

THE SOILED PROFILE



NEWSLETTER DEPARTMENT OF SOIL SCIENCE UNIVERSITY OF MANITOBA “bringing you the latest dirt”



UNIVERSITY
OF MANITOBA

For general inquiries or if you have material to include in the newsletter:

Lynda Closson
University of Manitoba
Room 362 Ellis Bldg
Winnipeg, MB R3T 2N2

Phone: 204 474-8153, Fax: 204 474-7642
Email: lynda.closson@umanitoba.ca
Past issues of the Soiled Profile are on our
webpage: umanitoba.ca/afs/soil_science/

10 March 2017

Upcoming:

Wednesday, Mar 15, 12:30 p.m., Room 346 Ellis Building – Department of Soil Science, Seminar Series, Dr. Timi Ojo, Agricultural Meteorology Specialist, Manitoba Agriculture. “Understanding Scale Issues in Soil Moisture Monitoring”

Monday, Mar 20, 1:00 p.m., Room 346 Ellis Building – Department of Soil Science, M.Sc. thesis defense, Kamala Sapkota. “Pesticide Residue in Groundwater and Soil of a Prairie Province in Canada”

Wednesday, Mar 22, 12:30 p.m., Room 346 Ellis Building – Department of Soil Science, Seminar Series, Professor Durodoluwa Oyedele, Soil Science Professor, Obafemi Awolowo University, Ile-Ife, Nigeria. “Design and assessment of a capillary irrigation system for fertilizer micro-dosing in vegetable production”

Tuesday, Apr 2, Room 346 Ellis Building – Department of Soil Science Spring Orientation

Department Staff Away:

Paul Bullock

Apr 10-24 (vacation)

News:

Tee Boon Goh – 1st Year Diploma Teacher of the Year

The first year Diploma students have selected Dr. Tee Boon Goh as their Teacher of the Year. A plaque will be presented by the first year class President. Congratulations on being honoured again for your continued high quality teaching!

SSGSA T-shirts

There is a sign-up sheet in the main office where you can indicate your choice and number of t-shirts. The T-shirts will bear the current theme and logo for the Soil science department. They are expected to cost from \$18-\$22 depending on the number of T-shirts that ordered.

Paper of the DECADE:

Wagner-Riddle C., Congreves K.A., Abalos D., Berg A.A., Brown S.E., Ambadan J.T., **Gao X., Tenuta M.** 2017. Globally important nitrous oxide emissions from croplands induced by freeze–thaw cycles. Nature Geoscience, published online 6 March 2017, doi:10.1038/ngeo2907.

Abstract - Seasonal freezing induces large thaw emissions of nitrous oxide, a trace gas that contributes to stratospheric ozone destruction and atmospheric warming. Cropland soils are by far the largest anthropogenic source of nitrous oxide. However, the global contribution of seasonal freezing to nitrous oxide emissions from croplands is poorly quantified, mostly due to the lack of year-round measurements and difficulty in capturing short-lived pulses of nitrous oxide with traditional measurement methods. Here we present measurements collected with half-hourly resolution at two contrasting cropland sites in Ontario and Manitoba, Canada, over 14 and 9 years, respectively. We find that the magnitude of freeze–thaw-induced nitrous oxide emissions is related to the number of days with soil temperatures below 0 °C, and we validate these findings with emissions data from 11 additional sites from cold climates around the globe. Based on an estimate of cropland area experiencing seasonal freezing, reanalysis model estimates of soil temperature, and the relationship between cumulative soil freezing days and emissions that we derived from the cropland sites, we estimate that seasonally frozen cropland contributes 1.07 ± 0.59 Tg of nitrogen as nitrous oxide annually. We conclude that neglecting freeze–thaw emissions would lead to an underestimation of global agricultural nitrous oxide emissions by 17 to 28%.

Congratulations to all of the authors! This is a great accomplishment. We are proud to have members from the Department of Soil Science as key collaborators on research with global significance.

Opportunities:

Diversification Technician, Manitoba Agriculture, Roblin, MB

AG3 Agricultural Technologist 3, Regular/full-time, Salary: AG3 \$44,682.00 - \$53,113.00 per year

Duties: The Diversification Technician provides field operations and technical support to applied crop production and agricultural land management research at Diversification Centres. Responsibilities are to execute field experiments in agricultural crops. Activities include land preparation and maintenance, equipment operation and maintenance and crop husbandry related to crop seeding, maintenance, harvest and storage. Activities also include plot data collection and entry and assisting with financial, communication and administrative functions of the industry-owned not for profit corporations which operate the Diversification Centres.

Essential Qualifications:

- Diploma in Agriculture or a combination of relevant education and experience in field research may be considered.
- Experience using latest Ag technologies including GPS and RTK guidance systems.
- Experience operating and maintaining farm equipment with safety as the primary objective.
- Knowledge of crop husbandry practices in a research setting.
- Strong organizational skills including the ability to prioritize work, meet time sensitive deadlines.
- Ability to work independently with minimal supervision.
- Ability to pay attention to detail and ensure accuracy.
- Excellent written communication skills.
- Strong verbal communication skills.

- Excellent interpersonal skills with the ability to build and maintain positive working relationships with internal and external stakeholders.
- Proficiency with Microsoft Office applications (Word, Excel, Outlook and PowerPoint).

Apply to: Advertisement No.32656, Human Resource Services, 300-305 Broadway, Winnipeg, MB, R3C 3J7, Phone: 204-945-4394, Fax: 204-948-2193, Email: govjobs@gov.mb.ca. WHEN APPLYING TO THIS POSITION, PLEASE INDICATE THE ADVERTISEMENT NUMBER AND POSITION TITLE IN THE SUBJECT LINE AND/OR BODY OF YOUR EMAIL. Deadline for Application – **March 10, 2017**.

INTERNATIONAL GRADUATE STUDENT SCHOLARSHIP (IGSS)

If you are planning to transfer from a Master's to a PhD program, or to apply to a PhD program for the Summer 2017, Fall 2017 or Winter 2018 term, you are encouraged to apply and must apply by the **April 11th deadline** if you wish to be considered for the IGSS for the 2017 -2018 academic year. Even if you are unsure of what you will do, you are encouraged to submit an application. Late applications will not be considered. ([More Information](#))

International Plant Nutrition Institute (IPNI) Scholar Awards - 2017

Awards of \$2,000 (US) each will be conferred to deserving graduate students in sciences relevant to plant nutrition and management of crop nutrients. The International Plant Nutrition Scholar Awards are open to applicants who are graduate students attending a degree-granting institution located in any country with an IPNI program. Candidates for either the M.S. or Ph.D. degrees, who are enrolled in a program of graduate study as of the application deadline, are eligible. Applicants who have already completed their degrees are ineligible. In the case of Ph.D. candidates, preference will be given to students who have a minimum of one year remaining before completion of their studies. Priority is given to the relevance of the proposed research in support of IPNI's mission. Students in the disciplines of soil and plant sciences including agronomy, horticulture, ecology, soil fertility, soil chemistry, crop physiology, and other areas related to plant nutrition are encouraged to apply.

Application information: <https://www.ipni.net/scholar/learn>. Application deadline: **April 27, 2017**.

Applied Soil Chemist, Agronomy and Horticulture Department, University of Nebraska - Lincoln

The incumbent will be a core member of the Agronomy and Horticulture Department Teaching program critical to meet the learning outcomes of all majors in the Unit. The incumbent will lead the teaching program for the entry level and large enrollment undergraduate course in soil resources and medium enrollment upper level urban soil and water management course in support of several majors in the Department and the College of Agriculture and Natural Resources (CASNR). The incumbent is expected to generate scholarly work as well as innovative and effective teaching methods, tools, and programs. The incumbent is also expected to teach a graduate level course in his/her area of expertise and engage in professional development and grantsmanship to strengthen the teaching program. Undergraduate advising and active participation in academic recovery and retention programs and student recruitment, orientation, enrollment assistance for CASNR students are expected. The incumbent will average 0.75 FTE in teaching as determined by the CASNR Academic Appointment Guidelines. Specific course assignments may change with time based upon Academic Unit needs.

The emphasis of the research program will be on applied soil chemistry. Research will include field applications of chemical processes in relation to soil and environmental quality in agricultural, peri-urban, and urban areas. Specific investigations can include research to better understand transport, sorption,

transformation, and fate of chemicals including emerging contaminants, hormones, and pharmaceutical products using innovative approaches. Expertise in nutrient and carbon cycling and modeling of nutrient dynamics and contaminants in soil, water, and the atmosphere related to soil and water quality is desirable.

To apply: <https://employment.unl.edu/postings/53326>. Deadline: **April 7, 2017**.

Assistant Professor, Soil Science, Soil and Water Sciences Department, University of Florida

This is a 12-month tenure-accruing position that will be 70% research (Florida Agricultural Experiment Station) and 30% extension (Florida Cooperative Extension Service) and available at the Gulf Coast Research and Education Center, Institute of Food and Agricultural Sciences, University of Florida. Tenure will accrue in the Soil and Water Sciences Department (SWSD). The position offers opportunities to pursue research and extension activities in urban landscape nutrient management and remediation, and research opportunities in the area of emerging contaminants in urban landscape environments. This position is responsible for providing leadership for research program development and involvement in statewide educational programs for landscape management professionals and expected to interact closely with county and multi-county extension horticulture agents working with residential and commercial landscape professionals as well as the newly created regional specialized water agents. Research and extension publications and demonstrations are important outputs of this position. The incumbent will develop a nationally recognized externally funded research program to understand the physical, biogeochemical, and ecological processes and mechanisms controlling the fate and transport of organic and inorganic pollutants within urban landscapes to prevent water quality deterioration, as related to human and natural systems health. The individual will work closely with the Center for Landscape Ecology and Conservation faculty, colleagues in Gainesville other Research and Education Centers to develop a competitive research program. The faculty member will actively participate in graduate education by chairing graduate committees, serving on graduate committees, supervising thesis and dissertation research, and publishing the results with their graduate students.

For full consideration, candidates should apply and submit additional materials by **May 1, 2017**. The position will open until a viable applicant pool is determined. Individuals wishing to apply should go online to <http://explore.jobs.ufl.edu/cw/en-us/job/501493>. Nominations are welcome. Please refer to Requisition # 501493. For more information contact: Dr. Craig Stanley and Dr. Nathan Boyd, Co-Chairs, Search and Screen Committee, University of Florida, Gulf Coast REC, 14625 CR 672Wimauma, FL 33598, Telephone: 813-634-0000, Facsimile: 813-634-0001, Email: cdstan@ufl.edu, nsboyd@ufl.edu.

Assistant Professor, Agronomy, Dept of Plant Sci and Landscape Architecture, University of Maryland

The Department of Plant Science and Landscape Architecture invites applications for a 12-month tenure track position of Assistant Professor of Agronomy with a 60% University of Maryland Extension and 40% Maryland Agricultural Experiment Station Research appointment with the focus on production of agronomic crops. The candidate will be an individual who has extensive training in agronomic crop production, nutrient management of cropping systems, and statistical analyses of crop performance data. The candidate's research program should focus on practical solutions to production issues facing the major crops grown in Maryland, while improving the provisioning of ecosystem services.

Candidates who have experience working with a range of faculty, staff, constituents and organizations and who have interest/experience in developing programs that serve diverse populations are encouraged to apply. For more information and to apply, please see: <https://ejobs.umd.edu/postings/49730>.

Graduate Student Positions, Department of Plant Sciences, University of Saskatchewan

Project title #1: Understanding soil health in horticultural and agricultural soils

Supervisors: Dr. Kate Congreves and Dr. Melissa Arcand

Project description: The proposed research will examine how different horticultural & agricultural practices have influenced soil health, and will identify which key soil attributes are most important in determining soil health. This project will focus on a unique set of long-term trials at the University of Saskatchewan, which have produced vegetables, fruit, or grains for the past several decades. The project will engage a MSc student in field work (soil sample collection), lab work (analysis for numerous soil attributes such as nutrients, organic matter, aggregate stability, etc.), data integration and interpretation (soil health scoring). The candidate will have opportunities to interact with horticultural producers, provincial and federal government researchers, other graduate students and researchers within the Dept. of Plant Sciences and the Dept. of Soil Science at the University of Saskatchewan.

Project title #2: Understanding nutrient dynamics in diverse vs simple crop rotations

Supervisors: Dr. Kate Congreves and Dr. Richard Farrell

Project description: The proposed research will examine crop residue decomposition and soil nutrient dynamics in simplified vs diversified crop rotations. This project will employ ¹⁵N tracer techniques to understand nitrogen transformation and loss from above- vs below-ground crop residues over time, and will focus on a ~30yr field trial located at the University of Guelph. The project will engage a MSc or PhD student in field work (plant sampling, soil sampling, and greenhouse gas sample collection), lab work (analysis for plant nitrogen, soil mineral nitrogen, organic nitrogen, and nitrous oxide emissions), data integration and interpretation. The candidate will have opportunities to interact with agricultural producers, government researchers, other graduate students, and researchers within the Dept. of Plant Sciences at the University of Saskatchewan, and also at the University of Guelph (Dept. of Plant Agriculture & the School of Environmental Sciences).

To apply for either position, please send your unofficial transcripts, CV and names of two references to: Dr. Kate Congreves, Assistant Professor with the Department of Plant Sciences at the University of Saskatchewan. Email: kate.congreves@usask.ca

Qualifications: Applicants should hold a Bachelor's degree with a strong background in natural or agricultural sciences. Expertise in agriculture, horticulture, soil, and plant science is desired.

Annual stipend: \$21,000 per year for MSc, or \$25,000 per year for PhD. Additionally, there are scholarship and teaching assistant opportunities to supplement the stipend beyond this base level.

Events:

Be Herd: Where do YOU stand in cultivating Sustainability, Mon. Mar 20, 2:30-5:30, 130 Agriculture Students - Have YOUR Say about YOUR Education

- Shape future learning opportunities in environmentally, socially and economically sustainable agriculture in your Faculty.
- What can we do in 1, 2 or 5 years to better prepare graduates like you to be sustainability champions and practitioners in their future careers in agriculture?

Sustainability in PRACTICE - Hear from PRODUCERS Walking the Talk

- How are three prominent past UofM Aggies applying sustainable production practices on their farms and in their off-farm pursuits?
- Hindsight 20:20. Based on what they know now, what skills and experiences in the realm of sustainability do they think are necessary for today's graduates?

Adam Gurr is a no-till grain farmer and on-farm researcher. He also operates Agritruth Research Inc., an independent agronomic research company. Follow @GurrAdam and @Agritruth

Kristine Tapley raises beef cattle and is the regional beef production specialist with Ducks Unlimited Canada. Kristine has stated "conservation matters as much as cattle".

Ryan Boyd is a self-described "family farmer growing grain, grass and soil" practicing crop-livestock integration. Follow @Glantonboyd

Registration is free and includes refreshments. Deadline: **March 13.**

Email Christine.Rawluk@umanitoba.ca to reserve your spot.

CSSS 2017 Annual Meeting Announcement

The 2017 Canadian Society of Soil Science Annual Meeting will be hosted at Trent University from June 10th to 14th, 2017. The theme of the conference is "Soil and the Environment" and includes sessions on nutrient cycling, soil health, water quality, soil modelling, soil mapping and forest soils. Online abstract submission and registration are now open. For more information please check the conference website (<http://csss-conference.ca/2017/>).

Abstract submission deadline: **March 15, 2017.** Registration early bird deadline: **April 15, 2017**

Free Mitacs Step workshops at U of Manitoba

These workshops are free for both graduate students and postdoctoral fellows (however, the preauthorization of a valid credit card is required as part of the registration process). You are encouraged to register ASAP, as space is limited and they'll fill up fairly quickly.

Discovering the Entrepreneur Within – March 16, 2017

Discovering the Entrepreneur Within has participants analyze successful entrepreneurial ventures and identify what it took for those entrepreneurs to reach their goals. Using an interactive, team-based approach, this full-day workshop builds awareness of the current Canadian entrepreneurial landscape and resources available to those looking to start their own business. ([More information](#))

Essentials of Productive Teams – March 20, 2017

More than ever, organizational success depends on people working together - effectively. The pressure to communicate productively, quickly turn ideas into profitable action and consistently deliver results never decreases. Using team simulation exercises, participants work from a clear understanding of personal strengths and an appreciation of the differences in others will be the foundation of success in the future. ([More information](#))