



July  
August  
September  
2015

# The Department of Plant and Soil Science NEWSLETTER



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## Dr. Sanjit Deb named new faculty member

Dr. Sanjit Deb, an expert in soil physics and hydrology, has been named an assistant professor in Texas Tech's Department of Plant and Soil Science. He officially stepped into his new teaching and research post on July 1.

Dr. Deb indicated that he is interested in continuing his research efforts in soil and water resources management in water-limited and irrigated agricultural production systems, as well as other natural and managed ecosystems. His research interests particularly focus on applied soil physics, soil-water-plant-atmosphere relationships, spatial and temporal variability of soil properties, and vadose zone flow and transport processes and hydrological modeling under different land use and management systems at multiple scales.

One of his primary goals here at Tech is to expand and diversify his interdisciplinary focus on basic and applied environmental soil physics and hydrological research and strengthen collaborative research efforts for sustainable management and conservation decisions of soil and water resources in croplands, rangelands, and other natural and managed ecosystems.

Prior to joining the Tech faculty, Dr. Deb worked as a post-doctoral fellow in environmental soil physics at New Mexico State University's Department

of Plant and Environmental Sciences. He also served as an assistant researcher in the Watershed Hydrology Lab at the University of Hawaii-Manoa's Department of Natural Resources and Environmental Management. Dr. Deb worked as a project researcher with the Soil Physics and Soil Hydrology Lab at The University of Tokyo's Department of Biological and Environmental Engineering, Graduate School of Agricultural and Life Sciences. Earlier he served as a research associate and research engineer in the Water Engineering and Management Program of Asian Institute of Technology's School of Civil Engineering.

Dr. Deb received his bachelor's degree in agricultural engineering from Bangladesh Agricultural University-Mymensingh. His master's degree in irrigation engineering and management is from Asian Institute of Technology (Pathumthani, Thailand). His doctorate degree in biological and environmental engineering is from The University of Tokyo-Japan.

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## New Bayer Plant Science Building Update

The new wing addition is coming along nicely! We are still set for the building move-in in late September.

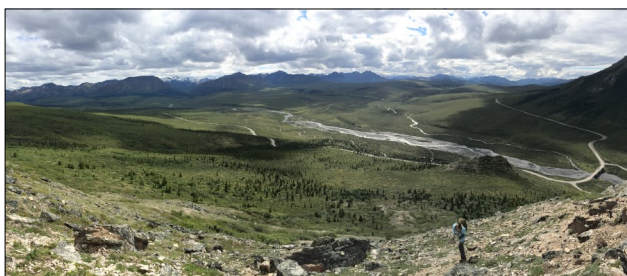




## Grants & Research Update

In collaboration with the USDA-NRCS, University of Alaska Fairbanks, and the Soil Science Society of America, Texas Tech will embark on the production of a documentary film on the impact of global climate change on arctic soils in Alaska. Filming is set to begin mid-July on site in Alaska. **Dr. David Weindorf** conceived of the idea and has been instrumental in getting this project moving, as well as raising funds from various sources. Topics to be covered in the documentary include: carbon sequestration and its impacts on climate change, greenhouse gas emissions from melting permafrost, regional permafrost melting, frost-heaving and thermokarst development, glacial deposits, cryopedogenesis, periglacial and patterned ground processes, cryoturbation, soil organic carbon dynamics, the role of arctic fauna, vegetation and fire in frozen soil genesis, arctic wetlands, hydric soil indicators, oil/mineral exploration, unique engineering challenges (e.g., pipelines, building construction), special management of state and federal lands (ANWR, Denali, Gates of the Arctic) in Alaska due to limited access, and tundra rehabilitation. The film will be written and targeted at an audience with a high school/college level education to give them a better understanding of an ecosystem which few people in the lower 48 states understand or have visited. The film will be produced by Texas Tech Public Media with a national release date set for some time in 2016, with Dr. Weindorf serving as executive producer of the film.

Funding for this project includes: TTU President Nellis- \$10,000; Soil Science Society of America- \$10,000; University of Alaska, Fairbanks- \$10,000; USDA-NRCS- \$50,000; and the BL Endowment in Pedology at Texas Tech- \$20,000.



For the past five years or so, **Dr. Pete Dotray** has worked closely with Monsanto to evaluate experimental germplasm for herbicide tolerance. These experimental lines contain tolerance to glyphosate (Roundup), glufosinate (Liberty), and dicamba (Clarity). In the studies, Dr. Dotray applies maximum herbicide rates, and maximum seasonal use rates through sequential applications. He monitors herbicide-induced visible crop injury, final crop stand, location of fruiting branches, total yield, and lint quality. The location is one of just a few locations that Monsanto uses for some of this testing. Dr. Dotray also works closely with several other industry partners, including Bayer Crop Science, BASF, DuPont, Syngenta, and others to investigate effective weed management systems in cotton, and crops grown in rotation with cotton. These studies include commercially available herbicides, as well as herbicides under development. Other areas being tested this year include: the Enlist Cotton system (cotton tolerant to 2,4-D Choline), influence of water quality on herbicide activity, importance of time of day for herbicide applications, importance of carrier volume and spray tip selection, and weed resistance management.





# Faculty News

Dr. **Noureddine Abidi** received the Lubbock AWC Headliner Award for recent research on the medicinal use of cotton.

Dr. **David Weindorf** presented a seminar on the Development of application for new technologies in field soil survey for the Food and Agriculture Organization of the United Nations. In Rome Here is a link to the flyer: [http://www.fao.org/nr/water/FAO\\_TEXASTECH/index.html](http://www.fao.org/nr/water/FAO_TEXASTECH/index.html)



Dr. **Scott Longing** and his students have been assisting the Harwell Elementary Garden Club in the development of their school garden, including a new bee hotel.

Dr. **Thayne Montague** received the President's Excellence in Advising Award in 2015.

Dr. **Venu Mendu**, along with Dr. Sudini and Rajeev Varshney of ICRISAT, India, have received funding from USAID's Future Food Security Innovation Center for a project titled "Deciphering seed coat cell wall factors underlying peanut resistance to *Aspergillus flavus* infection and aflatoxin production." This project aims to create research partnerships, emphasize new dynamic collaborations to enhance a new food security agenda.

The following publications and presentations have been made over the last few months:

- **Young, J., T.K. Udeigwe, D.C. Weindorf, T. Kandakji, P. Gautam**, and M. Mahmoud. 2015. Evaluating management-induced soil salinization in golf courses in semi-arid landscapes. *Solid Earth* 6:393-402.
- **Herrero, J., D.C. Weindorf**, and C. Castañeda. 2015. Two fixed ratio dilutions for soil salinity monitoring in hypersaline wetlands. *PLOS One* doi: 10.1371/journal.pone.0126493.
- **Fu, M.M., B. Huang, M.M. Jia, W.Y. Hu, W.X. Sun, D.C. Weindorf**, and Q. Chang. 2015. Effect of intensive greenhouse vegetable cultivation on selenium availability in soil. *Pedosphere* 25(3):343-350.
- **S. Liyanage, N. Abidi, D. Auld**, H. Moussa. Chemical and physical characterization of galactomannan extracted from guar cultivars (*Cyamopsis tetragonolobus* L.). *Industrial Crops and Products*, 74(2015) 388-396.
- **S.S. Spearman, I.V. Rivero, F. Irin, M.J. Green, N. Abidi**. Effect of dsDNA Wrapped Single-Walled Carbon Nanotubes on the Thermal and Mechanical Properties of Polycaprolactone and Polyglycolide Fiber Blend Composites. *Polymer*, 56 (2015) 476-481.
- **N. Abidi, S. Liyanage, D. Auld**, L. Norman, K. Grover, S. Augadi, S. Singla, C. Trostle. 2015. Chapter 12: Challenges and Opportunities for Increasing Guar Production in the United States to Support Unconventional Oil and Gas Production. Eds. V. Uddameri, A. Morse, and K. Tindle. CRC Press. ISBN 9781498721172.
- **N. Abidi and S. Liyanage**. 2015. Chapter 13: Characterization of the Properties of Guar Gum to Improve Hydraulic Fracturing Efficiencies. Eds. V. Uddameri, A. Morse, and K. Tindle. CRC Press. ISBN 9781498721172.
- **B. Kelly, N. Abidi, D. Ethridge, E. Hequet**. 2015. Fiber to Fabric. In: *Cotton 2<sup>nd</sup> Edition*, American Society of Agronomy, ISBN: 978-0-89118-626-7.



## PSS News

**FBRI** hosted a group of Cochran Program Fellows from Pakistan July 2-11. The purpose of the visit was to educate the participants about Texas cotton from farms to textiles. They observed the advanced cotton infrastructure on the Texas Plains and met with representatives of the various segments of the industry. They were educated about the research, the technology, the fiber quality, and the movement of cotton through the global marketing system. Special hosting was provided by the cotton merchants who are members of the Lubbock Cotton Exchange.

**TAWC** has produced a new infographic explaining the conservation of irrigation water. The infographic can be found at [https://youtu.be/GWUZpVQv9\\_E](https://youtu.be/GWUZpVQv9_E)

Faculty members have been participating in weekly radio interviews on KFYO each Wednesday morning. You can find a link to the recordings: <http://bit.ly/1R9qnRa>.

The PSS Website features a new section of photos and videos from various aspects of our research and labs. Visit "The Turnrow" on the website to see more! It's updated frequently! <http://www.pssc.ttu.edu/turnrow.php>



## Important Dates

### July

- 2-3: Summer 1 Finals
- 7: First day of summer 2 classes

### August

- 5: Last day of class
- 6-7: Summer 2 Finals
- 8: Commencement
- 24: First day of Fall classes

### September

- 5: TTU vs. Sam Houston State University
- 7: University Holiday, offices closed
- 9: Last day for student initiated drop
- 12: TTU vs. UT El Paso
- 19: TTU vs. University of Arkansas
- 26: TTU vs. TCU

If you have questions or comments regarding any information on this newsletter, or to be removed from the PSS distribution database, please contact Christi Chadwell, Communications and Recruiting Coordinator, [Christi.chadwell@ttu.edu](mailto:Christi.chadwell@ttu.edu)

## Events

The Second Annual Turf Field day will be held Monday, July 13th.



## Turfgrass Field Day

Monday, July 13, 2015

Texas Tech Quaker Research Farm

Registration 7-8:00 a.m.

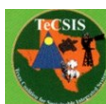
Event: 8:00 a.m. to Noon



There will also be afternoon sessions following the Turf Field Day geared to Sports Turf Managers, on July 13th, 1:30-4 p.m.

AFTERNOON SESSION – 1:30 pm – 4:00 pm

The afternoon session will be hosted by the TXSTMA and will be geared to Sports Turf Managers. Current and New TXSTMA members attend all events for free. New members can join for only \$30 and their membership will last through 2016!



## Forage & Livestock Field Day

TeCSIS & TAWC

Field Day Topics :

- Establishing BDahl old world bluestem in tilled seedbed.
- PMDI (precision mobile drip irrigation) lines performance for non-row-crop use.
- Sorghum use for stocker and dairy cattle.
- View several BDahl, alfalfa, sweet clover, teff grass, native grass and cattle nutrition demonstration sites.

### New Deal Research Farm

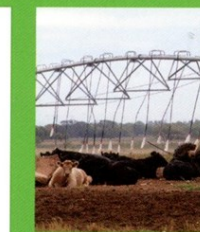
Located on FM 1729, about 6 miles east of New Deal

Thursday - July 9, 2015

8:30 a.m. - 1:30 p.m.

- Free of charge and lunch provided. -

For final agenda, check the TAWC website:  
[www.tawc.us](http://www.tawc.us)



## Student & Staff News

PSS Graduate Student, **Victoria Xiong** placed 1st in the 2015 Texas Tech Annual Biological Science symposium in the oral presentation titled: "Digital image analysis of Old World bluestem canopy cover to predict leaf area and yield ." She also placed 1st at the Annual Graduate Student Research Poster Competition at Texas Tech with the same poster.

**Erick Barkowsky**, an entering freshman in Plant and Soil Sciences who won both the Individual Area II and State FFA Entomology CDEs, has been awarded a \$10,000 scholarship from the Fort Worth Stock Show Syndicate.



**FBRI** is hosting a Fulbright Scholar from Morocco and an undergraduate international Student from France. Fulbright Visiting Scholar: Professor Rachid Salghi, University Ibn Zohr Agadir, Morocco. Undergraduate Student intern: Maria Hountondji, University of Paris XIII.