

Profiles



Department of Soil Science
UNIVERSITY OF WISCONSIN-MADISON

JUN 2020 VOL. 11 NO.2



ANTIGO SILT LOAM

MESSAGE FROM THE DEPARTMENT CHAIR

These are strange times. We left our offices mid-March and have not been back or only sporadically since. Classes are online and research and travel is halted or requires special permission. A fresh layer of rapidly changing bureaucracy has blanketed us, but the wheels keep turning, graduate students finish, exams are taken, and meetings are held on numerous virtual platforms. Grant and paper submissions are not affected, and possibly even increased.

The one thing that changed is that we as a soil science community do not meet in our departmental seminar, class rooms, labs, hallways, or walk into each other's offices. We are all safe and well in our homes, rooms, or dorms. There is stormy weather ahead, and the university has projected a massive financial loss; undoubtedly some of that will be passed on to our department beyond the furloughs. In times like this, we trust our resilience and know that in the grand scheme of things, our soil research, teaching, and extension will continue as before. And it may even be better as we have had some time to think and contemplate.



Last Sunday most of us participated in a safely distanced parade in front of **Steve Ventura's** house. Steve has retired after 31 years with the Department of Soil Science. He has been the chair for six years, but above all he has been a gracious and productive colleague, a broad thinker, and a friend to everyone. We are thrilled to announce that soon **Zachary Freedman** will join us as an assistant professor in soil microbiology. He comes from West Virginia and will deepen the research and teaching of the soil microbial world. These are strange times to retire or start a new position, and appropriate celebrations will follow later.

Lastly, I wish you the best from all of us in soils in Madison. We like to hear from you and please send us a note, and do come in when we are able to visit in person again.

Alfred Hartemink
Chair



*Miss you already,
Steve!*

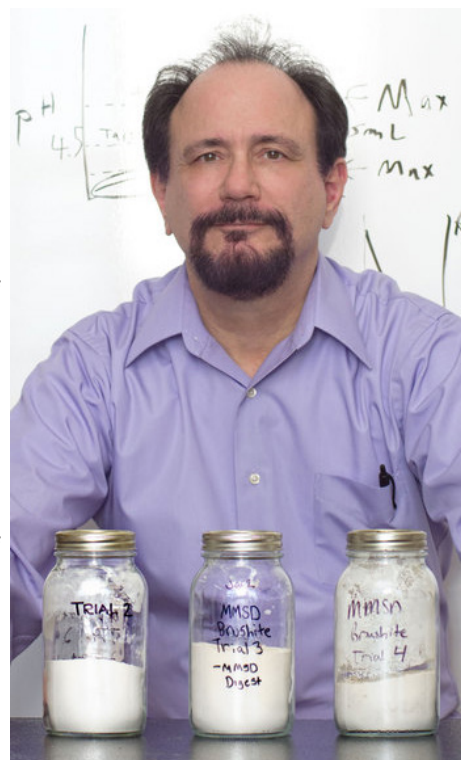


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RESEARCH CORNER: PHIL BARAK

For the last 10 years or so, Professor Phillip Barak's lab has been working on nutrient recovery from anaerobic digesters, both municipal wastewater treatment plants, and at dairy manure digesters. Work conducted with three graduate students focused on phosphorus recovery by precipitation as a calcium phosphate mineral called brushite. That technology has been patented and is commercialized under the name Cal-Prex under license to Centrisys/CNP, equipment manufacturers in Kenosha, Wis. Phil's most recent three graduate students have worked on ammonium recovery from digesters using a patented electrodialysis technology. Phil's research program also includes a life cycle assessment of these and other nitrogen and phosphorus removal and/or recovery technologies, with PhD candidate Donnie Vineyard who is co-advised by Professor Karthikeyan of Biological System Engineering. The goal of such life cycle assessments is to determine the environmental impact of a product or process throughout its life cycle, using multiple dimensions of environmental impact, such as fossil fuel, greenhouse gas emissions, etc. Phil's most cited earlier work described long-term soil acidification in Wisconsin due to nitrogen fertilizer inefficiency, based on 30 years of plot results at the Agricultural Research Station located in Arlington, Wis.

Phil says that he is "a classically trained soil chemist," with graduate degrees from the Dept. of Soil and Water Sciences at the Faculty of Agriculture, Food and Environment of the Hebrew University of Jerusalem (Israel). He joined the Univ. of Wisconsin-Madison faculty in 1991 and since then he has taught soil fertility and fertilizers to hundreds of students in Soil Sci/Hort/Agron 326 and scores of graduate students in mineral nutrition of plants, Soil Sci/Hort/Bot 626, taught in alternate years. Phil also teaches soil chemistry, mineralogy and geochemical cycles in Soil Sci 301, our introductory soils class. He is a curator of the Virtual Museum of Minerals and Molecules, <http://virtual-museum.soils.wisc.edu>, used worldwide for instruction. For patents and commercialization of his lab's work, Phil works regularly with Wisconsin Alumni Research Foundation (WARF) and the UW's Discovery to Product (D2P) and co-founded Nutrient Recovery & Upcycling, LLC, with two former students in 2011.



STUDENT PROFILE: MIRANDA SIKORA



Four years after receiving her BS in Biochemistry from the Univ of Wisconsin-Madison, Miranda Sikora decided to venture into the world of soil science. "Soil science combines biology, chemistry, and physics, the nitty-gritty details I love. Plus, it has a diverse array of real-world applications to society's biggest conundrums such as food security, sustainable development, and water quality," says Sikora. Her primary interests surround the multifunctionality of agriculture, and all the services our society demands of our soils.

As a joint MS student in Soil Science and Agroecology with Professors Matt Ruark and Erin Silva, she is working with farmers in Wisconsin's Driftless Region to understand what factors are the most important for managing soil health in organic grain systems. In 2019, she was awarded an NCR-SARE Graduate Student Grant for her work to identify management practices and soil properties with the greatest influence on biologically-mediated carbon and nitrogen cycling. There has been a big push by government and academic agencies to understand and measure the biological component of soil health. This research can contribute to soil health measurement development while generating best management practice recommendations for farmers.

OUR SUPPORTERS

12/01/2019 to 04/30/2020

Professor and Mrs. Barak

Mr. and Mrs. Benes

Dr. and Mrs. Bowling

Dr. and Mrs. Cates

Ms. Collins

Dr. and Mrs. Comfort

Mr. and Ms. Davies

Mr. and Ms. Demo

Professor Hartemink

Mr. and Ms. Jankus

Mr. Jepsen

Mr. Karlen

Professor and Ms. Keeney

Professor and Mrs. Kelling

Professor Kirkham

Professor Laboski

Mr. Lemahieu and Ms. Anderson

Professor and Mrs. Lowery

Mosaic Global Sales LLC

Mr. Mulcahy

Mr. and Mrs. Owens

Mr. and Ms. Rand

Mr. Shehadeh and Ms. Elsharaf

Professor Soldat

Dr. Swan and Professor Swan

Professor Ventura and Ms. Krome

Dean Emeritus Walsh

Wisconsin Turfgrass Assoc.

RECENT GRADUATES

Edwards, Anne E. - BS, 2020

Patel, Parth - BS, 2020

Yost, Jenifer L. - PhD, 2019

Soil Science (Hartemink)

Soil carbon in the Sandy Soils of the Wisconsin Central Sand Plains.

Zhang, Yakun - PhD, 2019

Soil Science (Hartemink)

Short range variation of soils at the farm scale.

DEPARTMENT NEWS



Above: Todd Andraski (right) with Jason Cavadini, Marshfield ARS assistant supervisor, at the ARS award reception on Jan. 22, 2020.

Todd Andraski (Research Specialist) has decided now is a good time to hang up his hat and retire after 35 years in the department. He recently received the CALS Agricultural Research Station (ARS) award in recognition for his outstanding service and contributions to the ARS program. Todd was nominated by Jason Cavadini (Marshfield ARS assistant superintendent) for his keen understanding of scientific design in conducting quality field trials; his trials are top-notch thanks to his organization, preparation, and attention to fine detail. Congratulations on this recognition and all the best as you transition into retirement!

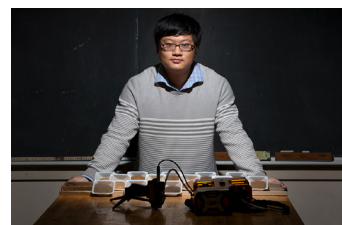
Nick Balster has been promoted to professor, effective July 1, 2020. Since joining the department in 2002, he has demonstrated a strong commitment to the department, college, and university through his teaching, research, committee work, and outreach programs.

The 2019-2020 Jaya G. Iyer Award recipients for Graduate Student Research Presentations in Soil Science 728 Seminar are **Jacob Kruse** (RA with Barak) and **Hannah Francis** (RA with Ruark). Jake's fall presentation was titled, "A soil scientist's view of a world with fewer cows." Hannah's spring presentation was titled, "Does red clover cover cropping make a field luckier? An overview of red clover's past and future in the face of climate change."

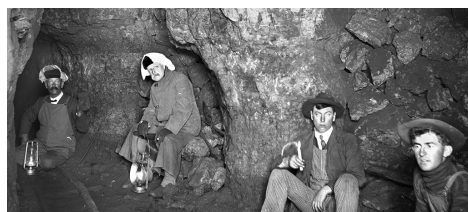
The estate of Elsa Thomsen established the Louis and Elsa Thomsen Wisconsin Distinguished Graduate Fellowships to support graduate students who demonstrate excellence in research. Four fellowships have been awarded for 2020-21 with one awarded to **Jaimie West** (RA with Whitman).

Jingyi Huang and **Geoff Siemerling** were featured in the spring issue of CALS Grow Magazine. "The Soil Doctor Is In" focuses on Jingyi's work using soil sensor technology to assist farmers in understanding their field crop conditions, conserve resources, and increase productivity. "A Mining History Charted in Soil" highlights Geoff's work with new digital maps that show potential for lead and zinc contamination in the Driftless Area of Wisconsin known for its heavy mining history.

Left: Dr. Jingyi Huang
Photo by Michael P. King



Below: Miners in the bowels of a lead mine in Cassville, Wis. (Grant County) in 1900. Image courtesy of Wisconsin Historical Society WHS-8991.



Alfred Hartemink was elected chair of the Pedology Division of the Soil Science Society of America.

Since we have been stuck at home looking out the window at our lawns, check out these spring lawn care tips by **Doug Soldat** (<https://fyi.extension.wisc.edu/news/2020/05/21/spring-lawn-care-tips>)

RESCHEDULED TO NEXT YEAR DUE TO PANDEMIC

The 8th annual **Leo M. Walsh Distinguished Lectureship in Soil Science** previously scheduled for April 29th with Dr. Jirka Simunek, Assistant Professor of Hydrology at University of California-Riverside has been rescheduled for spring 2021.

The **Global Conference on Sandy Soils** (that was scheduled for May 31 to June 4, 2020) has been postponed until May 30 to June 3, 2021. See <https://sandysoils.org> for more information.

Department of Soil Science at the University of Wisconsin-Madison

I/we wish to join other students/alumni, industry, and friends in enhancing the teaching, research, and outreach programs in the Department of Soil Science by contributing as indicated below.

____\$50 ____\$100 ____\$250 ____\$500 ____\$1,000 ____Other

☐ Please charge my gift of \$_____ to my (please circle): Mastercard Visa American Express

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If paying by check, please make your check payable to the UW Foundation-Department of Soil Science and mail to:
University of Wisconsin Foundation • US Bank Lockbox • P.O. Box 78807 • Milwaukee, WI 53278-0807

Online donation is available on our website <http://soils.wisc.edu/alumni-friends/>

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(Research Specialist, Laboski)

Jessica Ross

(Research Specialist, Ruark)

Dakota Wagner

(Financial Specialist, Soils & BSE)

Heather Inzalaco

(Research Specialist, Pedersen)

IN MEMORIAM

William (Bill) Liebhardt (PhD, 1966) was a pioneer in sustainable agriculture and the director of the University of California's statewide program in sustainable agriculture. The UC Sustainable Agriculture Research and Education Program (SAREP) was the first such program at a Land Grant university beginning in 1987.

Emmett Schulte (MS, 1961; PhD, 1963; Emeritus Faculty) served on faculty in the Department of Soil Science for 30 years from 1964-1994. Service and outreach played a major role in his life and career. He helped develop a faculty of agriculture at the University of Ife in Nigeria, and served as chief-of-party for a USAID Agricultural Research and Diversification project in Gambia. He started the Madison Area Food Pantry Gardens, which annually raised approximately 100,000 lbs of produce for Dane County Food Pantries.



Alumni Update

We'd love to hear from you! Please complete and return this form
or send your updates via email to: jgarvin2@wisc.edu

Name: _____

Degree(s) and Year(s): BS () MS () PhD () _____

Home Address: _____

Email: _____

Phone No.: _____

Position: _____

Employer: _____

News to share: _____

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