

PLSC Productivity

NEWS FROM THE DEPARTMENT OF
PLANT & SOIL SCIENCES



UNIVERSITY OF DELAWARE
**AGRICULTURE &
NATURAL RESOURCES**

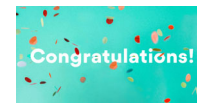
Chair's Corner

Happy Holidays everyone! I hope the Thanksgiving break was enjoyable with friends and family. We are in the last weeks of an almost completely in-person fall semester. It was so gratifying to welcome students back to campus and into our labs and classrooms, even if we all still had our masks on. I advise almost 30 students and I missed getting to see their faces these last two years! We have been able to maintain and slightly grow our student numbers. We currently have 65 Landscape Architecture, 55 Plant Science, and 15 Sustainable Food Systems students.

To keep up our essential course offerings and provide excellent hands-on training, we were able to hire key personnel. Meet our new Fresh to You farm manager, Abby Reeves, in an interview below. I introduced instructor Lori Athey, who teaches woody and herbaceous plants plus ecological planting design, in our last issue. Instructor Zach Hammaker joins us in January, teaching a full load of classes in our landscape architecture program. Zach is a recent MLA graduate from the University of Pennsylvania and also has a thriving private practice. Finally, Lauren Kope joins us as UDBG program coordinator in January. We are so pleased that Lauren (B.S., Virginia Tech) will be filling the large gap left by the recently-retired Melinda Zoehrer. Lauren is an expert horticulturist, previously serving at a Philadelphia-area botanic garden, along with providing private gardening services for a few of our UDBG patrons.



We serve you, our students, Delaware, and society at large by doing world-class research and extending it out far and wide. This is all about our wonderful PLSC family. Much of what follows below is a testament to this statement. In this season of giving please take the time to appreciate all the great people around you. The department has recently been the recipient of two new endowments to support our students' success; look for details in the next issue of our newsletter. As a turf specialist I can't help but end with an end-of-the-year lawn tip: Our mild fall has left many lawns green and growing roots into December; clean up the last of your leaves by mowing/mulching so as to recycle this organic matter back into your lawn.



Honorifics

CANR was not able to gather this year to celebrate our annual alumni awards but they were awarded nonetheless!!

George M. Worrilow Award

This award, named for Dean George M. Worrilow, recognizes an alumnus dedicated to service and education in agriculture in the state of Delaware. This year's winner comes from PLSC! – Dr. Susan Barton, 1981 B.S., Plant Science and 2005 Ph.D., Plant Protection. Professor and Extension Specialist, Ornamental Horticulture

Distinguished Alumni

Mr. Sam Lemheney, 1990 B.S., Plant Science. Chief of Shows and Events at the Pennsylvania Horticultural Society and directs the strategy, planning, and execution of all events including the annual Philadelphia Flower Show

Distinguished Young Alumni (less than 20 years since graduation)

Dr. David H. McNear, Jr., 2006 Ph.D., Environmental Soil Chemistry. Professor of rhizosphere science in the University of Kentucky Department of Plant & Soil Sciences where his lab aims to unravel the inherent complexity of the rhizosphere to help solve some of the most critical problems facing the world today (climate change, food security, ecosystem integrity)

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A symposium to honor the 40+-year career of Dr. Donald L. Sparks, professor of soil and environmental chemistry in PLSC, was held in a special session of 37 talks and posters and a reception during the Soil Science Society of America annual meeting, November 8-9 in Salt Lake City. Fellow faculty, as well as many current and past lab members were in attendance. One of Sparks' current M.S. students, Conner McCrone, placed first in the soil chemistry division student competition with his poster, "Impact of Sea Level Rise on the Thermodynamics of Binary Ion Exchange in Non-Saline East Coast Soils." Other awards, based on journal publication, were acknowledged:

#### **2021 Crop Science Crop Breeding and Genetics Division — Top Paper**

"Genomic Prediction for Resistance to *Fusarium* Ear Rot and Fumonisin Contamination in Maize," H.C. Manching and R.J. Wisser et al.

#### **2021 Crop Science Crop Breeding and Genetics Division — Honorable Mention**

"Relative utility of agronomic, phenological, and morphological traits for assessing genotype-by-environment interaction in maize inbreds," T. Weldekidan and R.J. Wisser et al.

#### **2021 Crop Science Turfgrass Science Division — Top Paper**

"Biosolids Amendments Improve an Anthropogenically Disturbed Urban Turfgrass System," E.H. Ervin et al.

## 2021 Agricultural & Environmental Letters — Top Paper

"Phosphorus and Soil Health Management Practices," A.L. Shober et al.

This fall, PLSC students reaped other accolades as well!

During the first virtual Coastal & Estuarine Research Federation (CERF) annual meeting in early November, students from our Coastal Resilience Design Studio (CRDS) entered a design competition to create adaptive flood mitigation ideas for Hampton, Virginia. The team won the first-place prize of \$2,000! The project, "Carbon in the Tidewater," proposed four nature-based solutions to protect the city of Hampton: a barrier island near Grandview Nature Preserve, oyster reef breakwaters near Buckroe Beach, wetland restoration at Ft. Monroe, and carbon-storing lawn designs.

The Northeast Regional Soil Judging Contest was completed on October 15 at Delaware Valley University. Eight schools competed; UD finished among the top four, which qualified the team for the 2022 National Soil Judging Contest, hosted by the Ohio State University in spring 2022. Congratulations go to coach Jenwei Tsai (DNREC) and team members Jake Gioffre (5th), Duke Williams (11th), Zoe Bara (13th), and Katie Mina (15th).

## Faculty Highlights

*Editors' note: So much good news about our faculty and their groups has come out in our UD press, space does not allow for a lengthy description. If you are interested to read more about these headlines, please search [www.udel.edu/udaily](http://www.udel.edu/udaily) or email [mpautler@udel.edu](mailto:mpautler@udel.edu) for the UDaily links.*

### October 2021:

Dr. Qingwu "William" Meng, assistant professor of controlled-environment horticulture, was one of eight speakers invited to give a UD TEDx talk on October 1. These TEDx talks represented some of the most compelling ideas worth spreading this year from the University community. His talk was titled "How Do We Grow Food Anywhere, without Soil?" and described research into how environmental conditions influence plant growth and development in indoor vertical farms, greenhouses, and space exploration.

Dr. Rodrigo Vargas, professor of ecosystem ecology and environmental change, in collaboration with scientists at the University of Idaho, University of Hawaii, and North Dakota State University, is a co-principal investigator on the \$18.9M project funded by the National Science Foundation, "Mid-scale RI-1 (M1:IP): A Deep Soil Ecotron Facility to Explore Belowground Communities and Ecosystem Processes."

### November 2021:

Dr. Rodrigo Vargas received the 2021 Latino/Hispanic Heritage Impact Award from the UD Latino/Hispanic Heritage Caucus. Additionally, along with two other UD professors, he has been recognized as a Highly Cited Researcher for 2021 by Clarivate, a global analytics company. Dr. Vargas is an influencer who has had significant impact on his peers and chosen field, having published multiple papers ranking in the top 1% by citations over the past decade.

### The following grants were awarded this fall to our talented PLSC faculty.

| <u>Principal Investigator(s)</u> | <u>Title/Topic</u>                                                                                                                                                   | <u>Sponsor</u>                          |
|----------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------|
| Dr. Rodrigo Vargas               | Carbon Monitoring System across Mexico                                                                                                                               | NASA                                    |
| Dr. Gordon Johnson               | Agrioltaics - Sustainability in Energy and Agriculture                                                                                                               | Unidel Foundation                       |
| Dr. K. Eric Wommack              | Human Resources for Obtaining Larger-Scale Grants                                                                                                                    | Unidel Foundation                       |
| Dr. Erin Sparks                  | Linking Brace Root Development and Function in Maize                                                                                                                 | National Science Foundation             |
| Dr. Tara Trammell                | Silviculture in the City: Advancing Urban and Climate Adapted Management Strategies for Forested Natural Areas in the Northeastern U.S. through Science and Training | USDA                                    |
| Dr. Shreeram Inamdar             | Back from the Past? Assessing Potential of Relict, Hydric Soils for Wetland and Floodplain Restorations                                                              | USEPA                                   |
| Dr. Mark VanGessel               | Enhancing the Sustainability of U.S. Cropping Systems through Cover Crops and an Innovative Information and Technology Network                                       | USDA                                    |
| Dr. Amy Shober                   | Delaware Nutrient Management Program                                                                                                                                 | Delaware Nutrient Management Commission |
| Dr. Mark Isaacs                  | Carvel Research and Education Center and Warrington Irrigation Research Farm                                                                                         | Delaware Department of Agriculture      |

| <u>Principal Investigator(s)</u>    | <u>Title/Topic</u>                                                                              | <u>Sponsor</u>                  |
|-------------------------------------|-------------------------------------------------------------------------------------------------|---------------------------------|
| Dr. Alyssa Koehler                  | Assessing Cross Resistance and Baseline Sensitivity to SDHI Fungicides in <i>F. graminearum</i> | USDA                            |
| Dr. Mark VanGessel                  | Turning the Combine from a Weed Seed Spreader into a Weed Seed Predator                         | USDA                            |
| Dr. Bruce Vasilas                   | North East Regional Soil Survey Conference                                                      | USDA                            |
| Dr. Amy Shober<br>Dr. Jarrod Miller | Improving Potassium (K) Fertilizer Recommendations for Corn on the Delmarva Peninsula           | North Carolina State University |

## Professionals Spotlight

**WELCOME!! Ms. Abby Reeves, UD Fresh to You Farm Manager**

### Could you give a little background on yourself?

I grew up on a farm in Ohio that my father still owns and operates today! I was very interested in agriculture and always wanted to help on the farm from a very young age. While we mostly grew corn and soybeans, we always had a massive garden where my sisters and I learned the value of hard work and enjoyed the literal fruits of our labor all summer long. I was very active in FFA and 4-H through high school and decided that I wanted to pursue a career in agriculture. I went on to receive a B.S. in Agronomy from South Dakota State University and a certificate in Agricultural and Environmental Law. Another passion of mine is food security. I wanted to use the knowledge I had about agriculture to help others, so I joined the Peace Corps and served as a Sustainable Agriculture Specialist in Senegal, West Africa for two years right out of undergrad. In Senegal I learned many valuable lessons about agriculture, food security, and water availability. When I returned to the U.S. I was very interested in learning more about water so I came to UD to pursue a M.S. in Water Science and Policy and a certificate in Geographic Information Science (GIS). Here, I joined the Seyffert lab and made many valuable connections that are helping me to succeed today! I graduated with my Master's in May 2020, got married, and moved to North Carolina where I worked on stream restoration projects as a land steward. After a year away, my husband and I were looking to move back to this area to be closer to family, and coming back to UD was the perfect fit! Now, when I am not on the farm, I enjoy baking, crafting, and being outdoors enjoying time with friends and family!



### What are your plans at UD CANR?

Now that I am back at UD I feel that I have a unique opportunity to make the Fresh to You farm a learning hub for students, staff, and the community. We are already doing this through our student internship program, CSA program for University employees and students, weekly summer markets, donations to the Helen F. Graham Cancer Foundation and the Food Bank of Delaware, and welcoming instructors to use the farm as a living classroom. In the future I hope to continue and grow these programs as well as increase our presence in the wider Newark community through outreach activities like on-farm trainings, the establishment of a teaching and learning garden, increasing our social media presence, and continued collaboration with community partners, all with the goal of increasing food security for our students and our community in mind. I would welcome anyone interested in collaborating with us or using the farm for experiential learning to reach out to me at [aereeves@udel.edu](mailto:aereeves@udel.edu). CANR has a great community and I hope to be of service to that community as much as possible! *(Photo courtesy of Abby Reeves)*

**ADIEU!! Ms. Melinda Zoehrer, recently-retired UDBG Horticulturist and Development Tour-de-force**

### When did you first come to UD and why?

I first arrived at UD in 1989 to attend the Longwood Graduate Program and then returned to UDBG in 2005 to take the garden to the next level in terms of development, educational interpretation, and broaden the audience served by the garden.

### What have you done through the years at UD and what's next?

I collaborated with Douglas Tallamy to develop the Lepidoptera Trail *(the top photo was taken at the trail on opening day)*, greatly enhancing the multidisciplinary value of the UDBG landscape. I managed the campaign to provide for the redesign of the Herbaceous Garden, increasing its color impact and biological diversity. I oversaw the reconstruction of UDBG's website, creating an effective tool for profiling the gardens' plantings, collections, and educational programs, and making it an engine that supports record-setting plant sales. What's next? Camping *(the bottom photo was taken during a recent trip to WV)* farther afield with my husband and golden retriever in our teardrop camper all the while continuing to enlarge upon relationships with a number of nonprofit organizations we support. *(Photos courtesy of Melinda Zoehrer)*



## Events and Outreach

The Donald L. Sparks Distinguished Lectureship in Soil and Environmental Sciences will be held on February 3, 2022 at 2:00 PM in UD's STAR Audion. This year's honored lecturer is Dr. M.B. Kirkham, who will give a talk titled "Microplastics as Contaminants in the Environment." Dr. Kirkham is University Distinguished Professor in the Department of Agronomy at Kansas State University and teaches a graduate-level class on soil-plant-water relations. *Email [mpautler@udel.edu](mailto:mpautler@udel.edu) if you would like to attend.*

**PLSC JEDI News:** This fall, the PLSC JEDI committee created four subcommittees (Book Clubs & Challenges, Social, Seminar, and Communications & Marketing) to help tackle planning events and challenges for the department. The committee plans to host another book club and seminar in the spring. *Email [mpautler@udel.edu](mailto:mpautler@udel.edu) if you are interested in the PLSC JEDI committee.*

## Ready – Set – Grow!

*Excerpted from the UDaily story "Growing Food without Soil" by CANR's Dante LaPenta*

"Before pandemic-era panic buying strained food supply chains and emptied grocery store shelves, the United States food system was already in need of sustainable food production improvements. Interested in the ever-increasing food demands of suburban and urban populations, [Erik Ervin](#) saw an opportunity for the University of Delaware. The Plant and Soil Sciences (PLSC) department chair knew UD could attract and teach students how to address food system challenges from all angles — scientific, business and social. So PLSC faculty created [sustainable food systems](#), a new major where entrepreneurial Blue Hens learn to grow healthy, nutritious food with a minimized carbon and water footprint. Whether the challenge is growing local food all year round or feeding people in need, a crucial piece of sustainable urban food production is hydroponic production systems, which allow plants to grow in nutrient-rich water without soil. With diminishing arable land in urban areas, growers can strategically place hydroponic systems in underused buildings, rooftops and brown fields. Soon after the program launched, PLSC hired Qingwu (William) Meng, whose expertise in controlled-environment horticulture could serve as a foundation for the incoming generation of indoor farmers."

"Off-shoots" of this research and program are exciting! "City of Newark residents can also get a taste of the carefully grown produce. The popular Grain Craft Bar + Kitchen is partnering with the College of Agriculture of Natural Resources to serve UD fruits and vegetables grown in the greenhouses and on the [UD Fresh to You](#) student-run farm... The produce will be carried across the street from CANR to UD's [Science, Technology and Advanced Research \(STAR\) Campus](#) as Grain opens a new, full-service restaurant on the ground floor of the under-construction FinTech Innovation Hub. Also, across the street, Meng and Honors undergraduate student Stefanie Severin are working with the College of Health Sciences to revitalize a hydroponic herb garden in [The Tower on STAR](#). Right next to the green wall, the herb garden is now fully functional with a wide array of culinary herbs to be used in cooking demonstrations and nutrition classes. The garden is a practical showcase of Meng's research on how different light colors can influence plant growth and flavor."



We encourage alumni to send us news to keep us informed! A new job, a promotion, a personal or professional award... they are all accomplishments we want to know! Email a note or a press release, including your graduation year, to [mpautler@udel.edu](mailto:mpautler@udel.edu). We are also seeking to showcase alumni stories and highlight the career paths of our former students to current and prospective students and their families. Provide a photo and description of your career path from your PLSC education to your current job (250-word limit) to [mpautler@udel.edu](mailto:mpautler@udel.edu).

## Back Porch Business

[Make a gift to the Plant & Soil Sciences Department](http://www.udel.edu/makeagift/plsc) ([www.udel.edu/makeagift/plsc](http://www.udel.edu/makeagift/plsc)) to support student success. Gifts to the department provide funding for student travel to research and professional development events as well as stipends for undergraduate summer research and Extension Scholars. You may also give to the College of Agriculture and Natural Resources or another PLSC program by selecting "Other" and searching for the fund you wish to support. Contact Dan Sarkissian, Sr. Director of Development, College of Agriculture and Natural Resources at 302-831-4595 or [djs@udel.edu](mailto:djs@udel.edu) with any questions or concerns.

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