

CSSS/MSSS/CSAFM Annual Meetings Winnipeg - Oral Session Program

Tuesday July 23 morning

Time	Plenary Session (Grand Ballroom)
8.30-8.40 am	Welcome and Opening Remarks - Don Flaten
8.40-9.20 am	Soil Processes from Macro to Micro: How They Influence our Sustainability - April Leytem
9.20-10.00 am	Earth's malleable membrane: The role of soil and atmosphere in controlling flows of carbon, nutrients, energy, and water - Henry Janzen
Break	
10.30-11.10 am	Understanding the effects of agricultural land management on water quality - Phil Haygarth
11.10-11.50 am	Climate and land management effects on river discharge and water quality - Satish Gupta

Tuesday July 23 afternoon

Assiniboine Ballroom		Assiniboine B		Selkirk Ballroom	
Time	Oral Session 01 Nitrogen Cycling Across Land Uses and Ecosystems 1	Oral Session 02 Phosphorus Behaviour and Management	Oral Session 03 Soil Amendments and Remediation		
1:00-1:15 pm	330 Understanding natural nitrogen enrichment in subtropical acid forest soils and effects of land use by examining nitrogen transformation dynamics Jinbo Zhang, Zucong Cai*, Tongbin Zhu, Wenyan Yang, Christoph Müller	203 Assessing the relationship between pH and phosphorus behaviour in central Ontario soils S.R. Baker*, S.A. Watmough, and M.C.Eimers.	261 Bacterial profiles of agricultural soil fertilized with solid pig and dairy manure, and synthetic N fertilizer Ainsley Hamm*, Mario Tenuta, Denis Krause, Kim Ominski, Ehsan Khafipour, Don Flaten		
1:15-1:30 pm		281 Phosphorus release from flooded soils in relation to soil test P and degree of P saturation Geethani Amarawansa*, Darshani Kumaragamage, Don Flaten, Mario Tenuta, Wole Akinremi and Francis Zvomuya	250 The fate effect of Ciprofloxacin presence on 17 β-estradiol or 17 α-ethinylestradiol in sewage sludge and stabilized biosolids Karin Rose* and Annemieke Farenhorst		
1:30-1:45 pm	220 Distinct soil nitrogen transformation patterns in adjacent forest and grassland ecosystems in central Alberta, Canada Scott X. Chang*, Man Lang, Yi Cheng, Bruno Mary, Jin-bo Zhang, Zu-cong Cai	283 Anion competition by sulphate affects P solubility and speciation in calcareous soils: a ³¹ P MAS NMR and S K - edge XANES investigation Mihiri C.W. Manimel Wadu*, Yongfeng Hu, Scott Kroeker and Olalekan O. Akinremi	262 Influence of composted cattle and separated hog solids manure and soil fumigation on potato yield, quality and suppression of Early Dying disease in Manitoba Oscar Molina*, Mario Tenuta, Jolene Rutter, Katherine Buckley, Fouad Daayf		
1:45-2:00 pm		308 Comparison of colorimetric and ICP methods of phosphorus determination in soil extracts O.O. Adesanwo*, D.V. Ige, L. Thibault, D.N. Flaten and O.O. Akinremi	290 Degradation kinetics of spiked vs. excreted Chlortetracycline, Sulfamethazine and Tylosin during composting of beef cattle manure I.D. Amarakoon*, S. Sura, F. Zvomuya, T. McAllister, F. Larney, D. Degenhardt, A. Cessna and S. Xu		
2:00-2:15 pm	213 Effect of variability in cattle manure application on soil nutrients and crop yield Tom King*, Jeff Schoenau, Joy Agnew and Hubert Landry	244 Nitrate and phosphorus leaching on a loamy sand soil at two rates of liquid swine manure and fertilizer Rezvan Karimi Dehkordi*, Wole Akinremi, and Katherine Buckley	274 Value enhancement of municipal organics compost through the addition of effective microorganisms Basanti Bandekar* and G.W. Price		
2:15-2:30 pm	226 Nitrogen dynamics in an organic rotational no-till system in Southern Manitoba C. Halde*, R. H. Gulden, A. M. Hammermeister, K. H. Ominski, M. Tenuta and M. H. Entz	279 Managing losses of dissolved phosphorus by time and place of application Tom Bruulsema*	205 Role of organic ligands in lead phytoremediation Muhammad Shahid*, Camille Dumat, Eric Pinelli		
2:30-2:45 pm	286 Labile organic nitrogen transformations in clay and sandy-loam soils amended with ¹⁵ N-labelled faba bean and wheat residues Mervin St. Lucea*, Joann K. Whalen, Noura Ziadi, Bernie J. Zebarth, Martin H. Chantigny	207 Seed-placed phosphorus and sulphur fertilizers: effect on canola plant stand and yield Laryssa Grenkow*, Donald Flaten, Cynthia Grant, and John Heard	245 Effects of citrate and DFOB siderophore on nickel sorption by palygorskite, sepiolite and calcite minerals Ahmadreza Sheikhsosseini Esfahani*, Hossein Shariatmadari, and Mehran Shirvani		
2:45-3:00 pm	219 Model estimates of the variation in organic, inorganic and volatilized N in manure Steve Sheppard* and Shabtai Bittman	300 Manure-based struvite for reduced seedling toxicity and enhanced phosphorus use efficiency in canola production Katanda, Y*, F. Zvomuya, D. Flaten, and N. Cicek	254 Wetland and traditional phytoremediation approaches for the decommissioning of municipal lagoons Adenike Hassan*, Francis Zvomuya and Lisette Ross		
3:00-4:00 pm	Break and Poster Session				

Wednesday July 24 Morning

Assiniboine Ballroom							Assiniboine B			Selkirk Ballroom		
Time	Oral Session 04			Oral Session 05			Oral Session 06					
	Agricultural Greenhouse Gas Emissions 1			Environmental Fingerprinting and Footprinting			Teaching and Training in Soil Science 1: Engaging Students to Meet Future Challenges					
8:00-8:15 am	224	Measuring carbon exchange over three cropping systems in Manitoba Amanda M. Taylor*, Brian D. Amiro, and Trevor J. Fraser		332	What is the policy value of a 'virtual phosphorus footprint'?		325	Soil science needs to get dirtier				
8:15-8:30 am	239	System-specific greenhouse gas budgets for irrigated and dryland cropping systems in Saskatchewan Cody David*, Richard Farrell, and Warren Helgason			Phil M. Haygarth			Dan Pennock				
8:30-8:45 am	260	Magnitude and significance of the N ₂ O priming effect associated with long-term applications of manure Ryan Pearce*, Bobbi Helgason, Reynald Lemke, Richard Farrell		289	The watershed observatory system: status and prospects Henry David Venema		327	Group project in RRM: more than one with the course Tom Yates				
8:45-9:00 am	266	Effect of nitrogen fertilizer practices on nitrous oxide emissions from irrigated potato in Manitoba Sally Parsonage*, Mario Tenuta, Alison Nelson, Dale Tomasiewicz, Ramona Mohr		311	Validating the wind erosion risk indicator model using ¹³⁷ Cs Carolyn Baldwin*, David A. Lobb, Brian G. McConkey, Sheng Li and Phil N. Owens		247	Engaging students on water and sanitation security in First Nations communities Anniekie Farenhorst*, Helen Fallding, Karen Busby, Brenda Elias, Chris Metcalfe, Selvin Peter, and Ross McQueen				
9:00-9:15 am	272	Earthworms reduce soil nitrous oxide emissions during drying and rewetting cycles Chen Chen*, Joann K. Whalen, Xiaobin Guo		335	Mixing models: using environmental tracers to identify source apportionment		225	Questogo: bringing mobile technology into outdoor classroom Carolyn King*, Julia Dordel, Maja Krzic, Suzanne Simard, Les Lavkulich				
9:15-9:30 am	292	Over-winter dynamics and associated losses of N ₂ O to air and drainage water following spring and fall plowdown of red clover in Truro, Nova Scotia Brian Wallace*, David Burton, Derek Lynch, and Angela Bedard-Haughn			B. Semmens		329	Climate change or zombie apocalypse? Teaching environmental science at the tipping point Fran Walley* and Tom Yates				
9:30-9:45 am	306	Continuous measurements of methane fluxes, environmental variables and manure properties from stored dairy manure over 16 months on a commercial farm Gudmundur Johannesson*, Claudia Wagner-Riddle, Andrew VanderZaag, Rob Gordon, and Chris Duke		227	Phosphorus loss in water observed during Alberta's BMP evaluation project Barry Olson*, Janna Casson, Jollin Charest, Andrea Kalischuk, and Lynda Miedema		257	Equity in education: a case study of under-representation at a Canadian university Jenna O. Rapai*, Anniekie Farenhorst, Janice Dodd, Janice Ristock, Christine Van Winkle				
9:45-10:00 am	307	Bulking agents effects on greenhouse and nitrogen gas losses during composting of solids separated from hog slurry Jolene Rutter*, Mario Tenuta, Matt Gervais, Gerry Dubé, Christine Rawluk		336	Use of ¹³⁷ Cs to determine role of riparian buffers in trapping sediment and phosphorus from agricultural fields Philip N. Owens, David A. Lobb, Katrina A. Caley, Carolyn Baldwin		297	Effects of grassland set-asides on selected soil properties in the western Fraser Valley of British Columbia Dru Yates*, Maja Krzic, David Bradbeer, Sean Smukler				
10:00-11:00 am	Break and Poster Session											
Time	Oral Session 04, continued			Oral Session 05, continued			Oral Session 07					
	Agricultural Greenhouse Gas Emissions 1			Environmental Fingerprinting and Footprinting			Soil Quality Gradients at the Landscape Level					
11:00-11:15 am	315	Effect of shelterbelts for abating agricultural greenhouse gas emission across the Boreal Plains and Prairie eco-zones of Saskatchewan, Canada Chukwudi Amadi*, Rich Farrell, Ken Van Rees		223	Deciphering P sources in Lake Pepin Ashley Grundtner and Satish Gupta*		267	Spatio-temporal modeling of soil redistribution induced by sheet erosion using the Universal Soil Loss Equation Brandon Heung*, Laurens Bakker, Suzana Dragičević, and Margaret Schmidt				
11:15-11:30 am	320	Can inclusion of 4 years of perennial forage in an annual crop rotation within the Red River Valley of the Canadian Prairies increase soil carbon storage and reduce nitrous oxide emissions? K.L. Hanis*, M.Tenuta, B.D. Amiro, A.J. Glenn, S.E. Maas, and M. Gervais		296	Tracking channel-floodplain sediment exchange with conservative and non-conservative geochemical tracers		214	Relationship of crop yield and protein content to soil properties in an undulating landscape in south central Saskatchewan Elliott Hildebrand* and Jeff J. Schoenau				
11:30-11:45 am	326	Spatial distribution of greenhouse gas fluxes in drip and microspray-fertigated vineyards and orchards in the Okanagan Valley, British Columbia Mesfin M. Fentabil* and Craig Nichol			Patrick Belmont*, Justin Stout		317	WITHDRAWN				
11:45-12:00	201	Alternative statistical distributions and transformation of nitrous oxide soil flux data Alan P. Moulin*, Aaron Glenn, Mario Tenuta, David A. Lobb, Adedeji S. Dunmola, and Priyantha Yapa		291	Investigating the role of connectivity and scale in assessing the sources of sediment in an agricultural watershed in the Canadian prairies using sediment source fingerprinting Alexander J. Koiter*, Philip N. Owens, Ellen L. Petticrew, David A. Lobb, Kevin D. Tiessen and Sheng Li		319	Use of a GIS/stratigraphic model to predict zones of elevated cadmium and other metals in soils derived from Cretaceous Pierre Shale on the Pembina Escarpment, Cavalier County, North Dakota D. G. Hopkins*, A. L. Steffen, B. Sani-Eidukat, R. E. Ulter				
12:00-12:15 pm	228	Linking soil profile greenhouse gas concentrations to surface emissions in a prairie pothole agricultural landscape Xiaopeng Gao*, Nandakumar Rajendran, Mario Tenuta, Adedeji Dunmola, and David L. Burton		337	Evaluation the dynamic image analysis for characterizing clast particles derived from outcrops in South Tobacco Creek Watershed, Manitoba Cenwei Liu*, David A. Lobb, Sheng Li		271	Changing soil salinity gradients: an integrated approach to remediating brine-contaminated soils R. G. Eilers, T.B. Goh, Jennifer I Nielsen*				
12:15-12:30 pm	230	Eddy covariance measurements of methane fluxes over arable land in Southern Ontario Shannon E. Brown* and Claudia Wagner-Riddle					305	Predicting the Potholes: digital soil mapping in the Prairie Pothole Region Angela Bedard-Haughn*, Chuck Bulmer, Grace Frank, Eve Flager, Scott Smith				
12:30-1:30 pm	Lunch											

Wednesday July 24 Afternoon

Time	Oral Session 08 General Soil Science 1		Oral Session 09 Soil Chemistry and Fertility 1		Oral Session 10 Measuring, Modeling and Managing Soil Carbon Exchanges	
	1:30-1:45 pm	269	Predicting macropore flow at the watershed scale with a re-conceptualized SWAT David Poon*, Aubert Michaud, Joann Whalen, Simon-Claude Poirier, and Isabelle Beaudin	265	Effects of biochar and biochar feedstock on soil microbial biomass, soil carbon and nitrogen mineralization and greenhouse gas emissions from soil H. Zhang*, P. R. Voroney and G. W. Price	240
1:45-2:00 pm	232	What if Luvisols ain't? Dan Pennock* and Kendra Purton	212	Canola yield and nutrient uptake as affected by biochar addition to a brown chernozem Hasan Ahmed* and Jeff Schoenau	251	A first order plus logistic (FLOG) model for soil respiration and soil mineral nitrogen dynamics following incubation with organic residues J. Daniel Gillis*, and Gordon W. Price
2:00-2:15 pm	233	Multiple working hypotheses for the genesis of a Brunisolic Gray Luvisol Catena in central Saskatchewan Kendra Purton* and Dan Pennock	280	Wood chip biochar effects on soil phosphorus dynamics in low phosphorous chernozemic soils Surani Chathurika, Darshani Kumaragamage*, Francis Zvomuya and Don Flaten	246	The organic carbon content and decomposition potential of tundra soil eroding into a thermokarst lake Christina Z. Braul, Elyn Humphreys* and Pascale Roy-Léveillé
2:15-2:30 pm	209	Subsoiling an irrigated and dryland brown chernozem: effects on soil density, moisture, yield and economic return B. Ewen*, J. Schoenau and M. Grevers	263	Soil phosphorus dynamics under annual vs. single applications of alkaline treated biosolids Weixi Shu*, Gordon Price, Mehdi Sharifi, and Barbara Cade-Menun	324	WITHDRAWN
	Oral Session 11 Fate of Trace Metals in the Environment		Oral Session 12 Soil Ecology, Food Webs and Nutrient Cycling 1			
2:30-2:45 pm	310	Mass balance of arsenic from poultry feed to poultry litter Sanjay Gupta*, Martin Zuidhof, Gary Kachanoski and Tariq Siddique	304	Aggregate-scale spatial heterogeneity of arbuscular mycorrhizal fungi in response to commercial mycorrhizal inoculation M.A.K.Wijesinghe*, P. Voroney, J.N. Klironomos, M.M. Hart, and K.E. Dunfield	323	Microbial and carbon dynamics in a buried A horizon from an eroded catena at St. Denis National Wildlife Area H.J. Kenschuh, A. Bedard-Haughn, A. J. VandenBygaart and B.L. Helgason*
2:45-3:00 pm	249	Total and bioavailable metals in compost, soil, and leachate from waste gypsum wallboard composting Chris Richards* and G. W. Price	217	Effect of short term forage legumes on phosphorus availability to a following wheat crop Mikrigul Rehm, Jeff Schoenau*, and Paul Jefferson	287	WITHDRAWN
3:00-3:15 pm	321	WITHDRAWN	302	Phosphorus uptake by ryegrass in response to rate and type of P amendment in soils under long-term organic, organic manure-amended, conventional and native prairie management T Fraser*, D Lynch, J Nimmo, M Entz, and K Dunfield		
3:15-4:30 pm	Break and Poster Session					

Thursday July 25 Morning

	Assiniboine Ballroom		Assiniboine B		Selkirk Ballroom	
Time	Oral Session 13 Agricultural Greenhouse Gas Emissions 2		Oral Session 14 Soil Chemistry and Fertility 2		Oral Session 15 Nitrogen Cycling Across Land Uses and Ecosystems 2	
8:30-8:45 am	241	Nitrous oxide and carbon dioxide emissions from aerobic and anaerobic incubations: effect of core length Xiaobin Guo, Craig F. Drury*, W. Daniel Reynolds, Xueming Yang, and Ruqin Fan	218	Variation in growth response of lentil to zinc fertilization and residual Zn availability to wheat in ten Saskatchewan soils Muhammad A Maqsood*, Jeff Schoenau, Albert Vandenberg, Ron Urton and Cory Fatteicher	211	Nitrogen budget and nitrogen fertilizer use efficiency in China Xiaoyuan Yan* and Chaopu Ti
8:45-9:00 am	258	Greenhouse gas flux from western U.S. agroecosystems: Synthesis of mitigation opportunities M.A. Liebig*, and A.D. Halvorson	204	Soil nitrate and phosphate after fourteen years of liquid swine manure addition in north eastern Saskatchewan J.J. Schoenau*, T. King and S.S. Malhi		
9:00-9:15 am	273	Farm-scale assessment of greenhouse gas mitigation strategies in dairy livestock-cropping-systems Claudia Wagner-Riddle*, Kari Dunfield, Craig Drury, Robert Gordon, John Lauzon, Bill Van Heyst, and Andrew VanderZaag.	299	Effects on soil chemical parameters and crop yields over five years of land applying an alkaline treated biosolid G.W. Price, and K. Liu	234	Assessment of modified Swiss sandwich system of ground cover for supplying nitrogen to an organic apple orchard Mehdi Sharifi*, Zahidul Alam, Julia Reekie and Andrew Hammermeister
9:15-9:30 am	275	Farming 4R Climate: Utilizing 4R Nutrient Stewardship to Reduce Greenhouse Gas Emissions from the Application of Fertilizer and Other Crop Nutrients Clyde Graham, Kristian Stephens**, Cassandra Cotton, Amanda Giamberardino, Bruce Ringrose, Shahira Esmail, and Dan Heaney	208	Conversion of conservation tillage to rotational tillage resulted in reduced loads of phosphorus during snowmelt runoff in the Canadian Prairies Kui Liu*, Jane A. Elliott, David A. Lobb, Don N. Flaten, and Jim Yarotski	237	Nitrogen leaching from sheep grazed hill country in New Zealand Coby Hoogendoorn*, Rogério Cichota, Iris Vogeler, Brian Devantier and Catherine Lloyd-West
			Oral Session 16 Soil Survey and Classification			
9:30-9:45 am	294	Carbon balance of an organic cropland in southwestern Manitoba Aaron Glenn* and Henry Wilson	259	Detailed soil survey in the municipalities of Blanshard and Hamiota Sheila Cook	264	Overwinter transformation and fate of fall-applied nitrogen in various Canadian ecozones Martin H. Chantigny*, Frank J. Larney, Denis A. Angers, Shabtai Bitman, David Lapen, Philippe Rochette
9:45-10:00 am	202	Estimating greenhouse gas emissions using experimental data Ahmad S. Mat Su*, Viacheslav I. Adamchuk, Chandra A. Madramootoo, Joann K. Whalen, and Hsin-Hui Huang	303	Soil survey information vital for increasing productivity and sustainability in the RMs of Ritchot and Springfield, Manitoba Yi Zhang	276	Growing season denitrification losses impacted by land management practices, soil properties and weather conditions in manure-amended perennial hayfield and corn-soybean-wheat rotations in Atlantic Canada Keith D. Fuller*, David L. Burton, Craig F. Drury, Mark G. Grimmett, Bernie J. Zebarth, Jeffrey L. Franklin, Vernon Rodd, Jack Van Roestel, Ed St. George
					Oral Session 19 Teaching and Training in Soil Science 2: Emerging Approaches in Teaching and Learning in Soil Science	
10:00-10:15 am	328	Emissions of ammonia, methane and nitrous oxide from dairy production facilities in southern Idaho April B. Leytem*, Robert S. Dungan, and David L. Bjorneberg	295	Soil development and management in the south-western Manitoba Ronggui Wu*, Sheila Cook, Yi Zhang and Lynn Manaigre	333	Video-conferencing to deliver a graduate course on agricultural sustainability Don Flaten*, Henry Janzen, Kim Ominski and Amanda Taylor
10:15-10:30 am	285	Life cycle assessment of greenhouse gas impacts of different overwintering strategies for beef production in Western Canada Gorettty Dias*, Kumudinie Kariyapperuma, Gudmundur Johannesson, Matthew Wiens, Steve Young			235	Field handbook for the soils of western Canada - an update Kent Watson*, Dan Pennock and Paul Sanborn
10:30-11:00			Break			
	Oral Session 17 Agricultural Meteorology and Soil Physics		Oral Session 18 Soil Ecology, Food webs and Nutrient Cycling 2			
11:00-11:15 am	248	Determinants of summer weather patterns on the Canadian Prairies: implications for long-lead forecasting of grain yields Ray Garnett* and Madhav Khandekar	229	A tale of two trees: soil biogeochemistry in the boreal mixedwood Sylvie A. Quideau*, Emily Lloret, Mathew J.B. Swallow, and Charlotte E. Norris	282	Development of research and extension opportunities on soil health in North Dakota Abbey F. Wick*, Francis X.M. Casey and G. LaPlante
11:15-11:30 am	256	Testing the ability of MODIS-NDVI models to forecast crop yields on the Canadian Prairies M.S. Mkhabela and P.R. Bullock*	318	Soil food web controls on nitrogen mineralization: Can these be integrated into measures of the soil nitrogen supply? Joann K. Whalen*, Maria Kernecker, Ben W. Thomas, Vanita Sachdeva and Christopher Ngosong	270	Location-based tool brings soil science out of the classroom through mobile technology M. Krzic*, K. Watson, S. Dyanatkar, J. Wilson, C. Crowley, P. Sanborn, A. Bedard-Haughn and N. Basiliko
11:30-11:45 am	221	A generalized analysis for the variable-head borehole permeameter test Dan Reynolds*, Craig Drury, Xueming Yang and Jingyi Yang	268	Fine-scale, in-situ phosphatase activities are not associated with specific fungal communities Aaron Godin and Melanie Jones*	309	Land reclamation international grad school (LRIGS) M. Anne Naeth
11:45-12:00	293	The effect of freeze-thaw cycles on atterberg limits of clay soils Daryl Dagesse	238	Tracing C and N through soil food webs with stable isotopes Sina Adl*, and Felicity Crotty	236	BC regional soil description and interpretation short courses 2009-2013 Kent Watson* and Shannon Berch
12:00-12:15 pm	338	Predicting water retention using parametric functions Asim Biswas	255	Effects of long-term and recently imposed tillage on the concentration and composition of amino sugars in a clay loam soil Bin Zhang, Craig F. Drury*, Xueming Yang, W. Daniel Reynolds, Xudong Zhang		