



July  
August  
September  
2016

# The Department of Plant and Soil Science NEWSLETTER

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## Research Assistant Professor

### Dr. Sukhbir Singh

Sukhbir Singh has been named a research assistant professor in soil and water agroecology with Texas Tech's Department of Plant and Soil Science, according to officials within the College of Agricultural Sciences and Natural Resources. He officially stepped into his new post on March 1.

Singh indicated that he is interested in continuing his research efforts in plant water relations, stress physiology, irrigation management, crop modeling, crop production and soil health. His research interests mainly focus on soil-plant-environment interactions to develop a cropping system that is efficient in using the limited irrigation water resources and rainfall.

One of his primary goals here at Tech is to develop multi-disciplinary research to investigate the effect of climate change on crop physiology and production for efficient use of resources in irrigated as well as dryland cropping systems and to simulate future threats on crop productivity for sustainable agriculture.

Prior to joining the Tech faculty, Singh worked as a graduate research assistant in New Mexico State University's Department of Plant and Environmental Sciences and as a research associate in the Indian Council of Agricultural Research (New Delhi) National Professor Project at Punjab Agricultural University.

Singh received his bachelor's degree and master's degree in agronomy from Punjab



Agricultural University (Ludhiana, India). He also received a master's degree in plant and environmental sciences from New Mexico State University. His doctorate in plant and environmental sciences is from New Mexico State University. He is a member of the American Society of Agronomy, Crop Science Society of America, Soil Science Society of America, and Gamma Sigma Delta.

*Narrative written by Norman Martin in the CASNR Dean's Office*

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## Grant & Research Update

Dr. Chuck West has received two grants from the USDA to further one of the strength areas of the Plant and Soil Science department, sustainable use of water for agricultural production. The projects will provide farmers with information on how to deal with declining well outputs from the Ogallala Aquifer. The water level of the aquifer is dropping an average of one foot per year. This translates into less irrigation water available for high-yielding row crops and loss of profitability from agriculture. Each grant addresses a different set of options that producers can use to sustain their enterprises.



The USDA Southern Sustainable Agriculture Research and Education program renewed an annual grant going back to 2010 for researching beef production on pastures using a combination of limited-irrigation input on improved species and dryland management of native grasses. The grant supports the maintenance of 150 acres of pastures at the Texas Tech research farm at New Deal, which are divided into 11 pastures in each of three replications. Very few universities in the U.S. possess such extensive facilities for research on grazing. The program is featured at this web site: <http://www.southernsare.org/highplainswaterconservation>

The aim of the current research is to compare the water use efficiency of growing beef cattle either on grass receiving nitrogen fertilizer vs. grass mixed with alfalfa receiving no nitrogen fertilizer. Alfalfa is a perennial legume that fixes nitrogen, therefore providing high protein in the diet. Dr. West and his students are investigating whether the potential drawback of alfalfa having a relatively high water requirement is offset by the ability of cattle to grow faster on the highly nutritious alfalfa mixed with grass. This allows calculation of a “water footprint” for beef production, a number which the meat industry needs as it promotes reduced use of nonrenewable inputs.

Dr. West coordinates a Texas Tech collaboration with seven other universities in the Great Plains on a USDA grant aimed at identifying and transferring technologies that promote efficient crop irrigation. The \$10 million, four-year project is led by Colorado State University. Other TTU-affiliated faculty include adjunct professor Veronica Acosta-Martinez (with USDA Agricultural Research Service) and Dr. Venki Uddameri of the TTU Water Resources Center. Dr. Acosta-Martinez will relate soil health characteristics to water conservation by crops. Dr. Uddameri will develop an aquifer-wide hydrologic model to better understand how irrigation management affects groundwater sustainability. Dr. West will coordinate outreach and education activities in the Texas Alliance for Water Conservation with expanded

extension activities with partner institutions. This will include workshops for producers on irrigation scheduling and field demonstrations of new irrigation equipment that reduces water losses to evaporation.



# PSS News

The Annual **Turf Field Day** will be held on Monday, July 11th at the Quaker Ave Research Farm. Registration will start at 7 a.m. with presentations beginning around 8:30 a.m. Lunch will follow the conclusion of the talks. Please join us for this event!

*Between Earth and Sky* film released its second film trailer on [www.betweenearthandskymovie.com](http://www.betweenearthandskymovie.com).

On June 9, 2016 in Ljubljana, Slovenia, Dr. **Noureddine Abidi** attended the 16th World Textile Conference: Autex 2016 and presented the Candidacy of Texas Tech University to become an Autex member. The Autex Board voted unanimously to accept TTU as a member of the Autex. Specifically, the board members welcomed and acknowledged the strong cotton research program currently underway at the Fiber and Biopolymer Research Institute.

The Association of Universities for Textiles (Autex) is an association of World Universities with established international reputations in textile education and research. It was founded in 1994 and currently has 34 members from 28 countries. Its mission is to facilitate co-operation amongst members in high level textile education and research. The objectives of the Autex are to: promote the activities and achievements of the member Universities on a global stage, facilitate co-operation in development and delivery of high level courses and teaching materials amongst member Universities, encourage student and staff mobility and networking amongst members, facilitate the growth of active research partnerships amongst members, organize annual symposia to disseminate cutting-edge issues to textile professionals and students.

A retirement party for Dr. **Dick Auld** was recently held at the PSS Greenhouse and Gardens complex. Here are some pictures from the event



## Alumni Spotlight

Chace Hill is the manager of Krick Hill Vineyards and Owner/Operator of Chace Hill Vineyard Consulting, LLC. Chace is a fifth generation family farmer, born and raised in Levelland, Texas. Chace attended Texas Tech attaining a degree in Horticulture. Chace now manages his family's vineyard, Krick Hill Vineyards, established in 2002, located 10 miles west of Levelland in Hockley County. Chace also owns and operates Chace Hill Vineyard Consulting, LLC, which provides vineyard consulting services on the High Plains. Chace, along with two business partners, are currently developing and establishing the first winery to be located in Hockley County. Prior to venturing into viticulture, Chace farmed peanuts, soybeans, cotton, alfalfa, cucumbers, corn, and sorghum. Chace is on the Board of Directors for the Texas Wine and Grape Growers Association Foundation and is the Region One Winery Director. He has served for the past three years on the Board for the High Plains Wine Growers Association. Chace's wife, Elizabeth Hill, also a Tech grad, practices law in Lubbock, including wine and vineyard law. Chace and Elizabeth have four children.



# Faculty News

Dr. **Eric Hequet** was a keynote speaker at the World Cotton Research Conference in Brazil in May 2016.



Dr. **Ed Hellman** and his research projects were featured in the VPR's video series "In the Field" episode 2: Experimenting with Wine. The link to the video can be found here: <http://www.depts.ttu.edu/vpr/inthefield/index.php>



Dr. **Nouredine Abidi** attended a reception hosted by the US Ambassador in Brussels for the 2016 Fullbright grantees in Belgium and Luxembourg.

Dr. **Abidi** also traveled to the AUTEX Conference in Ljubljana, Slovenia, where he was invited to present.

Dr. **Cynthia McKenney** and graduate student, **Alicia Patridge**, attended the California Spring Trials April 7-14. This annual horticultural event is where the green industry displays all of the new plant releases,



merchandising ideas and chemical control options for the coming year. This year, the trial team started in San Diego and drove to San Jose, visited growers and outdoor trialing sites along the way. AmericanHort (the consolidation of ANLA and OFA) organizes this annual industry event.

Dr. **Scott Longing** and Ph.D graduate student **Samuel Discua** contributed a chapter titled Bee Bio-Basics and Conservation Benefits: Essential Pieces in the Pollinator Puzzle in the newly-released book *The Business of Bees: An Integrated Approach to Bee Decline and Corporate Responsibility*. <https://www.amazon.com/Business-Bees-Integrated-Corporate-Responsibility/dp/1783534354>.

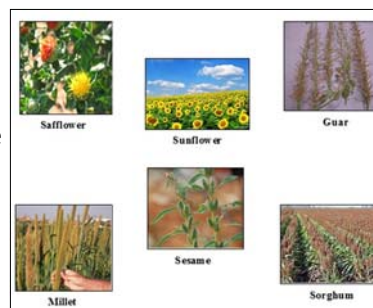


Dr. **Joey Young** received the Texas Tech Alumni Association New Faculty Award for 2016.

Dr. **Cynthia McKenney** taught a class during the Bee PowWow conference held in Lubbock April 2016.



Dr. **Sukhbir Singh** received a two-year grant (\$45,000) from the High Plains Underground Water Conservation District Board of Director to fund alternative crop systems for limited groundwater research and demonstration projects. Drs. **Dick Auld** and **Glen Ritchie** will also be collaborating on this project. The study will be conducted in 2017 and 2018 to evaluate six alternative crops (sunflower, safflower, sesame, guar, sorghum and millet) under three differential irrigation levels



The following presentations and publications were made:

- Chakraborty, S., **D.C. Weindorf**, G.J. Michaelson, C.L. Ping, A. Choudhury, T. Kandakji, A. Acree, **A. Sharma**, and D. Wang. 2016. In-situ differentiation of acidic and non-acidic tundra via portable x-ray fluorescence (PXRF) spectrometry. *Pedosphere* 26(4):549-560. doi:10.1016/S1002-0160(15)60064-9
- Zhang, W., G. Hu, Y. Dang, **D.C. Weindorf**, and J. Sheng. 2016. Afforestation and the impacts on soil and water conservation at decadal and regional scales in Northwest China. *Journal of Arid Environments* 130:98-104. doi: <http://dx.doi.org/10.1016/j.jaridenv.2016.03.003>
- R.S. Dassanayake, C. Gunathilake, **T. Jackson**, M. Jaroniec, **N. Abidi**. CO2 Capture using Activated Aerocellulose Monoliths at Low and Ambient Temperatures. *Cellulose*, 4(2016)4808-4819.
- C. Gunathilake, R.S. Dassanayake, **N. Abidi**, M. Jaroniec. Amidoxime-Functionalized Microcrystalline Cellulose-Mesoporous Silica Composites for Carbon Dioxide Sorption at Elevated Temperatures. *J. Mater. Chem. A*, 4(2016) 4808-4819.
- Q-Y. Li, J. Ye, J. Xuiang, **N. Abidi**. Structures and high fluorescence of novel nanocomposites of sodium carboxymethyl cellulose/Tb (III) prepared at different pHs. *Polymer Composites*. DOI: 10.1002/pc.24013.
- **N. Abidi**, P. Kiekens. Chemical functionalization of cotton fabric to impart multifunctional properties. *Tekstilec*, 59(2)(2016) 156-161.
- **N. Abidi**, S. Acharya, **P. Wansapura**, N. Dissanayake, Y. Hu, R. Dassanayake. Cellulose Dissolution: Promising approach for the preparation of composite materials. The Fiber Society 2016 Spring Conference. May 25-26, 2016. Mulhouse, France.
- **N. Abidi**, P. Kiekens, Functionalization of cotton fabric to impart multifunctional properties, 16th World Textile Conference: AUTEX 2016, 8-10 June, 2016, Ljubljana, Slovenia.

## Important Dates

### July:

4: 4th of July, university offices closed

7: Last day of summer 1 classes

8-9: Summer 1 final exams

12: Summer 2 classes start

### August:

10: Last day of summer 2 classes

11-12: Summer 2 Final exams

13: Commencement

24: Faculty on duty

29: First day of fall classes

### September:

1: Last day to add a course

5: Labor Day, all university offices closed

14: Last day to drop a course

*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*

## PSS Student News

Graduate students, **Aakriti Sharma**, advised by Dr. Weindorf, and **Cassie Welker**, advised by Dr. Mendu, were awarded the 2015 George Tereshkovich Plant and Soil Science Outstanding Master of Science Graduate Students.

**Lisa Baxter**, graduate student advised by Dr. West, was awarded the Mott Award by the CSSA.

Four PSS Graduate Students won an award at the TTU Graduate School Poster Competition:

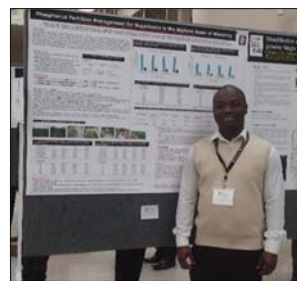
**Nana Yaw Kusi**, 1st place in Human-Plant Interactions category, "Phosphorus Fertilizer Management for Sugarbeet in the Big Horn Basin of Wyoming."

**Jaspreet Kaur**, Modelling micro environments category, "Chorizanthe orcuttiana (Polygonaceae) demography: an outcome of fine scale spatial and temporal soil moisture changes"



**Addissu Ayele**, 2nd place in the Human-plant interactions category, "Within-plant Variation in the Number of Cotton (*Gossypium hirsutum*) Fibers per Seed Surface Area"

**Sumedha Liyanage**, 1st place in the New and Improved category, "Could FTIR Imaging be used to Detect Lipid Accumulation in Tissues Related to Obesity Studies?"



Four Viticulture & Enology students were selected to receive Newsom Scholarships this year; 3 undergraduates (**Michael Hellman**, **Caitlin Joyce**, and **Dan Williams**) and 1 graduate student (**Sherah Mills**). Each received \$1,500, and awards were made at the annual Newsom Grape Day on April 15th in Plains, TX.



**Sherah Mills** and **Emily Graff**, MS students, were selected to receive Buffalo Gap Wine & Food Summit Graduate Fellowships, and were recognized at the annual event April 23rd.

**Cassiopea Roberson-Mull**, undergraduate V&E student, was awarded a \$2,000 scholarship from the Wine & Food Foundation of Texas – High Plains Chapter at their Pork & Cork fundraiser on April 29th. In the photo, left to right, are Cassiopea; Emily Simpson (2012

V&E alumnus), President WFFT-HPC; and David Deason, President-elect WFFT-HPC.

TTU Soils Judging Team competed at the national soils judging contest hosted by Kansas State University in Manhattan, KS. Out of 23 teams competing, TTU placed 8th. Of the 92 competitors, **David Brockman** placed 7th and **Trey Roach** placed 17th. Team members also competing included **Delaina Pearson** and **Morgan Hector**. Dr. **Weindorf** coached the team and assistant coach is **Bogdan Duda**.

PSS graduate student **Alicia Partridge** received a travel grant from the ASHA to attend their 2016 annual conference.

The following PSS students graduated in May 2016: PhD student: **Brady Asher**; MS students: **Mishon Hopkins**, **Suman Lamichhane**, **Cody Mull**, **Luke Obenhaus**, **Sherry Smith**; BS students: **Brady Arthur**, **Luke Johnston**, **Dylan Mccallon**, **brae Miner**, **Albert Yates Sanford**, **Scott Vardeman**, **Connor Wilmeth**, and **Amanda Comer**.

