

Department of Soil Science Newsletter



Winter 2004-05

Department of Soil Science
University of Wisconsin-Madison



Steve Ventura

Season's Greetings!

Yes – the byline for the Chair's column has changed. I replaced **Birl Lowery** as department chair this Summer. Birl dedicated five years of yeoman's effort to the cause, leaving the department in good shape and making my decision to take the job much easier. If the occasion arises, a hearty thanks or a slap on the back would be appropriate (though offering to buy him a drink might be more appreciated!). Birl has returned to being a full time researcher and teacher, probably with a big sigh of relief.

I'm excited about the opportunity to help lead the department. It is a time of transitions, a time when we are looking for new directions and for new innovations in all aspects of research, instruction, and outreach. Currently, seven of twenty active faculty members are within their first six years here, full of new ideas and ready, willing, and able to continue pushing us into the 21st century. Blended with the "old" faculty already making substantial contributions to the discipline and science, I believe we can make a big impact in agriculture, land management, environment, natural resources, and many other areas.

In the last year, **Keith Kelling** has permanently joined the golfing and fishing circuit and **Leslie Cooperband** has moved to greener pastures in central Illinois (literally – among other things she is raising sheep!). We've welcomed new assistant professor **Carrie Laboski** to our Extension fertility group. Carrie will take over some Extension duties from Keith as well as developing her own programs in nutrient management to sustain agricultural production and environmental quality. We hope that we can get permission to find someone to pick up the important work Leslie was doing in composting and biosolids management (but I probably don't need to repeat the woeful budget situation the UW faces). **Wayne Kussow** has announced that his personal day of independence will be July 4, 2005. Stay tuned for a future announcement, as I'm sure that two decades of turf management students will want to make sure that he starts his retirement with all the rich accolades he deserves.

I've begun my term with two goals, one short and one that will inevitably be longer term. First, we will be making a concerted effort to revitalize undergraduate recruitment. With the leadership of **Jerry Tyler**, we hope to almost double the number of students while still retaining the unique "full-service" and personal touch of the department. And you can help – as graduates and constituents of the department, spread the word.

My second goal goes beyond the department. UW-Madison may be the only top-tier university in the country that does not have undergraduate degrees in environmental science or studies. I've been working with a campus-wide committee on this for several years, and given campus politics, it could be several more. Within the College of Agricultural and Life Sciences, our Department is considered a leader in this area. Thanks to **Nick Balster**, we have made significant contributions to the campus-wide discussions. Although not directly tied to either of these goals, a new instructional initiative will contribute to both. Under the direction of **Phil Barak**, we will be re-creating our course *Soils and Environmental Quality* as a web-based course, making it broadly accessible and relevant for a range of contemporary environmental issues.

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Newsmakers!

Kevin McSweeney (professor, Soil Science and IES and director, School of Natural Resources) has been named interim director of the UW Arboretum.

Professor **Larry Bundy** received a UW-Extension Award for Excellence in 2003.

Professor **Bill Bland** has been appointed a Vilas Associate. This 2-year appointment is a result of his proposal to study how science findings are applied in agricultural environmental policy.

John B. Peters, MS '78, superintendent of the UW Soil & Forage Analysis Lab, Marshfield, WI, and Professor **Keith Kelling** received the 2004 Donald R. Peterson Technology Transfer Award from Wisconsin Farm Technology Days, Inc. for their many contributions to that event.

Richard (Dick) L. Cates, Jr., PhD '83, Spring Green, WI, received the John S. Donald Excellence in Teaching Award for 2004. Dick is lead instructor and coordinator of the Wisconsin School for Beginning Dairy Farmers and also holds an adjunct appointment in Soil Science.

Dwight D. Mueller, MS '79, superintendent of the Arlington Agricultural Research Station, received an Academic Staff Excellence in Service Award from the College of Agricultural and Life Sciences.

Jacob Schneider (senior) is recipient of a Scotts Co. Scholars Award, though the Golf Course Superintendents Association of America. The Scotts Co. Scholars Program recognizes promising students from culturally diverse backgrounds who have an interest in pursuing a career in the green industry. The award includes a summer internship, cash prize, and opportunity to compete for additional scholarships.

Season's Greetings, *from p.1*

As we move into the season of giving, it's appropriate to note that the first **Leo Walsh**/Wisconsin Fertilizer and Chemical Association distinguished graduate fellowship has been awarded to **Jeff Osterhaus**. Jeff is a MS student working under the direction of **Larry Bundy** on evaluating the Illinois soil nitrogen test for Wisconsin cropping systems.

Accompanying giving is thanks – thanks for your support and ideas. Please let me know what you think of our new goals and directions. And thank you for supporting the department. Did you know that less than a quarter of UW-Madison's revenues come from state tax dollars now? We really do depend on the generosity of alumni and friends. Your contributions give us the flexibility to be creative and responsive to changing needs. Every bit helps.

Steve Ventura (sventura@wisc.edu)
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Welcome to our newest faculty!



Carrie A.M. Laboski

ment (both of manure and nitrogen, phosphorus and potassium fertilizer) for long-term sustainability - agronomically, economically and environmentally. Carrie is quickly coming up to speed in her new position, participating in area fertilizer dealer meetings in December and assuming responsibility for planning the annual Wisconsin Fertilizer, Aglime and Pest Management Conference in January.

Carrie A.M. Laboski joined the faculty of the Department on September 1, 2004, as an assistant professor and Extension Soil Scientist. Dr. Laboski earned a B.S. degree from Penn State University and M.S. and Ph.D. degrees in Soil Science from the University of Minnesota. Before joining us, she held a similar research/extension position at Michigan State University for the past 3 years. Her responsibilities include research (20%) and extension (80%) work in soil fertility and nutrient management. She is particularly interested in nutrient manage-

Alumni Updates

Jason Grode, BS '01 was one of four members of the Golf Course Superintendents Association of America selected to receive a 2004 Toro Championship Tournament Training Award. The award allowed Jason to participate in course maintenance throughout the recent PGA Championship at the Whistling Straits Golf Course. Jason is assistant superintendent at

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Department of Soil Science Newsletter

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Kelling retires



Professor **Keith Kelling** retired from the University of Wisconsin in the summer of 2004 after 35 years in the Department of Soil Science. Although some might think he was a permanent fixture in Soils and CALS, not all this time was spent as a professor. Keith earned his B.S. degree in Biological Aspects of Conservation at UW-Madison in 1966. He served in the U.S. Army Corps of Engineers from 1966-69 and then traded his green uniforms in for attire more appropriate for student life. He returned to the UW, earning his M.S. degree in 1972, under the supervision of Art Peterson, and Ph.D. in 1974 under Leo Walsh and Art Peterson. He again attempted to escape Wisconsin by starting his professional career as an assistant professor at Ball State University in 1974. However, he returned to Wisconsin in 1977 when he joined the department as Extension Soil Scientist at the rank of Assistant Professor.



Keith is known throughout Wisconsin and nationally for his research in soil fertility and manure management, and has made major contributions to Extension in soil management for crops ranging from forages to potato. His research emphases included forage fertility and disease interactions, nutrient availability from manure and other waste materials, nitrogen, calcium and other nutrient responses with potato, evaluation of various nonconventional soil and plant additives, and the influence of legume characteristics and management on legume N credits. Recent effort concentrated on multidisciplinary team approaches to potato and forage cropping systems and manure management with emphasis on improving nitrogen use efficiency on Wisconsin sandy soils.

The Wisconsin Fertilizer, Agrilime and Pest Management Conference was another annual event that he provided leadership in. He also helped coordinate the implementation of new soil and plant tissue analysis interpretation and recommendation into Wisconsin's diagnostic services programs, and his research led to the development of new guidelines for crediting nutrients from manure and legumes. Keith has always been somewhat "nonconventional" and, as such, is highly recognized for maintaining the North Central Regional database on nonconventional soil and plant additives and evaluating numerous nonconventional products in his research program. In 1993, Keith helped start Wisconsin's Certified Crop Adviser (CCA) program with the goal of raising the level of professionalism of the ag professionals serving Wisconsin's farmers. Keith coordinated and served as primary instructor for a course on nutrient management for agronomic crops and co-taught a course on nutrient management for horticultural crops.

Keith served the Department, College, Extension, and his profession in a variety of ways, and has been particularly active professionally with ASA, SSSA, and the Potato Association of America. In addition to his many contributions to the profession and to the agricultural industry of Wisconsin, those that worked with him appreciated Keith's rather "straightforward" approach to issues and opportunities, and his ability to find the lighter side of a situation. Maybe that's why he's so good at outreach and was, and will be even more, competitive at golf, fishing, and hunting, and whatever else a retired fert-man can get into (note we did not say he was good at these latter activities)! If you have the opportunity, join us in thanking him for his many years of exemplary service and wish him well in his retirement.



Alumni Updates, from p. 2

the Baltrusrol Golf Club in Springfield, NJ, which will host the 2005 PGA Championship.

Matias B. Vanotti, MS '89, PhD '93, received a 2003 ARS Research Scientist of the Year Award. His innovative and effective research on water quality and animal waste treatment earned him the "Early Career Scientist of the Year" award. Vanotti is with USDA-ARS Coastal Plains Soil & Water Research Center in Florence, SC.

Monroe S. Miller, BS '68, golf course superintendent at Blackhawk Country Club, Madison, WI received the Green

Section Award from the United States Golf Association. This award recognizes distinguished contributions to golf through work with turfgrass.

Sabrina R. Mueller, BS '99, MS '01, was awarded a Transatlantic Environmental Biotechnology Fellowship that allowed her to learn microarray techniques for mobile genetic elements in soil bacterial communities in the laboratory of Dr. Sroen Sorensen in Copenhagen. Sabrina is completing her research for a PhD in environmental microbiology at the University of Cincinnati.

Jack Stroehlein, MS '58, PhD '62, sent the following email in response to our last newsletter: *Congratulations on an excellent newsletter. I enjoyed the Ever-Energetic Emeriti articles on my former professors Lee, Beatty and Murdock. The In Memoriam on Dr. Jackson, another of my professors, was well done. In particular, I was pleased to see news of former classmates Drs. Ahmed, Than and Peck. Ahmed, as we called him since we couldn't pronounce his first name, was a quiet, friendly and polite fellow. I am happy to hear of his success. Dr. Than, we called him Sun*

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In Memoriam ...

Prof. Emeritus **Gordon Chesters**, 72, of Madison died March 21, 2004. Gordon was born on Feb. 29, 1932 in Leigh, Lancashire, England and, with the benefit of a full scholarship, obtained a B.Sc. (Hons.) degree in Chemistry from the Univ. of Wales in 1954, followed by M.S. and Ph.D. degrees in Soil Science/Bacteriology from UW-Madison in 1956 and 1959. He held an unassigned WARF fellowship in Soil Science/Bacteriology for the next 2 years, joined the UW faculty as Assistant Prof. of Soil Science in 1961, and was promoted to Assoc. Prof with tenure in 1964 and Professor in 1967. He served as Chair of the Department from 1971-72. In 1972 he became Director, later Academic Program Director of the UW Water Resources Center, and Chair of the Water Chemistry Program, positions which he held until his retirement in 1998. At UW-Madison he directed the research of 19 M.S. and 33 Ph.D. students in Soil Science, Water Chemistry, or the Inst. for Environmental Studies' Land Resources, and Water Resources Management programs. He was awarded a D.Sc. by the Univ. of Wales in 1978 based on the quality and volume of his research publications, and was made a Fellow of the Soil Science Society of America, and the American Society of Agronomy in 1979. He was co-author with V. Novotny of Marquette Univ. in 1981 of a best-selling textbook *Handbook of Nonpoint Pollution: Sources and Management* and published with his students some 200 articles in prominent scientific journals. His zeal was constantly directed at the recognition, description, and quantification of emerging problems that affect human and environmental well-being, and the search for practicable solutions that reflected the state of the science and the realities of public policy. In private life, Gordon evinced a passion for the arts, music, opera, and erudite quiz programs. He was a fanatic follower of all sports and was also a superb gourmet cook. He loved to travel, usually in accompaniment with his wife and 3 children. Gordon is survived by his wife of almost 50 years, Joan, daughter Janine and her husband Jean Luc, sons Nigel and Steve, and granddaughter Sienna in the USA, and brother Derek in England. Gordon enriched the life of hundreds of students, colleagues, and friends throughout the world and his continued presence among us will be sorely missed.



Alumni Updates, from p. 3

Tan, as we also had trouble with his name, was a very friendly fellow with a big smile. I remember both of them well and wondered how their lives and careers have been over the years. Of course I have visited with Dr. Peck many times since we left Madison. Since retiring from the Department of Soil and Water Science at the University of Arizona several years ago I have enjoyed my small farm and woodlot in southern Illinois, looking up many old friends (army buddies, classmates, students, etc.), some in far away places such as Brazil and Syria. While home in Tucson, I'm still involved with restoring our '29 Model A Ford. Retirement is busy, interesting and fun. Keep up the good work.

3516 N. Wilson Ave.
Tucson, AZ 85719
jstraline@juno.com

Chris Wooley, BS '93, is product marketing manager, insecticides and fungicides, in the U.S. Turf and Ornamental Division of Dow AgroScience.
30 E Quail Wood Lane
Westfield, IN 46074

Marvin L. Wesely, MS '68, PhD '70, senior meteorologist at Argonne National Laboratory, died January 20, 2003. His extensive research aimed at finding solutions to such environmental problems as air pollution and global warming resulted in more than 150 published articles. Dr. Wesley was also an editor for the Journal of Applied Meteorology and chief scientist of the Energy Department's atmospheric chemistry program in Washington, DC.

Walter Peter Mortensen, BS '48, MS '49, PhD '53, passed away on April 7, 2003. Walter served as soil scientist at Western Washington Research and Extension Center in Puyallup, WA for 25 years.

Gordon Shipman, BS '37, died April 1, 2003.

Ted Peck, BS '57, MS '58, PhD '62, passed away Dec. 27, 2003. Peck was professor of soil chemistry at the University of Illinois.

Gordon Wing, BS '53, died Nov. 26, 2004. Wing was a soil scientist with the USDA in northern Wisconsin. He retired in 1973 and operated his own soil testing service.

Kevan M. Klingberg, BS '84, obtained a Master of Professional Agriculture through Iowa State University in 1999 and is currently working for UW-Extension with the Discovery Farm Program.
50768 Caroline St.
Osseo, WI 54758

Christopher Newman, MS '02, is Environmental Scientist at US-EPA Region 5 in Chicago. He works in the Waste, Pesticides, and Toxics Division of the Solid Waste Division on recycling issues.

Larry L. Lennert, BS '85, MS '90
Territory Manager, Aquatrols
3949 S. 119th St.
Greenfield, WI 53228

Dr. Namdeo M. Nimgade, PhD '62 and Mrs. Nimgade stopped by to say hello while on a visit to Madison from India last year. They are both doing well and are in good health.
151 MIG.DDA
Prasad Nagar
New Delhi 110005 INDIA

Student News

An Excellent Alaskan Adventure!!



This summer, three UW-Soil's folk made their way to the Arctic Ocean via the Dalton Highway of Alaska on a permafrost soil field trip sponsored by the University of Alaska-Fairbanks. In the far left photograph, **Cindy Stiles** (right), assistant professor of pedology, **Krista Stensvold** (in the middle), a master's student, Chien-Lu Ping (above the sign), professor of pedology, UAF and leader of the tour, and **Nataly Dueling** (far left), a recent BS graduate, stand on the latitude marker at the Arctic Circle along the road north. In the middle photograph, Krista takes on jack hammer duty as we excavate a soil pit in the permafrost. In the photo to the right, Nataly and Krista help describe soils with a UAF student at a site on the south face of the Brooks Range along the Kanuti River. The weather was wonderful, the sites memorable, and the bugs were thankfully few on this trip. Cindy is gearing up for another trip this summer, hoping to make this adventure a regular offering in the department.

Degrees Granted

Graduate Degrees

Avila, Mauricio - PhD - Soil acidification processes in agroecosystems. (Barak) 2004

Cusick, Paul R. - MS - Residual dairy manure nitrogen availability and mineralization of whole and individual manure nitrogen components. (Kelling/Powell) 2004

Howe, Julie A. - PhD -Speciation of trace metals in soils. (Helmke) 2004

Johnson, Derrick O. - MS - Assessment of the variability of soil hydraulic properties at a field scale. (Lowery) 2004

Masarik, Kevin C. - MS - Monitoring water drainage and nitrate leaching below different tillage practices and fertilization rates. (Norman) 2003

Mentzer, Jessica L. - MS - Seasonal response of a microbial community to hydrologic and nutrient treatments in a simulated wet prairie ecosystem. (Balsler) 2003

Meyer, Juliane M. - MS - The vertical distribution of phosphorus at the Wisconsin Integrated Cropping Systems Trial. (Barak) 2004

Morgan, Cristine L.S. - PhD - Quantifying morphological properties for landscape management applications. (Norman) 2003

Soldat, Douglas J. - MS - Inorganic amendments as putting green construction materials. (Kussow) 2003

Vacca, Dominic J. - MS - Bacterial adaptation to humic acid-sorbed polycyclic aromatic hydrocarbons (PAH). (Hickey) 2003

Wood, Andrew T. - MS - Assessing soil spatial variability using cone penetrometer and saturated hydraulic conductivity data. (Lowery) 2004

Yuan, Fengming - PhD - Dynamical simulation of N requirement by potatoes growing in well-managed sandy fields. (Bland) 2003

Undergraduate Degrees

Bohnenkamp, Joshua L. (Natural Sciences, 2004)

Dvorak, Brandon J. (Natural Resources, 2003)

Gallagher, Patrick J. (Agricultural Sciences, 2004)

Gallaher, Courtney M. (Natural Sciences, 2004)

Horsch, Sarah L. (Agricultural Sciences, 2003)

Krueger, Jacob A. (Natural Resources, 2004)

Kurth, Andrew J. (Agricultural Sciences, 2004)

Osterhaus, Jeffrey T. (Agricultural Sciences, 2003)

Strope, Meaghan M. (Natural Resources, 2004)

Van Wychen, Stefanie R. (Natural Resources, 2004)

Contributors, 2003 and 2004

Thanks so much to those of you who support the department with your donations to the University of Wisconsin Foundation. Your help allows us to do such things as send students to professional meetings, provide graduate student stipends, honor deserving students with scholarships, maintain a computer graphics facility to produce top-quality presentation materials, and many other very important functions, including production of this newsletter!!

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Prof. & Mrs. Craig Grau	Mr. and Mrs. Richard Lower	Dr. and Mrs. Hendrick Serrie	

Leo M. Walsh/Wisconsin Fertilizer & Chemical Association Graduate Fellowship Awarded



A beautiful walnut plaque has been installed in the Soils Building to recognize those whose support made establishment of the **Leo M. Walsh/Wisconsin Fertilizer & Chemical Association Wisconsin Distinguished Graduate Fellowship in Soil Fertility** possible. The first fellowship was awarded to **Jeffrey T. Osterhaus** (Lancaster, WI) in January 2004, and will support his research evaluating the Illinois nitrogen soil test for Wisconsin cropping systems. Upon graduation (December '05) Jeff hopes to continue to work in nutrient management with industry or for the state. Shown here, left to right, Jeff Osterhaus (MS candidate), **Vic Brockmiller** (volunteer coordinator of this effort), Leo Walsh (Dean Emeritus, CALS, UW-Madison), and Mike Turner (Executive Director, Wisconsin Fertilizer & Chemical Association).

Wayne R. Kussow/Wisconsin Turfgrass Association Graduate Fellowship

Steven M. Houlihan (Waukesha, WI) is the second recipient of the **Kussow/WTA** fellowship and is currently in the second year of a master's degree program, with plans to finish in May 2005. The subject of his thesis is soil test selection and calibration for turfgrass. The database consists of the analyses of 614 paired soil and plant samples collected from Wisconsin golf course greens, fairways, home lawns, and athletic fields in an effort to calibrate soil tests for turfgrass. Steve has decided not to pursue a PhD at this time, and instead has chosen to work as an assistant golf course superintendent in Wisconsin. A plaque recognizing this fellowship is currently in the designing stage.



ALUMNI UPDATE

We'd love to hear from you! Please complete and return this form or send your information via email.

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

Home Address: _____

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Return to: Dept of Soil Science Newsletter
University of Wisconsin-Madison *OR* email: slspeth@wisc.edu
1525 Observatory Drive
Madison, WI 53706-1299

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.

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If paying by check, please make your check payable to the UW Foundation-Department of Soil Science, University of Wisconsin Foundation, PO Box 8860, Madison, WI 53708-8860. All contributions are tax-deductible.

Current Research

The Wisconsin Buffers Initiative

The “Wisconsin Buffers Initiative” (WBI) is a multi-disciplinary science-based effort to develop on site agricultural non-point source pollution mitigation rules for Wisconsin. Riparian buffers appear to be an important option for controlling loss of sediments and nutrients from fields to receiving bodies of water. Many questions about the suitability, installation, maintenance, efficacy, and economics of agricultural buffers have arisen in discussions within an advisory body representing a broad range of agricultural and environmental interests, regulatory agencies, and scientists. Some of these questions are being addressed through a series of interlinked research projects at the University of Wisconsin-Madison. The Department of Soil Science is providing much of this research, with three research groups looking at aspects of the issue.

One research team under **John Norman** is working to design a Decision Support System (DSS) for agricultural managers that combines what scientists know about the physical behavior of the agricultural landscape with the effects of management available to growers. The end result is a software package called the Precision Agricultural-Landscape Modeling System (PALMS). PALMS is a combination of several models that simulate the flow of energy, water, and some chemicals in the air-plant-soil system. You can read more about their precision modeling project at <http://emily.soils.wisc.edu/RESAC/agric/modeling.html> or review more general information regarding PALMS at <http://emily.soils.wisc.edu/RESAC/agric/palms.html>.

Larry Bundy leads the SNAP-Plus research team. SNAP-Plus is a nutrient management planning software program designed to do field-by-field fertilizer and manure application plans, soil loss estimates (RUSLE2), and estimates of annual phosphorus delivery to nearby surface water with a “P Index.” They are working to expand and adapt SNAP-Plus for the WBI to allow users to assess the effectiveness of in-field and edge-of-field buffers on sediment and phosphorus delivery to nearby water bodies. An expanded SNAP-Plus will allow field-by-field assessment of buffer efficacy at the farm level and will provide the WBI with a practical buffer planning tool for farmers and agricultural consultants.

The team of **Steve Ventura** and Jake VanderZanden (Limnology) is addressing the question: “Where are buffers needed most across diverse landscapes and land uses found in Wisconsin?” They are using GIS-based methods to help guide selection of watersheds for public action based on the sensitivity of aquatic systems, on characteristics of the watershed such as soils and topography, and on the kinds of land use and management practices in place. An approach known as Analytical Hierarchy Process allows participants in the WBI process to evaluate and weight multiple criteria that might influence decisions about where buffers are needed. This research will help determine the design and prioritize the implementation of riparian buffers based on characteristics of aquatic ecosystems such as sensitivity to perturbation and responsiveness to intervention.

You can learn more about the Wisconsin Buffers Initiative at <http://www.cals.wisc.edu/wbi/index.html>



photo by
Bill Pielsticker

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