



The Department of Plant and Soil Science

Newsletter

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Feature Story: Dr. Cynthia McKenney

After serving as a faculty member for 34 years in the Plant and Soil Science Department, Dr. Cynthia McKenney is hanging up her matador mask and retiring from Texas Tech University.

Although a Missouri native, McKenney found herself in Lubbock, TX with three degrees from Texas Tech; a B.S. in Ornamental Horticulture, M.S. in Horticulture and Ed.D. in Higher Education: Administration. Since 1984, starting on at Texas Tech as an instructor in Plant and Soil Science, McKenney also worked on a joint appointment at the experiment station in Dallas, taught online courses for Texas A&M and Texas Tech through interactive video conference, and worked as an extension specialist. From start to finish at Texas Tech, Dr. McKenney has been determined and focused on her research efforts in the horticulture field.

Dr. McKenney has worked on a wide variety of research projects over the years. However, the one that she has worked most consistently is improving native plants. That research included "going out and finding multiple accessions of wildflowers and crossing those to get a tighter, more uniform habit, increase draft tolerance, and selecting for salinity tolerance", McKenney explained. Those cross-bred plants were then released for use in landscaping, allowing for a more water conservative scape. From that research, McKenney has developed 8 different releases on plant material. McKenney has also conducted some research on olives and pomegranates. Aside from her extensive research on plant material, McKenney has done an array of educational research. Currently she is working on a USDA higher education grant that is addressing food insecurity, horticulture, and energy. Additionally, McKenney has obtained a number of educational grants, addressing various teaching styles and methods and how to get the best performance in the classroom. Being an early adopter of distance education, McKenney has published many of her papers on the effectiveness of online education. Although her time at Texas Tech has been incredibly successful with her long list of academic and research achievements, Dr. McKenney has much to look forward to in her retirement.

Upon retirement, Dr. McKenney is highly anticipating spending more time with her young grandson, who she explains, "needs a lot more grandma time." She will also be looking forward to having additional time to travel, specifically her "graduation present" of a river cruise on the Rhine. Before saying goodbye, Dr. McKenney is leaving the department with some parting advice.

"For undergraduate students, class attendance is more important that you realize. Graduate students, choose a topic you're really interested in so your research doesn't become a grind. And for incoming faculty: flexibility, flexibility, flexibility."



*"I am graduating
with the class of
2018"
-McKenney*

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Thank you for 34 years of service, Dr. McKenney!

Faculty News



Dr. Brendan Kelly was among the CASNR award recipients being honored at the annual Faculty Honors Convocation on April 18th, from which he received the *Texas Tech Alumni Association New Faculty Award (CASNR)*. Dr. Kelly was recognized for having demonstrated excellence in his teaching and research while at Texas Tech. **Dr. Kelly** was also recognized as a "President's excellence in diversity and equity award junior faculty" nominee at the President's Excellence Award Luncheon.

Along with Dr. Kelly, **Dr. Terry McLendon** was honored at the convocation with the Emeritus Faculty Certificate. The Emeritus appointment is honorary and is intended to acknowledge those who have shown exemplary service as well as having been a long and faithful member of the University, and is awarded at retirement.



Assistant professor of Cell Wall Biology, **Dr. Venugopal Mendu**, was honored with receiving the Chancellor's Council Distinguished Faculty Award, being the highest faculty honor in the University System.

Assistant professor of Urban Soils, **Dr. JD Booker**, will be making a move to Amarillo as he has taken a new position for Consolidated Nuclear Security, LLC in the Environmental Compliance Department. Dr. Booker will be located at the Pantex Plant as the "section manager for a group of scientists tasked with environmental review, natural resource management, and ecological monitoring", explained Booker. He started his professional career as a soil scientist in the same section back in 1993. Congratulations Dr. Booker, you will be missed!



Texas Tech University and The Department of Plant & Soil Science has hired its first National Academy of Science (NAS) faculty member. **Luis Rafael Herrera-Estrella** will be joining the Plant & Soil

Science faculty on October 1st of this year. Herrera-Estrella is currently one of the world's leading cotton genomics researchers and was elected as a Foreign Associate Member of the (NAS) in 2003. He has been tasked with assembling a team of scientists and developing an institute in order to examine how plants adapt to thrive in the presence of environmental stresses such as extreme heat and cold, drought and in the presence of brackish water sources. Herrera-Estrella's addition to Texas Tech University and the Department of Plant & Soil Science will prove to be the next-step in advancing the University's already glowing reputation as a research institution.



Dr. Katie Lewis, assistant professor with a joint appointment with Texas A&M AgriLife Research, was featured in an article published through "The Hub @ TTU". The article can be found at the following link: <http://www.ttuhub.net/2018/05/texas-tech-soil-professor-uses-deep-roots-for-research-motivation/>



Research Faculty Fellow (OVPR), Professor & BL Allen Endowed Chair of Pedology (PSS), **Dr. David Weindorf** will be participating in the TechConnect Conference, where his innovation has been selected to be showcased.

Dr. Weindorf, along with his colleague, Somsubhra Chakraborty from the Indian Institute of Technology in Kharagpur, have been working with combining data sets from the Portable X-Ray Fluorescence Spectroscopy (PXRF) and the Visible Near-Infrared Diffuse Reflectance Spectrometry (VISNIR DRF) for use in soil testing. They will be attending TechConnect in May in order to sell this "idea of combining these data into a seamless instrument so when somebody goes onto the field they just pull the trigger", explained Dr. Weindorf. They are looking forward to meeting with industry and funding agencies to showcase this innovative idea.



Dr. Benildo de los Reyes, Professor and Bayer CropScience Chair at PSS recently received a grant for \$116,819 from the USDA-NIFA-AFRI as part of a multi-disciplinary and multi-institutional coordinated research project to address the burgeoning threats of food-borne pathogens to agriculture and human health across the 'farm-to-fork' milieu.



Dr. Glen Ritchie, Associate Professor of Crop Physiology with joint appointment with Texas AgriLife Research, and his crop physiology group received a grant for \$60,684 from Indigo Agriculture for 2018 to test the use of microbial agents to improve the water and nitrogen use efficiency of cotton.



Graduate Student Highlight: Shelby Young



Shelby Young, M.S. student in the Plant & Soil Science Department, is no newcomer to the West Texas area. Young grew up just 50 miles North of the Hub City in Halfway, TX on her family farm. During her high school years, she found her interest of agricultural research through working with Texas A&M AgriLife Research. Young found her way to Texas Tech University, earning her B.S. in Plant & Soil Science in the Fall of 2016. She decided to extend her time in the department in pursuit of a M.S. under the guidance of Dr. Jason Woodward, aiming her research efforts toward cotton diseases. Specifically her "research

focuses on the efficacy of fungicide treatments and agronomic practices in managing cotton disease, as well as comparing methods for quantifying fungal pathogen populations in field soils to estimate disease pressure", explained Young.

Young is a member of the Gamma Beta Phi and Phi Kappa Phi honor societies as well as the American Phytopathological Society. To add to that list, she participated as an intern with the U.S. House of Representatives Committee on Agriculture through the CASNR Congressional Internship program. Earlier this year Young had the unique opportunity to travel to Australia in order to shadow plant pathologist, Dr. Karen Kirkby. Kirkby works through the New South Wales Department of Primary Industries (NSW DPI) Australian Cotton Research Institute (ACRI).

"We conducted a collaborative study with researchers at the NSW DPI comparing isolation methods used to quantify populations of *Verticillium dahliae* (causal agent of Verticillium wilt in cotton) in the soil. My trip to Australia was a follow-up to this collaborative project, where I was able to shadow in Dr. Kirkby's lab and gain a first-hand understanding of Verticillium wilt in Australian Cotton. Through this experience I gained an incredible amount through learning lab protocols and field sampling techniques, forging relationships in the Australian cotton industry, and being able to spend time with Dr. Kirkby as a mentor." -Shelby Young

Young noted this trip as being the "highlight of [her] education", thus far. She will continue to utilize the lessons learned and experiences gained in her future education and collaborative efforts.

Upon completion of her Master's degree, Young hopes to pursue a Ph.D. in Agricultural and Applied Economics.

Important
dates:

April

20: PSS Spring
Plant Sale

20: PSS Seminar
Series

27: Arbor Day

May

8: Last day of
classes

18-19:
Commencement

Student News



Mark McDonald, MS Student in the Department of Plant and Soil Science and research assistant for Texas A&M AgriLife, traveled to Washington, D.C. for the Congressional Visit Days through ASA, CSSA and SSSA. **McDonald** made this trip in order to advocate for increased scientific research funding as well as increased AFRI grant funding.

The following PSS students were honored at the CASNR honor awards banquet: **Ciera Ware** (Crop Science): Outstanding Plant and Soil Science Student Award; **Jessica Dotray** (Horticulture and Turfgrass): Highest Academic Achievement in the Department and Outstanding Student in the discipline of Plant and Soil Science; **Delaina Pearson** (Environmental Soil and Water): CASNR Natural Sciences Award

The following PSS students have been selected to serve as Agri-Techsans for the upcoming year: **Jessica Dotray**, Senior, Horticulture and Turfgrass Science; **McKenna Keelle**, Junior, Viticulture and Enology; **Carlie Shea Witte**, Junior, Crop Science

If you have questions or comments regarding any information on this newsletter, or to be removed from the PSS distribution database, please contact Annalisa Clark, Communications and Recruiting Coordinator, annalisa.clark@ttu.edu



Student News



From left to right: **Travis Tucker**, Senior; **Sage Lovelace**, Sophomore; **McKenna Keele**, Junior; **Brenham Gordon**, Sophomore; **Cameron Krenek**, Junior (not pictured). Viticulture and Enology students received scholarships at the 2018 Newsome Grapeday in Plains, TX. Each student received \$1,500 from the "Hoss Newsome Viticulture Scholarship".



Krishna Bhandari received the *Gerald O. Mott Crop Science Meritorious Graduate Student Award*. Krishna's advisor is Dr. Chuck West.



Joseph Burke received the *George Tereshkovich Plant and Soil Science Outstanding Masters Student award*. Joseph's advisor is Dr. Katie Lewis.



Sumedha Liyanage received the *George Tereshkovich Plant and Soil Science Outstanding Doctoral Student*. Sumedha's advisor is Dr. Nourredine Abidi.



Fourteen floral arrangements were featured in the floral design exhibition as part of the final project for the Plant and Soil Science 2301 Floral Design course, taught by **Russel Plowman**. The students were tasked to design and create their interpretation of Antonio Vivaldi's four violin concerto, "The Four Seasons". Judges were brought in to determine the top arrangements. Among the winners were **Jacey Snapp**, Sophomore studying Agricultural Communications; "Falling for Fall" (first); **Merit Mitchell**, Sophomore studying accounting; "Spring Awakening" (first); **Macy Hering**, Freshman studying Biology; "Willow Fairy" (second); **Alexandira Taylor**, Sophomore studying General Business; "Chirping Weather" (third).

THE FOLLOWING STUDENTS GRADUATED IN THE MAY 2018 COMMENCEMENT CEREMONIES:

Bachelor's degree recipients: John Bennett, Ryan Bly, Carson Bowman, Rodney Darnell, Rachel Elder, Sabrina Gallegos, James Legg, Allen (Parker) McKee, David Mueller, Delaina Pearson, Grayson Polvado, Lauren Robinson, Taylor Szymanski, Nathaniel Turner

Master's degree recipients: Brian Baker, Amee Bumguardner, Joseph Burke, Jason Grams, Morgan Martin, Irish Pabuyon, Hardy Parsons, Raman Uppal, Cody Vavra

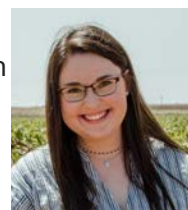
PhD degree recipients: Haydee Laza

Delaina Pearson received the Outstanding Undergraduate Research award for CASNR. **Pearson**, a native of Canada, has been working as a volunteer in the lab for the last two years under the direction of **Dr. David Weindorf**, leading to two publications in the Journal of Hydrology as a senior author.

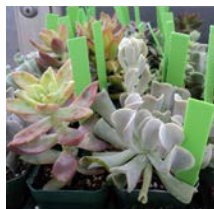


Master's student, **Rael Otuya** has been awarded a fellowship to attend the Future Leaders forum at the Association of International Agriculture and Rural Development (AIARD) annual conference in Washington, DC. Otuya is conducting her research in soil health and microbial community dynamics in sustainable pasture ecosystems under the direction of her advisor, **Dr. Lindsey Slaughter**.

McKenna Keele, Junior Viticulture & Enology student has been chosen to receive a \$2000 scholarship from Hill Country Master Gardeners.



PSS News



This April, the PSS greenhouse manager, **Vikram Baliga**, and staff organized their annual plant sale, selling a vast array of products. The products included tomato plants, herbs, succulents and more; most of which were grown at the greenhouse. Nearly 1000 plants were sold this year. The proceeds from the sale will go toward funding renovations on the greenhouse and the surrounding horticulture gardens. **Baliga** would like the renovations to transform the area into a more versatile and inviting spot for students to spend their time while on campus. Eventually, he hopes the greenhouse and gardens could be used as a venue for events, such as campus convocations and weddings. If you would like to donate to the renovation fund, please contact the greenhouse manager, Vikram Baliga at vikram.baliga@ttu.edu.

The following presentations and publications were published in the last two quarters:

- **Bhandari, K.B., West, C.P., Longing, S.D.**, 2018. Fly Densities on Cattle Grazing 'WW-B.Dahl' Old World Bluestem Pasture Systems. *Texas Journal of Agriculture and Natural Resources*. 31: 1-5.
- **Bhandari, K. B., C. P. West, S. D. Longing**, C. P. Brown, and P.E. Green. 2018. Comparison of arthropod communities among different forage types on the Texas High Plains using pitfall traps. *Crop, Forage and Turfgrass Management*. 4 (1): 180005. doi:10.2134/cftm2018.01.0005.
- **Pearson, D., D.C. Weindorf**, S. Chakraborty, B. Li, J. Koch, P. Van Deventer, J. de Wet, and **N. Yaw Kusi**. 2018. Analysis of metal-laden water via portable X-ray fluorescence spectrometry. *Journal of Hydrology* 561:267-276.
- Ribeiro, B.T., **D.C. Weindorf**, B.M. Silva, D. Tassinari, L.C. Amarante, N. Curi, and L.R.G. Guilherme. 2018. The influence of soil moisture on oxide determination in tropical soils via portable X-ray fluorescence. *Soil Science Society of America Journal*, doi:10.2136/sssaj2017.11.0380
- Brevik, E.C., K.L. Vaughan, S.J. Parikh, H. Dolliver, D. Lindbo, J.J. Steffan, **D.C. Weindorf**, P. McDaniel, M. Mbila, and S. Edinger-Marshall. 2018. Trends in undergraduate soil science education - the 2004-2005 to 2013-2014 academic years. *Soil Science Society of America Journal* doi:10.2136/sssaj2017.10.0346.
- Rafael, R.B.A., M.L. Fernandez-Marcos, S. Cocco, M.L. Ruello, **D.C. Weindorf**, V. Cardelli, V. Cardelli, and G. Corti. 2018. Assessment of potential nutrient release from phosphate rock and dolostone for application in acid soils. *Pedosphere* 28(1):44-58.
- **Deb, S.**, M.K. Debnath, S. Chakraborty, **D.C. Weindorf**, D. Kumar, D. Deb, and A. Choudhury. 2018. Impact of anthropogenic and agricultural intensification on forest land use and land cover change and modelling for future possibilities: A case study from Himalayan Terrain. *Anthropocene* 21:32-41.
- McGladdery, C., **D.C. Weindorf**, S. Chakraborty, B. Li, L. Paulette, D. Podar, **D. Pearson, N.Y.O. Kusi**, and **B. Duda**. 2018. Elemental assessment of vegetation via portable X-ray fluorescence (PXRF) spectrometry. *Journal of Environmental Management* 210:21-225.
- **Li, C.**, L.M. Fultz, J. Moore-Kucera, V. Acosta-Martinez, **M. Kakarla**, and **D.C. Weindorf**. 2018. Soil microbial community restoration in Conservation Reserve Program semi-arid grasslands. *Soil Biology and Biochemistry* 118:166-177.
- Eder, Z. P., **S. Singh**, D. Fromme, G. Collins, F. Bourland and G. Morgan (2018). Impact of cotton leaf and bract characteristics on cotton leaf grade. *Crop, Forage & Turfgrass Management*. 4: 170048. doi:10.2134/cftm2017.07.0048.
- **N. Abidi, M. Manike**. X-Ray diffraction and FTIR investigations of cellulose deposition during cotton fiber development. *Textile Research Journal*, 88(7) (2018) 719-730
- **S. Acharya**, Y. H, **N. Abidi**. Investigation of mild condition dissolution of high molecular weight cotton cellulose in 1-butyl-3-methylimidazolium acetate (BMIMAc)/N,N-Dimethylacetamide (DMAc) solvent system. *J. Applied Polymer Science*. 135(9) (2018) DOI: 10.1002/APP.45928.
- R.S. Dassanayake, Hbe. Rajakaruna, **N. Abidi**. Preparation of aerochitin- anatase TiO2 composite for efficient photocatalytic degradation of methylene blue. *J. of Applied Polymer Science*. 135(8) (2018) DOI: 10.1002/APP.45908
- R.S. Dassanayake, C. Gunathilake, **N. Abidi**, M. Jaroniec. Activated Carbon Derived from Chitin Aerogels: Preparation and CO2 Adsorption. *Cellulose*. 25(2018) 1911-1920
- **A. Bouyanfif, S. Liyanage**, E. Hequet, N. Moustaid-Moussa, **N. Abidi**. Review of FTIR microspectroscopy applications to investigate biochemical changes in *C. elegans*. *Vibrational Spectroscopy*. 96(2018) 74-82
- **Weindorf, D.C.**, S. Chakraborty, B. Li, **S. Deb, A. Singh**, and N.Y. Kusi. 2018. Compost salinity assessment via Portable X-ray fluorescence (PXRF) spectrometry. *Waste Management* 78:158-163.
- **K. L. Lewis, J. A. Burke**, W. S. Keeling, D. M. McCallister, P. B. DeLaune, and J. W. Keeling. Soil Benefits and Yield Limitations of Cover Crop Use in Texas High Plains Cotton. *Agronomy Journal* 2018. 02. 0092. DOI:10.2134
- Kellum, D.S., M. K. Shukla, J. Mexal, and **S. K. Deb**. (2018). Greenhouse gas emissions from pecan orchards in semi-arid Southern New Mexico. *HortScience* 53(5): 704-709. doi: 10.21273/HORTSCI12773-17
- Cocco, S., V. Cardelli, F. Bigaran, L. Massaccesi, A. Agnelli, **D.C. Weindorf**, C.L. Ping, G.J. Michaelson, and G. Corti. 2018. Latitudinal transect relationship between soil organic horizons and permafrost depth in Alaska. *Applied Soil Ecology* 123:588-596.