnipeg, Manitoba

10:00 am Nutrition Break and Poster Session

GENERAL SESSION: SOIL HEALTH

Chairperson: TBD

10:30am **Short Term Impacts of Grazing Winter Cereal Cover Crops on Cropping Systems and Profitability**
Katrina Kratzke^{*1}, Joshua Wianecki¹, Miranda Meehan¹, Kevin Sedivec^{1,2}, Lindsay Chamberlain Malone¹, Zachary Carlson³
¹*School of Natural Resource Sciences, North Dakota State University, Fargo, ND.*
²*Central Grasslands Research Extension Center, North Dakota State University, Streeter, ND*
³*IFF Fargo, North Dakota*

10:45 am **Initial Assessment of Carbon Dynamics in Conventional and Diversified Cropping Systems in Manitoba**
Emily Robb^{*1} and Henrique Da Ros Carvalho¹
¹*Department of Soil Science, University of Manitoba, Winnipeg, Manitoba, Canada*

11:00 am **Legacy Effects of Manure Amendments on Aggregate-Associated Particulate, Dissolved, and Mineral-Associated Organic Matter in a Long-Term Integrated Crop-Livestock System**

Charitha Hansima*¹, Inoka Amarakoon¹, Francis Zvomuya¹, Henry Wilson², Nora Casson³, and Mario Tenuta¹

¹Department of Soil Science, University of Manitoba, Winnipeg, Manitoba, Canada.

²Agriculture and Agri-Food Canada, Brandon, Manitoba, Canada

³Department of Environmental Studies and Sciences, The University of Winnipeg, Winnipeg, Manitoba, Canada

11:15 am **Improving soil organic carbon prediction using feature selection techniques**

Ehsan Zarrinabadi¹, Zeinab A. Dastgheib¹, Masoud Goharrokhi¹ and David A. Lobb¹

¹Department of Soil Science, University of Manitoba, Winnipeg, Canada

11:30 am **Comparing Full-Range and Portable Visible-Range Spectroscopy for Soil Organic Carbon Determination**

Dinuka Thennakoon*, Masoud Goharrokhi, Tori Maxwell, David Lobb, Annemieke Farenhorst, and Nasem Badreldin

Department of Soil Science, University of Manitoba, Winnipeg, Manitoba, Canada

11:45 am **Soil Conservation Strategies for Forest Soils in the Mountain Forest Section of Manitoba**

Paul LeBlanc¹

¹District Forester - LP Building Solutions – Forest Resources Division, 558 3rd Ave. S., Swan River, Manitoba, Canada

12:00 pm Lunch

GENERAL SESSION: NUTRIENT DYNAMICS

Chairperson: TBD

1:00 pm **Do Legacy Effects Persist?
Impacts of Cover Crops and Tillage Practices on Soil Health in a Manitoba Corn Field**

Mikhail Maslov¹, Lori Phillips², Mario Tenuta¹, Craig Drury²

¹ Department of Soil Science, University of Manitoba, Winnipeg, Manitoba, Canada

² Agriculture and Agri-Food Canada, Harrow, Ontario, Canada

1:15 pm **Effects of Cover Crops on N₂O Emission in Southern Manitoba**

Jose A. Almodovar*¹, Mario Tenuta¹, Yvonne Lawley², Navneet Brar²

¹Department of Soil Science, University of Manitoba, Winnipeg, Manitoba, Canada

²Department of Plant Science, University of Manitoba, Winnipeg, Manitoba, Canada

1:30 pm **Influence of dual inhibitor urea and roots on the taxonomic structure of soil microbial communities**

Rebecca Pagès*¹, Mario Tenuta², Stephen Crittenden³, Matthew Bakker¹

¹Department of Microbiology, University of Manitoba, Winnipeg, Manitoba, Canada.

²Department of Soil Science, University of Manitoba, Winnipeg, Manitoba, Canada.

³ Brandon Research and Development Centre, Agriculture and Agri-Food Canada, Brandon, Manitoba, Canada.

- 1:45 pm **Are All Nitrification Inhibitors Equally Effective to Protect Ammonium and Reduce N₂O Emissions?**
Rida Sabirova* and Mario Tenuta
Department of Soil Science, University of Manitoba, Winnipeg, MB, Canada R3T 2N2
- 2:00 pm **A Prairie Examination of Nitrogen Stabilizers and Split Application on Yield and Mitigation of N₂O Emissions in Canadian Western Red Spring (CWRS) Wheat**
Sawbhagya L.H.N.*¹, Sparling B¹, St.Luce M², May B³, Kubota H⁴, Beres B⁵, and Tenuta M¹
¹*Department of Soil Science, University of Manitoba, Winnipeg, MB, Canada.*
²*Agriculture and Agri-Food Canada, Swift Current Research Centre, Swift Current, SK, Canada*
³*Agriculture and Agri-Food Canada, Indian Head Research Centre, Indian Head, SK, Canada*
⁴*Agriculture and Agri-Food Canada, Lacombe Research Centre, Lacombe, AB, Canada*
⁵*Agriculture and Agri-Food Canada, Lethbridge Research Centre, Lethbridge, AB, Canada*
- 2:15 pm **Genome-Guided Discovery of Soil Bacteria for Sustainable Nitrogen Management in Agriculture**
Raveena Manikku Badu¹, Anna Motnenko¹, George C. diCenzo^{1,2}, Ivan Oresnik¹, and Matthew G. Bakker¹
¹*Department of Microbiology, University of Manitoba, Winnipeg, Manitoba, Canada*
²*Department of Microbiology, Queen's University, Kingston, Ontario Canada*
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- 2:30 pm Nutrition Break and Poster Session
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- 3:00 pm **Investigating the link between soil moisture, temperature, and N loss risk in fine- and coarse-textured soils**
Carlie Johnston*^{1,2}, Xiaopeng Gao¹, Ramona Mohr², and Timi Ojo^{1,2}
¹*Department of Soil Science, University of Manitoba, Winnipeg, Manitoba, Canada.*
²*Agriculture and Agri-Food Canada, Brandon Research and Development Centre, Brandon, Manitoba, Canada*
- 3:15 pm **Comparison of Extraction-Based and Ion Membrane-Based Soil Fertility Tests in Farm Fields under Contrasting Cropping Systems**
Joanne Thiessen Martens
Department of Soil Science, University of Manitoba, Winnipeg, Manitoba, Canada
- 3:30 pm **Research Applications of Assessing Soil Nutrient Supply Over 30 Years with Plant Root Simulator (PRS[®]) Probes**
Blake Weiseth¹ and Edgar Hammermeister²

¹Western Ag Innovations, Saskatoon, Saskatchewan

²Western Ag Professional Agronomy, Alameda, Saskatchewan

GENERAL SESSION: SOIL AND WATER DYNAMICS

- 3:45 pm **Pedotransfer Functions for Estimating Soil Hydraulic Parameters in Manitoba Vertisols**
Taurai Matengu*¹, Afua Mante¹, Timi Ojo^{1,2}, Francis Zvomuya¹, Annemieke Farenhorst¹
¹Department of Soil Science, University of Manitoba, Winnipeg, MB, Canada.
²Agriculture and Agri-Food Canada, London Ontario Research Centre
- 4:00 pm **Drainmod evaluation of the benefits of controlled drainage and subirrigation of soybean (*Glycine max L.*) in clay soils in the Canadian Prairies**
Komlan Koudahe* and R. Sri Ranjan
Department of Biosystems Engineering, University of Manitoba, Winnipeg, Canada
- 4:15 pm **Carbon and Water Balance Dynamics of Converted Perennial and Annually Cropped Fields in St. Claude Manitoba**
Julia Beechinor*¹ and Henrique Carvalho¹
¹Department of Soil Science, University of Manitoba, Winnipeg, Manitoba, Canada
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- 4:30 pm **Closing remarks End of Day 1 – Henrique Carvalho, MSSS President**

Friday, February 6, 2026

8:00 am Registration

GENERAL SESSION: ENVIRONMENTAL CONTAMINATION

Chairperson: TBD

8:30 am **Restoring brine-contaminated lands: A controlled study on combined soil washing and amendment strategies.**

Kanishk Kulhari*¹, Francis Zvomuya¹, and Afua Mante¹

Department of Soil Science, University of Manitoba, Winnipeg, Manitoba

8:45 am **Effects of Soil Amendments on Nitrous Oxide Emission in Brine Contaminated Soils**

Shreeya Aryal*, Francis Zvomuya, and Manushi Henagama Liyanage

Department of Soil Science, University of Manitoba, Winnipeg, Manitoba, Canada

9:00 am **Investigating the Effectiveness of Regular and Modified Biochar for Immobilizing Heavy Metals in Acidic Boreal Forest Soil**

Dhulmy Bandara*¹, Srimathie P. Indraratne¹, Inoka Amarakoon², Darshani Kumaragamage¹, and Douglas M. Goltz³

¹*Department of Environmental Studies and Sciences, The University of Winnipeg*

²*Department of Soil Science, University of Manitoba*

³*Department of Chemistry, The University of Winnipeg*

9:15 am **Per- and Polyfluoroalkyl Substances in Biosolid-Amended Soils: Uptake Patterns in Wheat and Alfalfa**

Aaron Ostlund*¹ and Thomas DeSutter¹

¹*School of Natural Resource Sciences, North Dakota State University, Fargo, ND, USA*

9:30 am **Kinetics of Tebuconazole Exposed to Soil and *Pseudomonas Putida* in Microcosm Water Derived from Engineered Wetlands**

Brooke Singbeil*¹, Jose Rodriguez Gil², Warren Blunt¹, Alistair Brown³

¹*Department of Biosystems Engineering, University of Manitoba, Winnipeg, Manitoba, Canada*

²*Department of Environment and Geography, University of Manitoba, Winnipeg, Manitoba, Canada*

³*Department of Soil Science, University of Manitoba, Winnipeg, Manitoba, Canada*

9:45 am **Determination of pesticide fate and transport in a dual cell on-farm biobed system under field conditions**

Ifeoluwa F. Omotade*¹, Phoenix Nakagawa², Ramanathan Sri Ranjan¹, Alistair K. Brown³, Annemieke Farenhorst³

¹*Department of Biosystems Engineering, University of Manitoba, Winnipeg, MB Canada*

²*School of Environmental Sciences, University of Guelph, Ontario, Canada*

³*Department of Soil Science, University of Manitoba, Winnipeg, Manitoba, Canada*

10:00 am	Nutrition Break and Poster Session
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10:30am	Evaluating the phosphorus leaching potential of fall weeds and soybean residue under different water volumes and runoff conditions Rebecca Agbabiaka ^{*1} , David Lobb ¹ , Merrin Macrae ² , Joanne Thiessen Martens ¹ , Kevin Tiessen ¹ and Don Flaten ¹ ¹ <i>Department of Soil Science, University of Manitoba, Canada.</i> ² <i>Department of Environmental Science and Geography, University of Waterloo, Canada.</i>
10:45 am	Seasonal and Event-Driven Atmospheric Deposition of Particulate Matter and Phosphorus over Lake Winnipeg: Evidence from Ship-Based Measurements Masoud Goharrokhi ¹ , David Lobb ¹ , Greg McCullough ² , Shawn Clark ³ , and Alex Koiter ⁴ ¹ <i>Department of Soil Science, University of Manitoba, Winnipeg, Manitoba, Canada</i> ² <i>Centre for Earth Observations Sciences, Department of Geography and Environment Studies, University of Manitoba, Manitoba, Canada</i> ³ <i>Civil Engineering Department, University of Manitoba, Winnipeg, Manitoba, Canada</i> ⁴ <i>Department of Geography and Environment, Brandon University, Brandon, Canada</i>
11:00 am	MSSS Business Meeting

12:00 pm	Lunch
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GENERAL SESSION: CROP PRODUCTION CHALLENGES
Chairperson: TBD

1:00 pm	Unlocking marginal land potential: Integrated management of salinity and fertility for <i>Camelina sativa</i> Osariemen M. Imafidon ^{*1} , Francis Zvomuya ¹ , Afua Mante ¹ , Asfaw Bekele ² and L. Ruby Carrillo ³ ¹ <i>Department of Soil Science, University of Manitoba, Winnipeg, MB, Canada</i> ² <i>Imperial Oil Resources Limited, Calgary, AB, Canada</i> ³ <i>ExxonMobil Technology and Engineering Co., Spring, Texas, United States</i>
1:15 pm	Standardizing salinity tolerance research: Lessons from three controlled experiments Chantel Mertz ^{*1} , Thomas DeSutter ¹ , Miranda Meehan ¹ , and Aaron Ostlund ¹ ¹ <i>School of Natural Resource Sciences, North Dakota State University, Fargo, North Dakota, United States</i>
1:30 pm	LIVE VS. LEGACY: RNA VS. DNA DETECTION OF <i>S. SCABIES</i> IN SOILS FOR PRE-SEASON DIAGNOSIS OF COMMON SCAB

Rachel E. Clarkson^{1*}, Kim Zitnick-Anderson², Sage M. Longtin¹, Miranda Vanderhyde¹, Kirsten Butcher¹
¹*School of Natural Resource Sciences, Soil Science, North Dakota State University, Fargo, ND, United States*
²*Plant Pathology, North Dakota State University, Fargo, ND, United States*

GENERAL SESSION: SOIL PHYSICAL PROPERTIES

- 1:45 pm **Assessment of Soil Structural Integrity Across Diverse Cropping Systems**
Sarafina Adanma Emmanuel*, Afua Adobea Mante, Francis Zvomuya, Emmanuel Agyapong, Joanne Thiessen Martens
Department of Soil Science, University of Manitoba, Winnipeg, Manitoba, Canada
- 2:00 pm **Intrinsic susceptibility of sandy and clayey soils to mechanical stress**
Vivian Sename Gomelesio *¹, Robert Heidahl¹, Kanisk Paliwal¹, Afua Adobea Mante¹, and Francis Zvomuya¹
¹*Department of Soil Science, University of Manitoba, Winnipeg, Manitoba, Canada*
- 2:15 pm **Effects of Overwintering Cover Crop on Spring Trafficability in Manitoba**
Emmanuel Agyapong¹, Afua Mante¹, Francis Zvomuya¹, and Yvonne Lawley²
¹*Department of Soil Science, University of Manitoba, Winnipeg, Manitoba, Canada*
²*Department of Plant Science, University of Manitoba, Winnipeg, Manitoba, Canada*
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- 2:30 pm Nutrition Break and Poster Session

GENERAL SESSION: SOIL SCIENCE EXTENSION AND EDUCATION

- 3:00 pm **mbquartR: An R Package for Working with Manitoba Quarter Sections**
Alexander Koiter¹
¹*Department of Geography and Environment, Brandon University, Brandon, Manitoba, Canada*
- 3:15 pm **Digging Back In: Reviving Soil Judging Competitions in Canada**
Megan Westphal¹ and Daniel Saurette²
¹*Manitoba Agriculture*
²*Ontario Ministry of Agriculture, Food and Agribusiness*
- 3:30 pm **Monoliths in Museums: A Missed Opportunity?**
John Heard
- 3:45 pm **The Manitoba Agricultural Greenhouse Gas Assessment Tool**
M.D. Timmerman¹ and P. Loro²
¹*Manitoba Agriculture, Box 1149, Carman, Manitoba, Canada.*
²*Manitoba Agriculture, 545 University Crescent, Winnipeg, Manitoba, Canada*
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- 4:00 pm **Presentation of Awards and Passing of the Shovel**