CURRICULUM VITA

Sanjit K. Deb, PhD
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EDUCATION

2006	Ph.D.	Biological and Environmental Engineering	The University of Tokyo Tokyo, Japan
2000	M. Eng.	Irrigation Engineering and Management	Asian Institute of Technology Pathumthani, Thailand
1996	B.S.	Agricultural Engineering	Bangladesh Agricultural University Mymensingh, Bangladesh

AREAS OF EXPERTISE & INTERESTS

- Major focus: Soil physics and hydrology
- Specific research interests: vadose zone flow and transport processes, soil and water conservation and management in agricultural and natural ecosystems, soil-water-plant-atmosphere relationships, spatial and temporal variability of soil physical and hydraulic properties, hydrological (vadose zone) & agricultural systems modeling under different land uses and management systems, and climate change impact on soil physical and hydrological properties

PROFESSIONAL EXPERIENCE

09/2021 – present	Associate Professor of Soil Physics, Department of Plant and Soil Science, Texas Tech University, Lubbock, TX
07/2015 – 08/2021	Assistant Professor of Soil Physics, Department of Plant and Soil Science, Texas Tech University, Lubbock, TX (60% Teaching, 35% Research, and 5% Service)
11/2014 – 06/2015	Postdoc Researcher, Turfgrass Research Program, Department of Extension Plant Sciences, New Mexico State University, Las Cruces, NM

05/2009 – 12/2013	Postdoc Research Fellow, Environmental Soil Physics, Department of Plant and Environmental Sciences, New Mexico State University, Las Cruces, NM
05/2007 – 05/2009	Assistant Researcher, Watershed Hydrology Lab, Department of Natural Resources and Environmental Management, University of Hawaii at Manoa, Honolulu, HI
04/2006 – 04/2007	Project Researcher, Soil Physics and Soil Hydrology Lab, Department of Biological and Environmental Engineering, The University of Tokyo, Tokyo, Japan
05/2000 – 07/2002	Research Associate/Engineer, Water Engineering and Management Program, School of Civil Engineering, Asian Institute of Technology, Pathumthani, Thailand
03/1997 – 07/1998	Agricultural Engineer, Agricultural Office (Sadar Thana, Jamalpur District), Field Services Wing, Department of Agricultural Extension, Dhaka, Bangladesh

AWARDS

2021	One of the Outstanding journal papers published in Crop Science, Forage and Grazing Lands Division of the Crop Science Society of America
2018	PSS nominee for (i) President's Excellence in Teaching Award, and (ii) President's Excellence in Academic Advising Award
2017	Nominated for the Davis College Student Advising Award
2008	Outstanding Paper Award, Paddy and Water Environment Journal, International Society of Paddy and Water Environmental Engineering (PAWEES)
2009	Membership, Gamma Sigma Delta-the Honor Society of Agriculture, NMSU Chapter
10/2002 – 03/2006	Japanese Government (MONBUKAGAKUSHO) Scholarship Award (for Ph.D. study)
01/2002 – 04/2002	Regional Education Development Program (REDP – Japanese Government) Research Fellowship, Asian Institute of Technology, Thailand
05/2000 – 12/2001	Greater Mekong Subregion – Japanese Government (GMS – JG) Research Fellowship, Asian Institute of Technology, Thailand
09/1998 – 04/2000	German Academic Exchange Service (DAAD) Scholarship Award (for M.S. study)

MEMBERSHIP IN PROFESSIONAL AND HONORARY SOCIETIES

Professional:

1. American Society of Agricultural and Biological Engineers (ASABE) [1999 – present]
2. International Association of Hydrological Sciences (IAHS) [1999 – present]
3. Soil Science Society of America (SSSA) [2010 – present]
4. American Society of Agricultural and Biological Engineers NM section [2010 – 2015]
5. American Society of Agronomy (ASA) [2015 – present]
6. American Geophysical Union (AGU) [2015 to present]
7. American Society of Agricultural and Biological Engineers TX section [2016 – present]
8. Soil Water Conservation Society (SWCS) [2017 – present]
9. Soil Water Conservation Society-TX Chapter (Golden Spread Chapter) [2017 to present]
10. Japanese Society of Irrigation, Drainage and Rural Engineering [2003 – 2006]
11. Alumni Association of Asian Institute of Technology (AITAA)-Thailand [2000 – present]

Honorary:

1. Gamma Sigma Delta – The Honor Society of Agriculture [2009 – present]

TEACHING RESPONSIBILITIES /EXPERIENCE

1.	Spring Semester PSS 5335-001 (cross-listed PSS 4336-001) (*Face-to-Face*)	*Soil Physics* (cross-listed *Soil Physical Properties*). The course covers the basic principles of soil physics as they relate to agricultural, hydrological, and environmental problems. The course focuses on the physical properties of soils (or porous media), and the principles and processes that govern the flow and distribution of water, air, and heat as well as the transport of chemicals in and through soils.
2.	Spring Semester PSS 5335-D01 (cross-listed PSS 4336-D01) (*Distance*)	*Soil Physics* (cross-listed *Soil Physical Properties*) (*Distance*). The course covers the basic principles of soil physics as they relate to agricultural, hydrological, and environmental problems. The course focuses on the physical properties of soils (or porous media), and the principles and processes that govern the flow and distribution of water, air, and heat as well as the transport of chemicals in and through soils.
3.	Even Year Fall Semester PSS 6331-001 (cross-listed PSS 4337-001) (*Face-to-Face*)	*Advanced Environmental Soil Science* (cross-listed *Environmental Soil Science*). The course covers the physical, chemical, and biological properties and processes of soil as they relate to environmental quality. The course focuses on the role of soil science in the environmental arena with an emphasis on both soil degradation, conservation and management, and remediation in agroecosystems. This course especially covers topics related to the physical deterioration of soils, soil erosion by water and wind, chemical and biological degradation of soils, and soil pollution.
4.	Even Year Fall Semester PSS 6331-D01 (cross-listed PSS 4337-D01) (*Distance*)	*Advanced Environmental Soil Science* (cross-listed *Environmental Soil Science*) (*Distance*). The course covers the physical, chemical, and biological properties and processes of soil as they relate to environmental quality. The course focuses on the role of soil science in the environmental arena with an emphasis on both soil degradation, conservation and management, and remediation in

agroecosystems. This course especially covers topics related to the physical deterioration of soils, soil erosion by water and wind, chemical and biological degradation of soils, and soil pollution.

5. Fall Semester PSS 4337-001 (*Face-to-Face*) — *Environmental Soil Science*. The course covers the physical, chemical, and biological properties and processes of soil as they relate to environmental quality. The course focuses on the role of soil science in the environmental arena with an emphasis on both soil degradation, conservation and management, and remediation in agroecosystems. This course especially covers topics related to the physical deterioration of soils, soil erosion by water and wind, chemical and biological degradation of soils, and soil pollution.
6. Fall Semester PSS 4337-D01 (*Distance*) — *Environmental Soil Science*. The course covers the physical, chemical, and biological properties and processes of soil as they relate to environmental quality. The course focuses on the role of soil science in the environmental arena with an emphasis on both soil degradation, conservation and management, and remediation in agroecosystems. This course especially covers topics related to the physical deterioration of soils, soil erosion by water and wind, chemical and biological degradation of soils, and soil pollution.
7. Fall Semester 2019-2021 PSS 4340-001 (*Face-to-Face*) — *Irrigation Management Seminar*. Survey of irrigation management related to crop production and landscape management, including soil and plant water relations, mechanics and scheduling of irrigation, water management of specific crops and landscapes, regulatory aspects, and economic decision-making. Responsible (*Instructor of Record*) to teach following topics of the course: review of soil water properties; Wells, Pumps, and Meters; Irrigation systems: Layout and Controls; and Irrigation Systems: Efficiencies and improvements.
8. PSS 2432-001 (*Face-to-Face*), including PSS 2432-501 and PSS 2432-502 lab sections (Spring 2023) — *Principles and Practices in Soils.* This course introduces students to the mechanics and concepts involved in soil formation and composition, physical and chemical properties, and hydraulic and thermal relationships of soil. We will explore the role of soil in natural and agricultural ecosystems, and how it serves as the foundation for important ecosystem services such as food and fiber production, climate regulation, habitat, and natural capital for human cultural benefits. Students will gain an appreciation of the diversity and the complexity of soil as an ecosystem.
9. Problems and selected Topics in PSS and research courses: PSS 4001-001, PSS 5001-001-D01, PSS 6001-001-D01, PSS-7000-001, and PSS-6000-001

GRADUATE STUDENT COMMITTEES

Chair: M.S. and Ph.D. (Completed)

1.	Geeta Kharel (M.S)	August 2018	Title of thesis: Evaluating different models for quantifying the hydraulic and thermal properties of pasture unsaturated soils

2.	Atinderpal Singh (M.S)	August 2019	Title of thesis: Modeling root water uptake of cotton (*Gossypium hirsutum* L.) under deficit subsurface drip irrigation in West Texas
3.	Morgan B. Martin (M.S)	May 2018	Distance Soil Science (Non-thesis) Student
4.	Cole L. VonOhlen (M.S)	August 2020	Distance Soil Science (Non-thesis) Student
5.	Atinderpal Singh (Ph.D.)	December 2022	Title of dissertation: Rootzone soil water dynamics in upland cotton grown under deficit subsurface drip irrigation in the semi-arid Texas Southern High Plains

Chair: M.S. and Ph.D. (In Progress)

1.	Michael J. Hennessy (M.S.)	August 2022	Distance Soil Science (Non-thesis) Student Expected: Spring, 2023
2.	Emmalee Alatorre (M.S)	August 2022	Distance Soil Science (Non-thesis) Student
3.	Justin J. Herrin (M.S.)	May 2021-	Distance Soil Science (Non-thesis) Student (inactive/discontinued)
4.	Trenton Brooks (M.S.)	June 2021	Distance Soil Science (Non-thesis) Student (inactive/discontinued)

Co-Chair: M.S. and Ph.D. (In Progress)

1.	Eduardo Escamilla (M.S.)	August 2021	Title of thesis: Spatial variability of soil physical properties and turf characteristics in different golf course soils with contrasting clay contents in the semi-arid Texas Southern High Plains (Chair: Dr. Young)
2.	Arjun Kafle (Ph.D.)	August 2020	(Chair: Dr. Singh)

Committee Member: M.S. and Ph.D. (Completed)

1.	Li Li (M.S.)	Completed in 2017.	Title of thesis: Reducing salinity with cultivation practices and products on golf course fairways (Dr. Young)
2.	Abdullah I. Alsulaiman (M.S.)	Completed in 2017.	Title of thesis: Land use/land cover trends in 28 reservoirs of the Brazos river: A preliminary analysis using NLCD data (2001-2011) (Dr. Portillo-Quintero)
3.	Abir Raihan (M.S.)	Completed in 2018.	Title of thesis: Soil moisture estimation using unmanned aerial system and satellite images (Dr. Guo)

4.	Rael Khayeli Otuya (M.S.)	Completed in 2019	Title of thesis: Soil microbial community response to management in improved pastures of the semi-arid Texas Southern High Plains (Dr. Slaughter)
5.	Yazhou Sun (M.S.)	Completed in 2019	Title of thesis: Assessment of cotton water stress with unmanned aerial systems remote sensing (Dr. Guo)
6.	Ved Parkash (M.S.)	Completed in 2020	Title of thesis: Production of cucumber under deficit irrigation and eggplant under salinity stress: Assessment of physiology, growth, yield and water use efficiency (Dr. Singh)
7.	Randy Riddle (M.S.)	Completed in 2020	Distance Soil Science (Non-thesis) Student
8.	Lisa L. Baxter (Ph.D.)	Completed in 2017	Title of dissertation: Novel grazing management strategies for the Southern High Plains (Dr. West)
9.	Nothabo Dube (Ph.D.)	Completed in 2018	Title of dissertation: High-throughput in-situ 3-D phenotyping of cotton height, leaf area index and boll distribution (Dr. Ritchie)
10.	Abdullah Karim (Ph.D.)	Completed in 2018	Title of dissertation: A decision support framework for fit for purpose assessment in brackish groundwater units (Dr. Uddameri)
11.	Yedan Xiong (Ph.D.)	Completed in 2019	Title of dissertation: Calibration of ALMANAC and APSIM model for simulating growth of WW-B.Dahl Old World Bluestem [Bothriochla bladhii (Retz) Blake]
12.	Nana Yaw Kusi (Ph.D.)	Completed in 2019	Title of dissertation: Potassium uptake, utilization and chemistry in cotton and soils of the Texas Southern High Plains (Dr. Lewis)
13.	Madhav Dhakal (Ph.D.)	Completed in 2019	Title of dissertation: Improvement of perennial warm-season native grassland with alfalfa (Dr. West)
14.	Gondah Moses Zolue (Ph.D.)	Completed in 2020	Title of dissertation: Biochar as an amendment to improve the quality of highly degraded soils (Dr. Lewis)
15.	Nwasinachi Menkiti (Ph.D.)	Completed in 2020	Title of dissertation: Geospatial analysis of tropical deforestation in West Africa and the role of protected areas (Dr. Potillo-Quitero)
16.	Jasmine Neupane (Ph.D.)	Completed in 2021	Title of dissertation: Assessing spatial and temporal variability in cotton yield, soil properties, and profitability for precision agriculture in the Southern High Plains (Dr. Guo)
17.	Spencer Cox (M.S.)	Completed in 2021	Distance Soil Science (Non-thesis) Student

18.	Manpreet Singh (Ph.D.)	Completed in 2022	Title: Biochar Effects on soil properties and sweet corn production under deficit irrigation in a semi-arid environment (Dr. Singh)
19.	Amanda Jo Zimmerman (Ph.D.)	Completed in 2022	Title: Speciation and Bioavailability of Arsenic in Drinking Water Filtration Waste: Environmental Implications for Soils and Human Health (Dr. Siebecker)
20.	Ali Ghaseminejad (Ph.D.)	Completed in 2022	Title: Physics-inspired Machine Learning Methods for Modeling Regional Groundwater Flow Systems (Major Professor: Dr. V. Uddameri, Department of Civil, Environmental, and Construction Engineering)
21.	Rakesh Singh (M.S)	Completed in 2022	Title: Evaluating patterns of soil health and soil-water dynamics in different land uses in a semiarid area of Southern High Plains in Texas (Major Professor: Dr. Natasja van Gestel, Department of Biological Sciences, TTU)
22.	Cynthia Jordan (M.S.)	Completed in 2022	Title: Novel Soil Core Data Visualization of Diagnostic Soil Feature Pedogenesis (Dr. Siebecker)

Committee Member: M.S. and Ph.D. (In Progress)

1.	Ghazal Mohammadi (M.S. & Ph.D.)	In-progress	Title: Groundwater level forecasting using recurrent neural networks (Dr. Uddameri)
2.	Xinying Ling (Ph.D.)	-ditto-	Title: Water transport in vadose zone and the soil-plant-atmosphere continuum (SPAC) in West Texas, USA (Major Professor: Dr. Juske Horita)
3.	Raavi Arora (Ph.D.)	-ditto-	Title: Harnessing soil health to mitigate greenhouse gas emissions in semi-arid pasture ecosystems (Major Professor: Dr. Slaughter)
4.	Amanda Salcido-Herrera (M.S.)	-ditto- Expected: Spring, 2023	Distance Soil Science (Non-thesis) Student
5.	*Riley Babcock (M.S.)*		(Major Professor: Dr. Lewis)

Advisor: Graduate Certificate in Soil Management (In Progress)

1. Karina Teasdale (Completed, fall 2022)
2. Emily Lang (Expected: spring 2023)
3. Patrick J. McPartan (Date Started: fall, 2023)
4. Ricky Patel (Date Started: fall 2021)

- Joel Patchen (inactive/discontinued)
- Jessie Dunton (inactive/discontinued)

- Janice Sterling (inactive/discontinued)
- Jacob Bailey (inactive/discontinued)
- Elizabeth Skaggs (inactive/discontinued)

Advisor: Undergraduate Students (PSS)

Advise undergraduate students specializing in Environmental Soil & Water Science and Crop Science:

Fall 2015	Taken over another faculty's listing of advisees
Spring 2016	30 Undergraduate Students
Fall 2016	26 Undergraduate Students
Spring 2017	19 Undergraduate Students
Fall 2017	17 Undergraduate Students
Spring 2018	13 Undergraduate Students
Fall 2018	11 Undergraduate Students
Spring 2019	8 Undergraduate Students
Fall 2019	10 Undergraduate Students
Spring 2020	7 Undergraduate Students
Fall 2020	12 Undergraduate Students
Spring 2021	11 Undergraduate Students
Fall 2021	16 Undergraduate Students
Spring 2022	16 Undergraduate Students
Fall 2022	14 Undergraduate Students
Spring 2023	11 Undergraduate Students

TEACHING EXPERIENCES BEFORE TTU

Dept. of Plant and Environmental Sciences, New Mexico State University

- Soil water dynamics SOIL 300 M02 (Special Research Programs Spring 2012,)
- Introduction to Hydrus SOIL 598 (Fall 2011, Special Research Programs)
- Selected lectures & lab classes in Introductory Soils SOIL 252 (Fall 2011 & Spring 2013), Environmental Soil Physics SOIL 477 (Fall 2010, 2011, & 2012), Environmental Soil Physics Lab SOIL 477L (Fall 2013), and Advanced Soil Physics SOIL 652 (Spring 2011 & 2013) courses
- Graduate/Undergraduate student mentoring: (1) trained/helped two doctoral students Parmodh Sharma and Pradip Adhikari to use geostatistical program GS^{+}; (2) trained a master student Ankit Bansal to use numerical model HYDRUS-1D; (3) trained/helped a master student Harmandeep Sharma to measure plant physiological parameters such as photosynthetic and transpiration rates, stem water potential, etc.; (4) trained/helped two undergraduate students Elish Dev Bhandari and Eshan Dahal in the soil physics laboratory to perform field sampling, and laboratory analysis, and data collection from a variety of sensors installed in experimental sites; (5) trained/helped a graduate student Sasi Prabhakaran Viswanathan to process root images and analyze root length density

distributions; (6) trained/helped a graduate Ramakrishna Ramanathan Gopal to apply HYDRUS-1D and HYDRUS (2D/3D) simulation models with external parameter estimation/calibration program (PEST); and (7) trained/helped an undergraduate student Pratik Bhusan to perform field sampling and laboratory analysis.

Dept. of Natural Resources and Environmental Management, University of Hawaii–Manoa

- Selected lab classes in Watershed Hydrology NREM 662 (Spring 2009), Irrigation and Water Management NREM 463 (Fall 2008) and Hydrologic Processes in Soils NREM 660 (Spring 2008) courses
- Graduate Student mentoring: (1) trained a doctoral student Derrick Ching to use numerical model HYDRUS-2D; and (2) trained a doctoral student Amjad Ahmed (University of Hawaii at Manoa) to use the Everglades Agro-Hydrology Computer Model.

GRANTS AND AWARDS (SELECTED)

Pending:

2022

1. Co-PI, Guo, W, N. van Gestel, C. Bednarz, V. Sheng, C. Trostle, C. Wang, H. Zhang, M. Maeda, S.K. Deb, M. Siebecker, R. Shim, and S. Mauget. 2022. Building an innovation and demonstration program of AI-enabled climate-smart precision agriculture systems. USDA-NIFA, $4,000,000 (6%).

2021

1. Co-PI, J. Horita and S. K. Deb. Coupled energy-water-isotope transport in vadose zone of natural rangeland in semiarid environment. Hydrologic Sciences (HS) – National Science Foundation (NSF), $471,771 (30%).
2. Co-PI, R. Saini, S. Singh, S. K. Deb, and L. Slaughter. Industrial Hemp: Novel cover crop for vegetative production systems in the Texas High Plains, USDA-NIFA Cooperative State Research Ed & Extension Service, AFRI, $749,923 (15%) [Not funded].

Funded:

2022

1. Co-PI, Bratcher, C., Deb, S. (Lead Principal Investigator), Hudson, M., OAP: Dryland and Irrigated Crop Management Under Limited Water Availability and Drought - OAP with TTU. USDA Agricultural Research Service, $176,866 (33%)

   [Co-PI, Nathan Howell, Sanjoy Bhattacharia, Craig Bednarz, Sanjit Deb, and Bridget Guerrero. 2022. Preliminary OAP: Improving economic viability for dryland and deficit irrigation cotton crop through cotton gin waste biochar soil amendment. USDA ARS-Ogallala Aquifer Program (OAP), $152,773]

2. Co-PI, Guo, W, S.K. Deb, K. Lewis, G. Ritchie, and C. Wang. 2022. Optimizing Nitrogen Management in Dryland Cotton using Precision Agriculture Technologies in the Southern High Plains. Cotton Inc (TSSC), $25,000 (10%).

2021

1. PI, S. K. Deb and R. Shim, Effects of early season planting and soil physical environment on the growth, development, and yield of cotton germplasm with cold germination ability, TSSC-Cotton Incorporated, $20,000 (50%).
2. Co-PI, W. Guo, S.K. Deb, G. Ritchie, and K. Lewis, Optimizing nitrogen management in dryland cotton using precision agriculture technologies in the Southern High Plains, TSSC-Cotton Incorporated, $30,000 (10%).
3. Co-PI, C. Bratcher et al., OAP – Precipitation and irrigation management to optimize profits from crop production – OAP 3rd Phase with TTU, USDA-ARS Ogallala Aquifer Program (OAP), $262,723 (2%).

2020

1. PI, S. K. Deb and R. Shim, Effects of early season planting and soil physical environment on the growth, development, and yield of cotton germplasm with cold germination ability, TSSC-Cotton Incorporated, $20,000 (50%).
2. Co-PI, W. Guo, S.K. Deb, G. Ritchie, and K. Lewis, Optimizing nitrogen management in dryland cotton using precision agriculture technologies in the Southern High Plains, TSSC-Cotton Incorporated, $30,000 (10%).
3. Co-PI, S. Singh and S. K. Deb, Biochar to improve water use efficiency and soil resilience in West Texas, Texas Department of Agriculture 551, 2020 SCBGP, USDA, $72,000 (25%).
4. Co-PI, L. Slaughter, S. K. Deb, Harnessing soil health to mitigate greenhouse gas emissions in semi-arid pasture ecosystems, USDA-NIFA Cooperative State Research Ed & Extension Service, AFRI, $499,040 (20%).

2019

1. PI, Effects of early season planting and soil physical environment on the growth, development, and yield of cotton germplasm with cold germination ability, S.K. Deb and R. Shim, TSSC-Cotton Incorporated, $20,000 ($15,000).
2. Co-PI, W. Guo, S.K. Deb, G. Ritchie, and K. Lewis, Optimizing nitrogen management in dryland cotton using precision agriculture technologies in the Southern High Plains, TSSC-Cotton Incorporated, $30,000 ($3,000).
3. Co-PI, Playing surface effects from surfactants applied to creeping bentgrass putting greens, J. Young and S.K. Deb, Golf Course Superintendents Association of America (GCSAA), $40,000 ($8,685).
4. Co-PI, OAP: Precipitation and Irrigation management to optimize profits from crop production. C. West et al., USDA-ARS Ogallala Aquifer Program, $257,468 ($12,874).
5. Co-PI, Establishing an on-farm model to build soil health and productivity and sustain local food production systems in West Texas (Renewal), L. Slaughter, S.K. Deb, and D. Weindorf, Cornerstone Business Holdings-Alcove Farms, $13,357 ($4,007).

2018

1. PI, Effects of early season planting and soil physical environment on the growth, development, and yield of cotton germplasm with cold germination ability, TSSC-Cotton Incorporated, $20,000 ($15,000).
2. Co-PI, Playing surface effects from surfactants applied to creeping bentgrass putting greens, J. Young and S.K. Deb, Golf Course Superintendents Association of America (GCSAA), $40,000 ($8,685).
3. Co-PI, Establishing an on-farm model to build soil health and productivity and sustain local food production systems in West Texas, L. Slaughter, S.K. Deb, and D. Weindorf, Cornerstone Business Holdings-Alcove Farms, $15,085 ($4,590).
4. Co-PI, Sustainable Agriculture Research and Education (SARE), C. West, L. Slaughter and S.K. Deb, University of Georgia -SSARE YSE, $2,778 ($1250).

2017

1. Co-PI, OAP: Enhancing water conservation through remote sensing from unmanned systems, USDA Agricultural Research Service, $96,247, ($24,061).
2. Co-PI, Enhancing water conservation through remote sensing technology on golf course, United States Golf Association (USGA), $95,618 ($28,685).

Rejected:

2022

1. PI, Deb, S., and Shim, R. 2022. Effect of biochar amendment on soil physical environment and plant responses in early planted cotton germplasm with cold germination ability. Cotton Inc (TSSC), $32,420 (75%).
2. PI, Deb, S., Slaughter, L., and Echevarria Laza, H. 2022 Effect of soil surface treatment on soil environments and plant responses in no-tillage cotton grown under soil-crust conditions. Cotton Inc (TSSC), $32,420 (70%).
3. Co-PI, Saini, R., Slaughter, L., Deb, S., Singh, S. 2022. Can Industrial Hemp be used as a Cover Crop in Vegetable Production Systems? USDA-NIFA Cooperative State Research Ed & Extension Service, $722,682 (15%)
4. PI, Deb, S., Rahman, S. M., and Echevarria Laza, H. 2022. Preliminary OAP: Effects of different cover crops on potential groundwater recharge in upland cotton under deficit subsurface drip irrigation. USDA Agricultural Research Service, $81,214 (70%).
5. Co-PI, Guo, W., Deb, S., Ritchie, G., Wang, C., Lewis, K. 2022. Optimizing Nitrogen Management in Dryland Cotton using Precision Agriculture Technologies in the Southern High Plains. Cotton Incorporated, $43,603 (10%).
6. Co-PI, Young, J., Slaughter, L., Deb, S. 2022. Enhancing water use efficiency of turfgrass systems through compost application. Texas Department of Agriculture, $84,783 (25%).
7. Co-PI, Saini, R., Slaughter, L., Deb, S., Singh, S. 2022. Can Industrial Hemp be used as a Cover Crop in Vegetable Production Systems? USDA-NIFA Cooperative State Research Ed & Extension Service, $722,682 (15%).

8. Co-PI, Saini, R., Singh, S., Deb, S., and Slaughter, L. 2022. Industrial Hemp: Novel cover crop for vegetable production systems in the Texas High Plains. USDA-NIFA Cooperative State Research Ed & Extension Service, $749,923 (15%).
9. Co-PI, Slaughter, L., Deb, S. 2022. Preliminary Proposal (Davis College): Comparing nutrient and forage management practices to reduce grassland soil gas emissions. The CH Foundation, Inc., $103,694 (40%).

2021

1. Co-PI, R. Saini, S. K. Deb, and L. Slaughter, Industrial Hemp and Fenugreek: Novel cover crops for high tunnels to improve weed control, soil health and crop yield, Texas Department of Agriculture 551, 2021 SCBGP, USDA, $89,327 (15%).
2. PI, S.K. Deb, S.M. Rahman, S. Singh, and S. Badruddoza, OAP (Ogallala Aquifer Program): Evaluating the effects of various cover crops on potential groundwater recharge from semiarid agricultural systems, Pre-plan for the USDA-ARS Ogallala Aquifer Program, $77,086 (75%).

2020

1. PI, S.K. Deb and J. Young, Evaluating spatial variability of soil hydraulic properties to characterize the retention and transport in soils under different land uses, High Plains Underground Water District No. 1, $10,060 ($8,048).
2. Co-PI, J. Young and S.K. Deb, Effect of nitrogen fertility and surfactant on bermudagrass performance while conserving water resources, High Plains Underground Water District No. 1, $7,881 ($3,153).
3. Co-PI, L. Slaughter., Comparing nutrient and forage management practices to reduce grassland soil gas emissions, The CH Foundation, Inc. (Preliminary proposal), $103,694.
4. Co-PI, R. Saini, S. Singh, S. K. Deb, and L. Slaughter. Aromatic plants as potential crops for sustainable vegetable production in the Texas High Plains, USDA SSARE, $279,601 ($27,960).
5. Co-PI, R. Saini, S. Singh, S. K. Deb, and L. Slaughter. Aromatic plants as potential crops for sustainable vegetable production in the Texas High Plains (Preliminary Proposal), USDA SSARE.
6. Co-PI, J. Young, S. K. Deb, L. Slaughter, and S. Longing, Characterizing soil microbial communities in urban parks, The Lawn Institute, $19,822 (20%)
7. Co-PI, West et al., Integrating sorghum crops and pastures to optimize water use, economics, and ecosystem services in a declining aquifer region, SARE Systems Research (Preliminary letter of intent), $1,000,000.
8. Co-PI, W. Guo et al., SitS: A sensor network and big data system for monitoring an agroecosystem transitioning from irrigated to dryland farming, NSF Signals in the Soil, $1,199,999 ($60,000).
9. Co-PI, R. Saini, S. Singh, S. K. Deb, and L. Slaughter. Aromatic plants as potential crops for sustainable vegetable production in the Texas High Plains, USDA-NIFA Cooperative State Research Ed & Extension Service, AFRI, $459,877 ($45,988).

2019

1. PI, S. K. Deb, and S. Singh. Evaluation of potential recharge from irrigated cropping systems in Texas Southern High Plains, High Plains Underground Water District No. 1, $61,734 ($49,387).
2. Co-PI, S. Singh, S. K. Deb, and R. Saini. Improving water use efficiency and soil resilience for sustainable vegetable production in Texas, 2019 Specialty Crop Block Grant Program, Texas Department of Agriculture, $71,211 ($10,682).
3. Co-PI, S. Singh, R. Saini, and S. K. Deb. Combining biochar application with deficit irrigation to improve water productivity of vegetable production in Texas, High Plains Underground Water District No. 1, $52,290 ($7,844).
4. Co-PI, L. Slaughter, C. West, and V. Acosta-Martinez. Harnessing soil health to mitigate greenhouse gas emission in semi-arid pasture ecosystems, USDA-ARS NIFA-AFRI Foundational Knowledge of Agric. Production Systems, $500,00 ($100,000).
5. Co-PI, W. Guo et al., OIA:SitS NSF UKRI: Building a soil health monitoring and assessment system integrating sensor networks and big data, NSF Signals in the Soil, $800,000 ($40,000).

2018

1. PI, S.K. Deb, L. Slaughter, S. Singh, S. Rahman, and D. Weindorf. OAP: Integrating biochar amendment and deficit irrigation strategies to enhance soil physical quality, corn yield, and water use efficiency. USDA Agricultural Research Service, $113,956 ($22,791).
2. Co-PI, W. Guo, S. K. Deb, and D. Montague. OAP: Irrigation scheduling using unmanned aerial remote sensing and weather data. USDA Agricultural Research Service, $99,710 ($39,884).
3. Co-PI, L. Slaughter, S. Longing, S.K. Deb, C. Portillo-Quintero, J.D. Booker, and S. Singh, Influence of soil health management practices on soil-plant-pollinator interactions and ecosystem services in semi-arid production systems, USDA-NRCS Conservation Innovation Grants, $681,421 ($68,142).
4. Co-PI, W. Guo, C. West, and S.K. Deb, Irrigation scheduling using unmanned aerial system remote sensing and weather data, Texas Water Development Board-2018 Agricultural Water Conservation Grants, $307,819 ($92,346).
5. Co-PI, R. Saini, S.K. Deb, S. Singh, and L. Slaughter, Preliminary Proposal: Aromatic plants as potential cover crops for sustainable vegetable production in Texas High Plains, University of Georgia -SSARE, USDA-ARS, $247,061 ($24,706).
6. Co-PI, R. Saini, S.K. Deb, S. Singh, and L. Slaughter, New Proposal: Aromatic plants as potential cover crops for sustainable vegetable production in Texas High Plains, University of Georgia -SSARE, USDA-ARS, $260,347 ($26,035).

2017

1. Co-PI, S. Singh and S.K. Deb, Physiological response of cotton to neonicotinic seed treatments under abiotic stress, Cotton Incorporated, $20,967 ($8,387)
2. Co-PI, E. Hellman, J.D. Booker, D. Montague, S.K. Deb, S. Singh. L. Slaughter, W. Guo, R. Williams, and D. McCallister, OAP: Improving irrigation scheduling of vineyards on the Texas High Plains from enhanced water use efficiency of a

high value crop USDA), USDA-Agricultural Research Service, $187,478 ($20,623).

3. PI, S.K. Deb, L.C. Slaughter, D.C. Weindorf, Non-uniform root zone salinity and water stress effects on improved cotton varieties, Bayer Crop Science, $200,000 ($160,000).

2016

1. Co-PI, C. Fedler, V. Uddameri, S.K. Deb, and D. Doerfert, Use of nontraditional water resources for sustainable food security, New Mexico State University (Water for Agriculture Challenge Area, USDA), $977,273 ($244,319).
2. Co-PI, G. Ritchie, V. Mendu, S.K. Deb, S. Singh, and H. Sari-Sarraf, Crop growth modeling using high throughput phenotyping and genetic mapping, USDA-NIFA Cooperative State Research Ed Extension Service, $499,947 ($99,990).
3. Co-PI, S. Singh, C. West, G. Ritchie, and S. K. Deb, Guar response to drought stress: An integrated agronomic, physiological and crop modeling approach, USDA-NIFA Cooperative State Research Ed Extension Service, $499,840 ($79,975).
4. PI, S.K. Deb, L.C. Slaughter, D.C. Weindorf, Evaluating interactions among soil color, albedo, and soil thermal regime to understand early growth and development of cotton in West Texas, Bayer Crop Science, $150,000 ($112,500).
5. Co-PI, V. Uddameri, K. Hayhoe, D. Reible, C. Bradatan, J. Zak, A. Uddameri, R. Forbis, S.K. Deb, C. Na, D. Mitchell, C. West, and D. Doerfert, Climate informed innovations at the food-energy-water nexus to enhance safe operating space of exploited systems, Innovations at the Nexus of Food, Energy, and Water Systems (INFEWS), National Science Foundation, $3,000,000 ($240,000).
6. Co-PI, C. Fedler, D. Montague, C. McKenney, T. Anderson, S.K. Deb, D. Mitchell, and D. Patterson, Adaptive wastewater reuse for food, energy, water nexus, Innovations at the Nexus of Food, Energy, and Water Systems (INFEWS), National Science Foundation, $2,429,965 ($340,195).
7. Co-PI, S. Singh, C. West, G. Ritchie, K. Lewis, S.K. Deb, and C. Adams, OAP: Impact of integrating winter cover crops into cotton producing cropping systems, USDA-Agricultural Research Service, $144,517 ($21,678).

2015

1. Co-PI, C. Fedler, V. Uddameri, D. Doerfert, and S.K. Deb, Use of nontraditional water resources for sustainable food security, New Mexico State University (Water for Agriculture Challenge Area, USDA), $1,759,388 ($439,847).

GRANTS AND AWARDS BEFORE TTU (SELECTED)

Dept. of Plant and Environmental Sciences, New Mexico State University

- Manoj K Shukla (PI), B. L. Stringam (Co-PI), and S. K. Deb (Co-PI), "Effect of Root Zone Water Fluxes on Deep Percolation and Groundwater Levels across Irrigated Pecan Corridors of Rio Grande Floodplain", submitted to the Dept. of Plant and Environmental Sciences, New Mexico State University. (2012). $12,000 (Funded).
- Manoj K Shukla (PI), and S. K. Deb (Co-PI), "Unsaturated Zone Soil Water Dynamics, Evaporation and Salt Accumulation in Desert Soils Irrigated with Saline-Sodic Treated

Wastewater", submitted to the National Science Foundation (NSF). (2012). $407,870 (Not funded).

- Manoj K Shukla (PI), B. L. Stringam (Co-PI), J. G. Mexal (Co-PI), and S. K. Deb (Co-PI), "A new tool to schedule irrigation using plant, soil and weather data across irrigated corridors of Lower Rio Grande Floodplain", submitted to 104B Research Program, USGS 104B Water Resources Research National Competitive Grants Program (2012). $30,000 (Not funded).
- Manoj K Shukla (PI), and S. K. Deb (Co-PI), "Chile growth and yield responses to salinity and water stress under partial root zone drying using drip irrigation system" submitted to the New Mexico Chile Association (NMCA) / Agricultural Experiment Station (AES). (2012). $35,000 (Not funded).
- Manoj K Shukla (PI), A. Ulery (Co-PI), S. K. Deb (Co-PI), L. Papelis (Co-PI), Stephen L. Thomas (Co-PI), and J. Schroeder (Co-PI), "Instrument Acquisition: X-Ray Computed Tomography (CT) Scanner", submitted to Major Research Instrumentation Program (NSF) Internal Proposal review, New Mexico State Univeristy. (2011). $450,000 (Not selected).
- Manoj K Shukla (PI), and S. K. Deb (Co-PI), "Industrial effluent application on a Chihuahuan Desert ecosystem: Impact on hydrological behavior of soil", submitted to the National Science Foundation (NSF). (2009). $339,551 (Not funded).
- As a postdoctoral fellow in the Dept. of Plant and Environmental Sciences, NMSU, I regularly contributes to the development of research grant proposals, for examples, (i) "Desalination concentrate management for sustainable agriculture: A preliminary Study on transport behavior and plant viability at BGNDRF" (PI: Assoc. Prof. Dr. Manoj K Shukla, NMSU), funded by the Brackish Groundwater National Desalination Research Facility (BGNDRF), Alamogordo, NM (2012); and (ii) "Water retention and release from foam and soil amended with foam" (PI: Assoc. Prof. Dr. Manoj K Shukla, NMSU) submitted to the Woodbridge Group (2012; not funded).
- My research and scholarly works generated potential research hypotheses that also aided in developing/writing graduate research project proposal for the 'Graduate Student Research Enhancement Grant (GREG)' at New Mexico State University.

Dept. of Natural Resources and Environmental Management, University of Hawaii–Manoa

- While at the University of Hawaii at Manoa as an assistant researcher, I substantially contributed to the development of research grant proposals, for example, the NWS-NOAA funded project (2008–2011) "Evaluation of flash flood prediction models for small watersheds in tropical islands" (PI: Prof. Dr. Ali Fares, Department of Natural Resources and Environmental Management, University of Hawaii at Manoa).

SERVICE TO PROFESSIONAL ORGANIZATIONS/SOCIETIES (SELECTED)

National:

1. Associate Editor, Soil Physics and Hydrology Division, *Soil Science Society of America Journal* Editorial Board (December 2020 – present)

2. Soil Science Society of America (Member since 2010)
    a. Served as a proctor of the Council of Soil Science Examiners (CSSE) exam (2015)
    b. Served as a Judge for the Soil and Water Management and Conservation Division graduate student research (oral) competition (2017)
    c. Served as a Judge for the Soil Physics and Hydrology Division graduate student research (oral and poster) competition (2018)
    d. Reviewers for Soil Science Society America and Vadose Zone Journals
3. American Society of Agricultural and Biological Engineers (ASABE) (Member since 1999)
    a. Reviewer of the Transactions of the ASABE journal
    b. Reviewer of the Applied Engineering in Agriculture
4. Soil Water Conservation Society (SWCS) (Member since 2017)
    a. Reviewer of the Journal of Soil and Water Conservation (JSWC)

Regional:

1. Member and Participant, W4188 (Soil Physics) Multistate Research Project: Soil, Water, and Environmental Physics to Sustain Agriculture and Natural Resources (2019-2024)
2. Member and Participant, W3188 (Soil Physics) Multistate research group on Soil, Water, and Environmental Physics Across Scales (2015-2019)
3. Climate Outlook Forum, 2017, NM

State:

1. Texas
    - ASABE TX (Member, 2016 – present)
    - SWCS (Soil Water Conservation Society) TX-Golden Spread (Member, 2017 – present)
    - Faculty and participant, Texas Alliance for Water Conservation (TAWC)
    - Participant, Ogallala Aquifer Program (OAP) Meeting/Workshop (2016 – present)
    - Participant, Cotton Growers Meeting, Plains Cotton Cooperative Association

OTHER PROFESSIONAL SERVICE

1. Guest Editor, a special issue of the *Agronomy* "Progress in the Hydrology of Agricultural areas under Changing Land Use," MDPI (2023)
2. Guest Editor, a special issue of the *Sustainability* "Sustainable Agriculture and Food Supply Chains in Changing Climate," MDPI (2022-2023) https://www.mdpi.com/journal/sustainability/topical_collections/Sustainable_Agriculture_and_Food_Supply_Chains_in_Changing_Climate
3. Associate Editor, "*Soil Health" Journal*, OAE Publishing Inc. (2021 – present)
4. Served as a Guest Editor, a special issue of the *Climate* "Climate Change Impact on Soil and Landscape," MDPI (2020-2021)
5. Serve as a reviewer of the following peer-review journals:
Soil Science Society of America Journal; Hydrological Processes; Water Resources

Research; Journal of Soil and Water Conservation; Soil Science; Vadose Zone Journal; Geoderma; Agricultural Water Management; Agronomy Journal; Soil and Tillage Research; Applied Engineering in Agriculture; Archives of Agronomy and Soil Science; Theoretical and Applied Climatology; Journal of Hydrometeorology; Journal of Arid Environments; Compost Science & Utilization; Communications in Soil and Plant Analysis; Agronomy; Water; HortScience; Paddy and Water Environment Journal; Journal of Environmental & Analytical Toxicology; Transactions of the Japanese Society of Irrigation, Drainage and Reclamation Engineering; Earth Interactions; Maejo International Journal of Science and Technology; etc.

6. Served as a Member, International Advisory Board of the *GCUF Journal of Natural Sciences*.

SERVICE TO:

University:

1. Served as a Judge, 3-minute Thesis Competition, Graduate School, Texas Tech University, October 6, 2022
2. Internal Reviewer, Graduate Program Review, Department of Petroleum Engineering, Texas Tech University, 2021
3. Graduate Dean's Representative for Ph.D. Defense of A.S.M. Syful Islam, Department of Civil, Environmental, and Construction Engineering, 2021
4. Graduate Dean's Representative for Ph.D. Defense of Viswajit Roy, Department of Electrical and Computer Engineering, 2021
5. Served as a Faculty Associate / Supervisor for the Visiting Scholar under the "Fulbright Visiting Scholar Program/Award," Institute of International Education, February – August, 2021 [Visiting Scholar: Dr. Osama Mohawesh, Dean, Deanship of Scientific Research Professor of Water Resources and Environmental Engineering, Mutah University, Jordan]
6. Graduate Dean's Representative for Ph.D. Defense of Mohammad Nazmul Hasan Khan, Department of Chemistry, 2020
7. Served as a Judge, 2020 Graduate Student Poster Competition
8. Served as a Judge, 2019 Graduate Student Poster Competition
9. Graduate Dean's Representative for Ph.D. Defense of Mumina Shibia, Department of Agricultural and Applied Economics, 2019
10. Graduate Dean's Representative for Ph.D. Defense of Felipe Estrada, Department of Civil, Environmental, and Construction Engineering, 2015
11. Faculty/Participant, Davis College Water Center for Agriculture (2015 - present)
12. Serve/volunteer the Texas Alliance for Water Conservation (TAWC)'s group for developing Irrigation Scheduling Tool (2015 - 2021)
13. On-farm precision nitrogen management [Panhandle Plains], Engaged Research and Creative Activity, Technical or Expert Assistance; Lead PI: Wenxuan Guo; Co-PIs: S.K. Deb, G. Ritchie, K. Lewis, and W. Chenggang; 2019- present
14. Establishing an on-farm model to build soil health and productivity and sustain local food production systems in West Texas. Research and Creative Activity, Technical or

Expert Assistance, University-Community Ties (Partner: Cornerstone Business Holdings); Lead PI: L. Slaughter; Co-PIs: D. Weindorf, and S.K. Deb; 2018-present
15. Science Fair Projects at Christ the King School, Research and Creative Activity, Education Pre-K-20, Research and Teaching and Learning; Lead PI/Project Manager: J. Young; Other faculty/personnel: **S.K. Deb**, V. Baliga, E. Escamilla, and M. Sapkota; 2018-present
16. Research facilities tour to national and international community visitors, Technical or Expert Assistance (Science and Technology); PIs: Sarturi jhones, M. Venugopal, **S.K. Deb**, W. Guo, J. Sharma, K. Brendan, C. Fedler, L. Thompson, H. Nathaniel, P. Alexandra, D. Weindorf; October 2018
17. Invited educator by the Sultan Qaboos Cultural Center (SQCC) to visit the Sultanate of Oman on their education program, and to meet with Omani academic and research counterparts and examine new and exciting possibilities for interaction and exchange between the Sultanate of Oman and Texas Tech University, 2017

College:

1. Served (Department Representative) on the Davis College Safety Committee, 2022-2023
2. Served (Department Representative) on the Davis College Strategic Planning & Visioning Committee, 2021-2022
3. Served (Department Representative) on the Davis College Safety Committee, 2021-2022
4. Faculty/Participant, Davis College Water Center for Agriculture (2015 - present)
5. Superintendent, Area I & II Career Development Event (CDE) - Land (2016 - present)
6. Serve on the faculty group for planning/preparing proposal regarding a graduate certificate program in water management (PSS/ Davis College Water Center for Agriculture) (2016 - 2019)
7. Serve/volunteer the TAWC/Davis College Water Center for Agriculture for developing Irrigation Scheduling Tool and other activities (2015 - 2021)
8. Organize Land Judging Workshop, TTU CDE-Land, March 24, 2018

Department:

1. Departmental Safety Officer (DSO) / Chair, PSS Lab Safety Committee (2021 - present)
2. Chair, PSS Curriculum Committee (2021 - present)
3. Serve on the PSS search committee for the "Associate/Full Professor of Pedology and B. L. Allen Endowed Chair" position (2021 - 2022)
4. Serve on the PSS Graduate Coordination Committee (2020 – present)
5. Serve as graduate advisor/program coordinator for graduate certificate program in soil management (2015-present)
6. Serve as program coordinator for undergraduate agricultural water management certificate (2021-present)
7. Faculty [Soil courses] Great Plains IDEA PSS/TTU (2015-present)
8. AG*IDEA-Soil, Water and Environmental Science (SWES) Program, Soil courses Lead (2015-2020)
9. Serve on the following PSS Committees (2015 - present): Graduate Students, Curriculum (2015-2021), Lab Safety (2015-2021), and Awards

10. Serve on the Undergraduate research committee (2017- present)
11. Member, Organizing Committee of the 1st PSS graduate Student Research Symposium, April 24, 2019
12. Served as Judge, The 1st PSS graduate Student Research Symposium
13. Served as Co-Chair of PSS search committee for the Assistant Professor (Applied Environmental Soil Chemistry) Position (2018)
14. Served on following PSS Search Committees
    a. Soil and Water Agroecology (2015)
    b. Crop Ecophysiology/Precision Agriculture (2016)
    c. Soil Microbial Ecology/Biochemistry (2016)
    d. Urban Soils (2016)
15. Serve as group leader (Environmental Soil and Water Group) for the PSS Undergraduate and Graduate Curriculum assessment and revision plan (2016-2017)
16. Serve on the faculty group for planning/preparing proposal regarding undergraduate certificate program in water management (PSS/Davis College Water Center for Agriculture) (2016 - present)
17. Evaluation of PSS 5100 Poster Sessions, TTU (2016 - present)
18. Hosted seminar by Tyson Ochsner, Oklahoma State University, PSS fall seminar and graduate colloquium, 2019

Community:

1. Advisor, Association of Bangladesh Students and Scholars (ABSS) at Texas Tech University (2018-2019)
2. Cooperate, participate, and contribute to a variety of events and activities of the Association of Bangladeshi Students and Scholars (ABSS) at Texas Tech University (2015-present)
3. Involved in PSS greenhouse experimental measurements on soil water and soil thermal properties, data analyses and produced scientific graphs, Christ the King Science Fair project, 2018

Industry:

1. Conduct cooperative research on soil water sensors or instruments for companies (2015 – present)

Other:

1. Invited participant, Workshop to explore research barriers to achieving water- and energy-efficient food production in the central great plain hosted by Kansas State University and National Science Foundation, Manhattan, KS., 2015
2. Serve as Chair of the Project Evaluation and Assessment Team, Real-time site-specific irrigation scheduling tools for agricultural crops and urban landscape in Texas using a mobile web app, Capacity Building Grants (CBG) Project, College of Agriculture and Human Sciences-Prairie View A&M University (PI: Dr. Ripendra Awal), Funding agency: National Institute of Food and Agriculture-USDA, $589,101, 04/01/2017 - 03/31/2020

SERVICE BEFORE TTU (SELECTED)

1. Served as Judge of the College of Tropical Agriculture and Human Resources (CTAHR)'s Research Symposium in 2008 and 2009, University of Hawaii at Manoa, Honolulu, HI.
2. Invited Exhibitor and Presenter, Oahu Agriculture and Environmental Awareness Day, University of Hawaii at Manoa, Urban Garden Center, March 5, 2009, Pearl City, Honolulu, HI.
3. Hawaii Bioenergy Master Plan Task: coordinated various works of land and water resources section of the State of Hawaii Bioenergy Master Plan, 2009.

PUBLICATIONS

REFEREED JOURNAL ARTICLES

(*Graduate student)

1. Albalasmeh, A., O. Mohawesh, M. Gharaibeh, **S.K. Deb**, L. Slaughter, and A. E. Hanandeh. 2022. Artificial neural network optimization to predict saturated hydraulic conductivity in arid and semi-arid regions. *Catena* 217: 217: 106459. https://doi.org/10.1016/j.catena.2022.106459
2. Singh, M., S. Singh, G. Ritchie, and **S.K. Deb.** 2022. Root distribution, soil water depletion, and water use efficiency of sweet corn under biochar application and deficit irrigation. *Agricultural Water Management* 279. https://doi.org/10.1016/j.agwat.2023.108192
3. Singh, M., S. Singh, V. Parkash, G. Ritchie, R.W. Wallace, and **S.K. Deb.** 2022. Biochar implications under limited irrigation for sweet corn production in a semi-arid environment. Frontiers in Plant Science 13: 853746. https://doi.org/10.3389/fpls.2022.853746
4. Mohawesh, O., Ammar Albalasmeh, **S.K. Deb**, Sukhbir Singh, Catherine Simpson, Nour AlKafaween, and Atif Mahadeen. 2022. Effect of colored shading nets on the growth and water use efficiency of sweet pepper (Capsicum annum L.) grown under semiarid conditions. *HortTechnology* 32(1): 21-27. https://doi.org/10.21273/HORTTECH04895-21
5. Neupane, J., W. Guo, G. Cao, F. Zhang, L. Slaughter, and **S.K. Deb**. 2022. Spatial patterns of soil microbial communities and implications for precision soil management at the field scale. *Precision Agriculture* 23(3): 1008-1026. https://doi.org/10.1007/s11119-021-09872-1
6. Geza, M, **S.K. Deb**, S. Stanek, E. Sevostianova, M. Serena, and B. Leinauer. 2021. Modeling NO_3-N leaching during establishment of turfgrasses irrigated with tailored reclaimed water. *Vadose Zone Journal* 20(3): e20112. https://doi.org/10.1002/vzj2.20112
7. Mohawesh, O., Ammar Albalasmeh, Mamoun Gharaibeh, **S.K. Deb**, Catherine Simpson, Sukhbir Singh, Bayan Al-Soub, Ali El Hanandeh. 2021. Potential use of biochar as an amendment to improve soil fertility and tomato and bell pepper growth performance under arid conditions. *Journal of Soil Science and Plant Nutrition* 21(4): 2946-2956. https://doi.org/10.1007/s42729-021-00580-3

8. Parkash, V., S. Singh, M. Singh, **S.K. Deb**, G.L. Ritchie, and R.W. Wallace. 2021. Effect of deficit irrigation on root growth, soil water depletion, and water use efficiency of cucumber. *HortScience.* https://doi.org/10.21273/HORTSCI16052-21
9. Kusi, N.Y., K.L. Lewis, G.D. Morgan, G.L. Ritchie, **S.K. Deb**, R.D. Stevens, and H.Y Sintim. 2021. Cotton cultivar response to potassium fertilizer application in Texas' southern high plains. *Agronomy Journal*. https://doi.org/10.1002/agj2.20807
10. Sun, Y., W. Guo, D. Weindorf, F. Sun, **S.K. Deb**, G. Cao, J. Neupane, Z. Lin, and A. Raihan. 2021. Field-scale calcium spatial variability in a semi-arid region: Implications for soil erosion and site-specific management. *Pedosphere* 31(5): 705-714. https://doi.org/10.1016/S1002-0160(21)60019-X
11. Slaughter, L.C., **S.K. Deb**, S. Chakraborty, B. Li, N. Bakr, B. Edwards, and D.C. Weindorf. 2021. On-farm evaluation of regenerative land-use practices in a semi-arid pasture agroecosystem in West Texas, USA. *Revista Brasileira de Ciência do Solo* 45: e0200163. doi:10.36783/18069657rbcs20200163
12. Gu, H., Z. Lin, W. Guo, W., and **S.K. Deb**. 2021. Retrieving surface soil water content using a soil texture adjusted vegetation index and unmanned aerial system images. *Remote Sensing* 13(1): 145. https://doi.org/10.3390/rs13010145
13. Lasee, S., S. Subbiah, **S.K. Deb**., A. Karnjanapiboonwong, P. Payton, and T. Anderson, 2021. The effects of soil organic carbon content on plant uptake of soil Perfluoro Alkyl Acids (PFAAs) and the potential regulatory implications. *Environmental Toxicology and Chemistry* 40(3): 832-845. https://doi.org/10.1002/etc.4786
14. Parkash, V., S. Singh, **S.K. Deb**, G.L. Ritchie, and R.W. Wallace. 2021. Effect of deficit irrigation on physiology, plant growth, and fruit yield of cucumber cultivars. *Plant Stress* 1: 100004. https://doi.org/10.1016/j.stress.2021.100004
15. Zimmerman, A.J., D.G. Gutierrez, V.M. Campos, D.C. Weindorf, **S.K. Deb**, S.U. Chacon, G. Landrot, N.G.G. Flores, and M.G. Siebecker. 2021. Arsenic speciation in titanium dioxide (TiO_2) drinking water filter waste and impacted soils: Implications for urban environmental and human health. *Environmental Advances* 3: 100036. https://doi.org/10.1016/j.envadv.2021.100036
16. Otuya, R., L.C. Slaughter, C.P. West, **S.K. Deb**, and V. Aosta-Martinez. 2021. Compost and legume management differently alter soil microbial abundance and soil carbon in semi-arid pastures. *Soil Science Society of America Journal* 85(3): 654-664. https://doi.org/10.1002/saj2.20215
17. Singh, A.*, **S.K. Deb**, S. Singh, P. Sharma, and J.S. Kang. 2020. Effects of non-leguminous cover crops on yield and quality of baby corn (*Zea mays* L.) grown under subtropical conditions. *Horticulturae* 6: 21. https://doi.org/10.3390/horticulturae6020021
18. Saini, R., S. A. Singh*, and **S.K. Deb**. 2020. Effect of seed meals on weed control and soil physical properties in direct-seeded pumpkin. *Sustainability* 12: 5811. https://doi.org/10.3390/su12145811
19. Awal, R., H. Habibi, A. Fares, and **S.K. Deb**. 2020. Estimating reference crop evapotranspiration under limited climate data in West Texas. *Journal of Hydrology: Regional Studies* 28: 100677. https://doi.org/10.1016/j.ejrh.2020.100677
20. Dhakal, M., C.P. West, C. Villalobos, J.O. Sarturi, and **S.K. Deb**. 2020. Trade-off between nutritive value improvement and crop water use for an alfalfa-grass system. *Crop Science* 60: 1711-1723. https://doi.org/10.1002/csc2.20159

[Award: One of the 2021 Outstanding papers published in Crop Science (in Forage & Grazinglands)]

21. Dhakal, M., C.P. West, **S.K. Deb**, C. Villalobos, and G. Kharel*. 2020. Row spacing of alfalfa interseeded into native grass pasture influences soil-plant-water relations. *Agronomy Journal* 112: 274-287. https://doi.org/10.1002/agj2.20012
22. Li, Li, J. Young, and **S.K. Deb**. 2019. Effects of cultivation practices and products on bermudagrass fairways in a semiarid region. *Agronomy Journal* 111: 2899-2909. https://doi.org/10.2134/agronj2019.04.0262
23. Dhakal, M., C.P. West, **S.K. Deb**, G. Kharel*, and G.L. Ritchie. 2019. Field calibration of PR2 capacitance probe in pullman clay-loam soil of Southern High Plains, *Agrosystems, Geosciences & Environment* 2:180043. https://doi.org/10.2134/age2018.10.0043
24. Awal, R., M. Safeeq, F. Abbas, S. Fares, **S.K. Deb**, A. Ahmad, and A. Fares. 2019. Soil physical properties spatial variability under long-term no-tillage corn. *Agronomy* 9(11): 750. https://doi.org/10.3390/agronomy9110750
25. Dube, N., B. Bryant, H. Sari-Sarraf, B. Kelly, C.F. Martin, **S.K. Deb**, and G.L. Ritchie. 2019. In situ cotton leaf area index by height using three-dimensional point clouds. *Agronomy Journal* 111: 2999-3007. https://doi.org/10.2134/agronj2019.01.0018
26. Weindorf, D.C., S. Chakraborty, B. Li, **S.K. Deb,** and A. Singh*, and Nana Y. Kusi. 2018. Compost salinity assessment via portable X-ray fluorescence (PXRF) spectrometry. *Waste Management* 78: 158-163. https://doi.org/10.1016/j.wasman.2018.05.044
27. Kellum, D.S., M.K. Shukla, J. Mexal, and **S.K. Deb**. 2018. Greenhouse gas emissions from pecan orchards in semi-arid Sothern New Mexico. *HortScience* 53: 704-709. https://doi.org/10.21273/HORTSCI12773-17
28. Karnjanapiboonwong, A., **S.K. Deb**, S. Seenivasan, D. Wang, and T.A. Anderson. 2018. Perfluoroalkyl sulfonic and carboxylic acids in earthworms (*Eisenia fetida*): Accumulation and effects results from spiked soils at PFAS concentrations bracketing environmental relevance. *Chemosphere* 199:168-173. https://doi.org/10.1016/j.chemosphere.2018.02.027
29. **Deb, S.K.**, P. Sharma, M.K. Shukla, J. Ashigh, and J. Simunek. 2016. Numerical evaluation of nitrate distributions in the onion root zone under furrow fertigation. *Journal of Hydrologic Engineering* 21:05015026. https://doi.org/10.1061/(ASCE)HE.1943-5584.0001304
30. Sevostianova, E., **S.K. Deb,** M. Serena, D. VanLeeuwen, and B. Leinauer. 2015. Accuracy of two electromagnetic soil water content sensors in saline soils. *Soil Science Society of America Journal* 79:1752-1759. doi:10.2136/sssaj2015.07.0271
31. Juan P. Flores-Margez, M. K. Shukla, and **S. K. Deb**. 2014. Mapping of airborne particulate matter collected using two sensors along US-Mexico border. *Journal of Environmental & Analytical Toxicology* 4(2): 206.
32. **Deb, S. K.**, P. Sharma, M. K. Shukla, T. W. Sammis, and J. Ashigh. 2013. Drip-irrigated pecan seedlings response to irrigation water salinity. *HortScience* 48 (12): 1548-1555.
33. **Deb, S. K.**, M. K. Shukla, J. Šimůnek, and J. G. Mexal. 2013. Evaluation of spatial and temporal root water uptake patterns of a flood-irrigated pecan tree using the HYDRUS (2D/3D). *Journal of Irrigation and Drainage Engineering* 138(8): 599-611.

34. **Deb, S. K.**, M. K. Shukla, P. Sharma, and J. G. Mexal. 2013. Soil water depletion in irrigated mature pecans under contrasting soil textures for arid southern New Mexico. *Irrigation Science* 31(1): 69-85.
35. **Deb, S. K.**, M. K. Shukla, and J. G. Mexal. 2012. Estimating leaf and stem water potentials of mature pecan trees from soil water content and climatic parameters. *HortScience* 47(7): 907-916.
36. **Deb, S.K.,** M.K. Shukla, and J.G. Mexal. 2012. Simulating deep percolation in flood-irrigated mature orchards with RZWQM2. *Transactions of the American Society of Agricultural and Biological Engineers* 55: 2089-2100.
37. Grover, K., M.K. Shukla, S. Singh, and **S.K. Deb.** 2013. Salinity in irrigated agricultural soils under organic farming systems. *Journal Science and Technology UACJ*, *Ciencia en la frontera*, volume XI, Special issue: 11-17.
38. **Deb, S.K.,** and M.K. Shukla. 2012. Variability of hydraulic conductivity due to multiple factors. *American Journal of Environmental Sciences* 8:489-502.
39. Eusufzai, M.K., **S.K. Deb,** T. Maeda, and K. Fujii. 2013. Mass loss and C and N release from decomposing fresh and composted residues as affected by cold climate conditions. *Environmental and Natural Resources Research* 3:116-127.
40. **Deb, S.K,** M.K. Shukla, and J.G. Mexal. 2011. Numerical modeling of water fluxes in the root zone of a mature pecan orchard. *Soil Science Society of America Journal* 75:1667-1680.
41. **Deb, S.K.,** M.K. Shukla, P. Sharma, and J.G. Mexal. 2011. Coupled liquid water, water vapor, and heat transport simulations in an unsaturated zone of a sandy loam field. *Soil Science* 176:387-398.
42. **Deb, S.K.,** and M.K. Shukla. 2011. A review of dissolved organic matter transport processes affecting soil and environmental quality. *Journal of Environmental & Analytical Toxicology* 1:106.
43. **Deb, S.K.**, and A.I. El-Kadi. 2009. Susceptibility assessment of shallow landslides on Oahu, Hawaii, under extreme-rainfall events. *Geomorphology* 108:219-233.
44. Fares, A., **S.K. Deb,** and S. Fares. 2009. Review of vadose zone soil solution sampling techniques. *Environmental Reviews* 17:215-234.
45. Fares, A., F. Abbas, **S.K. Deb,** and S. Paramasivam. 2009. Citrus Chemigation. *Tree and Forestry Science and Biotechnology*, Special issue (Citrus II): 22-31.
46. Iida, T., **S.K. Deb,** and R.G. Kharbuja. 2007. Nitrous oxide emission measurement with acetylene inhibition method in paddy fields under flood conditions. *Paddy and Water Environment* 5:83-91.
47. **Deb, S.K.,** T. Miyazaki, M. Mizoguchi, and K. Seki. 2006. Return Flow Generating Point on a hillslope layered with traffic pan. *Transactions of the Japanese Society of Irrigation, Drainage, and Reclamation Engineering* 241:1-11.

SUBMITTED / UNDER REVIEW

(*Graduate student)

1. Kharel, G.*, M. Dhakal, **S.K. Deb,** L.C. Slaughter, C. Simpson, and C.P. West. 2022. Effect of long-term pasture management on soil hydraulic and thermal properties. *Plants*

2. Singh, A.*, **S.K. Deb,** L.C. Slaughter, S. Singh, G.L. Ritchie, W. Guo, and R. Saini. 2022. Simulation of root zone soil water dynamics under cotton-silverleaf nightshade interactions in drip-irrigated cotton. *Agricultural Water Management*.
3. Neupane, J., C. Wang, G. Ritchie, F. Zhang, S.K. Deb, and W. Guo. 2023. Spatial and temporal variability of cotton yield and profitability in eight fields in the Southern High Plains. *Field Crops Research*

IN PREPARATION

(*Graduate student, **Undergraduate student)

1. Singh, A.*, **S.K. Deb,** S. Singh, L.C. Slaughter, G.L. Ritchie, et al. 2023. Modeling of Soil Water Dynamics in Cotton Production Systems Using numerical [HYDRUS (2D/3D)] and agricultural systems [RZWQM2] models.
2. Geeta, K.*, **S. K. Deb**, C. P. West, M. Dhakal, L. C. Slaughter, and E. Escamilla. 2023. Evaluation of different models for quantifying thermal conductivity of semi-arid pasture soils.
3. **Deb**, S. K., Geeta, K.*, et al. 2023. Effects of long-term pasture management systems on soil physical quality indicators in a semiarid environment.
4. Singh, A. *, **S. K. Deb**, R. B. Angeles-Shim*, et al.* 2023. Evaluation of interactive effects of soil moisture and soil temperature on the growth and development of early season planted cotton grown under semi-arid conditions.
5. **Deb, S. K.**, E. Escamilla*/**, G. Kharel, Li Li, and J. R. Young. Estimating the hydraulic parameters for golf course soils under different cultivation practices and product treatments.
6. Geeta, K.*, and **S. K. Deb**. Evaluation of selected soil water retention curve models for estimating hydraulic properties of unsaturated soils in semi-arid pastures.
7. **Deb, S. K.**, A. Singh*, E. Escamilla*, G. Kharel, and L. C. Slaughter. Loss-on-ignition estimates of soil organic matter and relationships to soil organic carbon in semi-arid pastures under different management practices.
8. Escamilla, E.*, **S. K. Deb**, and J.R. Young. Spatial variability of soil physical properties in golf course fairways.
9. Escamilla, E.*, **S. K. Deb**, and J.R. Young. Evaluation of Hydraulic properties of selected growing media mixes for greenhouse crop production.

BOOK CHAPTERS

1. Shukla, M. K., and **S. K. Deb**. (2013). Chapter 13: Root water uptake. In: M. K. Shukla, *Soil Physics: An Introduction*, *CRC Press*, *Taylor & Francis Group*, Boca Ratan, FL, p.255-288.
2. Shukla, M. K., and **S. K. Deb**. (2013). Chapter 16: Modeling flow through the vadose zone using HYDRUS-1D model. In: M. K. Shukla, *Soil Physics: An Introduction*, *CRC Press*, *Taylor & Francis Group*, Boca Ratan, FL, p.337-388.
3. Shukla, M. K., and **S. K. Deb**. (2013). Chapter 17: Flow through the vadose zone using RZWQM. In: M. K. Shukla, *Soil Physics: An Introduction*, *CRC Press*, *Taylor & Francis Group*, Boca Ratan, FL, p.389-444.

4. **Deb, S. K.**, and M. K. Shukla. (2010). An overview of some soil hydrological watershed models. Chapter 3, In: Manoj K Shukla (Ed.), *Soil Hydrology, Land Use and Agriculture: Measurement and Modelling*, *CAB International*, Wallingford, UK, p.75-116.
5. Iida, T., **S. K. Deb**, and R. G. Kharbuja. (2005). Measurement of N_2O emission from tropical paddy fields, In: Ohgaki et al. (Eds.), *Southeast Asian Water Environment 1: Biodiversity & Water Environment*, *IWA Publishing Ltd.*, London, UK, p.115-122.

PROCEEDINGS ARTICLES AND EXTENSION BULLETIN

1. Sharma, H., **S. K. Deb**, M. K. Shukla, P. Bosland, B. Stringam and M. Uchanski. (2013). Chile root water uptake under partial root drying: a greenhouse drip irrigated study. 2013 Irrigation Show & Education Conference, Nov. 4-8, 2013, Austin, TX.
2. Sharma, H., M. K. Shukla and **S. K. Deb**. (2013). Water conservation using partial root drying for drip irrigated Chile. USCID Conference, October 22-25, 2013, Denver, Colorado.
3. **Deb, S. K.**, M.K. Shukla, M. Uchanski, P. Bosland. (2012). Evaluation of compensated root water uptake of greenhouse drip irrigated Chile. 2012 Irrigation Show & Education Conference, Nov 4-6, 2012, Orlando, Florida.
4. **Deb, S. K.**, M. K. Shukla, and J. G. Mexal. (2012). A peek at the other half of your orchard: The roots. The 46th Annual Conference of the Western Pecan Growers Association, Mar 4–6, 2012, Hotel Encanto de Las Cruces, Las Cruces, New Mexico.
5. **Deb, S. K.**, M. K. Shukla, and P. Sharma. (2010). Numerical Analysis of Coupled Liquid Water, Water Vapor, and Heat Transport in a Sandy Loam Soil. The 19th World Congress of Soil Science on "Soil Solutions for a changing a world", International Union of Soil Science, August 1–6, 2010, Brisbane, Australia.
6. A. Fares, **S. K. Deb**, and M. H. Ryder. (2009). Use of filter strips for improved surface water quality. Extension Bull., Soil and Management SCM-24, CTAHR, University of Hawaii at Manoa, Honolulu, HI.
7. **Deb, S. K.**, T. Iida, and R. Loof. (2001). Application of GLEAMS model to predict soil and nutrient losses from the agricultural field in Thailand, Proceedings of the 5th IWA international conference on diffuse/nonpoint pollution and watershed management, June 10-15, 2001, Milwaukee, WI.

INVITED PRESENTATIONS

1. **Deb, S. K.** (2016). "Soil Physics: Agricultural and environmental applications", Physics Department Colloquium, Texas Tech University, Lubbock, TX, October 27 (Fall semester), 2016.
2. January 2-3, 2020, W3188/W4188 Multistate Research Project Annual Meeting, Desert Research Institute, Las Vegas, NV
3. **Deb, S. K.** (2014). "Effects of water availability and quality: A focus on root zone water dynamics in irrigated agriculture", College of Natural Sciences and Mathematics, Hamblin Hall, West Virginia State University, Institute, WV, Sept 26, 2014.
4. **Deb, S. K.** (2009). "Susceptibility assessment of shallow landslides on Oahu, Hawaii", Water Resources Research Center (WRRC) Seminar, University of Hawaii at Manoa, April 2, 2009.

5. **Deb, S. K.** (2005). **"**Water flow in unsaturated soils in layered slope with traffic pan", The 43rd Annual Meeting of Soil Physics Division, Japanese Society of Irrigation, Drainage and Rural Engineering, Tokyo, Japan, Jan 8, 2005.

ABSTRACTS / VOLUNTEERED PRESENTATIONS

(*Graduate student, **Undergraduate student)

1. Karn, R., Guo, W., Adedeji, O., Lewis, K. L., Ritchie, G., **Deb, S. K.**, Ritchie, G., and Wang, C. (2023). Estimation of canopy nitrogen content in dryland cotton from sentinel-2 images. Beltwide Cotton Conferences, January 10-12, 2023, New Orleans, LA.
2. Singh, A., **Deb, S. K.,** Singh, S., Slaughter, L. C., & Ritchie, G. (2022) A Multi-Model Approach to Simulate the Soil Water Dynamics in Cotton Production Systems [Abstract]. ASA, CSSA, SSSA International Annual Meeting, Nov 6-9, Baltimore, MD. https://scisoc.confex.com/scisoc/2022am/meetingapp.cgi/Paper/143583
3. Singh, A., **Deb, S. K.**, Singh, S., Slaughter, L. C., & Ritchie, G. (2022) Role of Biochar to Improve Soil Physical and Hydraulic Properties in Early-Planted Cotton [Abstract]. ASA, CSSA, SSSA International Annual Meeting, Nov 6-9, Baltimore, MD. https://scisoc.confex.com/scisoc/2022am/meetingapp.cgi/Paper/143654
4. **Deb, S. K.,** & Singh, A. (2022) Root Zone Water Dynamics and Cotton Production Under Various Agronomic Practices in West Texas [Abstract]. ASA, CSSA, SSSA International Annual Meeting, Nov 6-9, 2022, Baltimore, MD. https://scisoc.confex.com/scisoc/2022am/meetingapp.cgi/Paper/143619
5. Karn, R., Guo, W., Lewis, K. L., Ritchie, G., **Deb, S. K.**, & Wang, C. (2022) Response of Cotton Fiber-Quality to Nitrogen Rates, Soil, and Topographic Properties [Abstract]. ASA, CSSA, SSSA International Annual Meeting, Nov 6-9, Baltimore, MD. https://scisoc.confex.com/scisoc/2022am/meetingapp.cgi/Paper/145336
6. Singh, A., & **Deb, S. K.** (2022) Understanding of Root Zone Soil Water Dynamics Under Cotton-Silverleaf Nightshade Interactions [Abstract]. ASA, CSSA, SSSA International Annual Meeting, Nov 6-9, 2022, Baltimore, MD. https://scisoc.confex.com/scisoc/2022am/meetingapp.cgi/Paper/143552
7. Slaughter, L. C., Arora, R., West, C. P., **Deb, S. K.**, & Acosta-Martinez, V. (2022) Impacts of legume inclusion on soil greenhouse gas emissions in semi-arid pasture ecosystems [Abstract/Poster]. The 22nd World Congress of Soil Science, July 31-August 5, 2022, Glasgow, Scotland, UK.
8. Arora, R., Slaughter, L. C., West, C. P., **Deb, S. K.**, & Acosta-Martinez, V. (2022) Influence of Legume Inclusion on Greenhouse Gas Emissions from Pasture Systems in the Southern High Plains of Texas [Abstract]. USDA-ARS & TTU Research Spotlight, Oct 18, 2022, USDA-ARS, TTU Office of Research and Innovation Lubbock, TX.
9. Arora, R., Slaughter, L. C., West, C. P., **Deb, S. K.**, & Acosta-Martinez, V. (2022) Influence of Legume Inclusion on Greenhouse Gas Emissions from Pasture Systems in the Southern High Plains of Texas [Abstract]. ASA, CSSA, SSSA International Annual Meeting, Nov 6-9, 2022, Baltimore, MD. https://scisoc.confex.com/scisoc/2022am/meetingapp.cgi/Paper/143642
10. Karn, R., Guo, W., Lewis, K. L., **Deb, S. K.**, Ritchie, G., and Wang, C. (2022). Optimizing Nitrogen Management in Dryland Cotton using Precision Agriculture

Technologies in the Southern High Plains. Beltwide Cotton Conferences, January 4-6, 2022, San Antonio, TX.

11. Arora, R., L. Slaughter, C. P. West, S. K. Deb, and V. Acosta-Martinez. (2022) Singh, M., Singh, S., **Deb, S. K.**, Petermann, B., and Siebecker, M.G. (2022). Does biochar application affect soil properties and sweet corn production under deficit irrigation? PSS Student Research Symposium, April 18, 2022, Texas Tech University, Lubbock, TX. (**Student poster competition: 3rd place**)
12. Singh, M., Singh, S., **Deb, S.K.**, Ritchie, G. and Wallace, R.W. (2022). Can biochar improve root growth and water use efficiency of cucumber under deficit irrigation? The ASHS Annual Conference, July 30-August 3, 2022, Chicago, IL.
13. Arora, R., L. Slaughter, C. P. West, **S. K. Deb**, and V. Acosta-Martinez. (2022). Influence of legume inclusion on greenhouse gas emissions from pasture systems in southern high plains of Texas. Oral presentation at PSS Student Research Symposium, April 18, 2022, Department of Plant & Soil Sciences, Texas Tech University, Lubbock, TX. (**3rd Position in Oral Presentation**)
14. Arora, R., L. Slaughter, C. P. West, **S. K. Deb**, and V. Acosta-Martinez. (2022). Influence of legume inclusion on greenhouse gas emissions from pasture systems in southern high plains of Texas. Poster presentation at 21st Annual Graduate Student Research Poster Competition, March 3, 2022, Texas Tech University, Lubbock, TX.
15. Arora, R., L. Slaughter, C. P. West, S. K. Deb, and V. Acosta-Martinez. (2022) Harnessing soil health to mitigate greenhouse gas emissions in semi-arid pasture ecosystems. Virtual oral presentation at Soil Survey and Land Resource Workshop, February 9-10, 2022, Texas A&M University, College Station, TX.
16. Maples, H.**, Kharel, G., Dhakal, M., Singh, A.*, Escamilla, E.*, & **Deb, S. K.** (2021) Effects of Long-Term Perennial and Annual Pasture Systems on Soil Physical and Hydraulic Properties in a Semiarid Environment [Abstract]. ASA, CSSA, SSSA International Annual Meeting, Salt Lake City, UT. https://scisoc.confex.com/scisoc/2021am/meetingapp.cgi/Paper/138601
17. Singh, M., Singh, S., **Deb, S. K.**, Parkash, V., Petermann, B., & Siebecker, M. G. (2021) Effect of Biochar Application on Soil Properties and Sweet Corn Performance Under Deficit Irrigation [Abstract]. ASA, CSSA, SSSA International Annual Meeting, Salt Lake City, UT. https://scisoc.confex.com/scisoc/2021am/meetingapp.cgi/Paper/136750
18. Singh, A.*, **Deb, S. K.**, Slaughter, L. C., Guo, W., and Singh, S. (2021) Numerical Simulation of Root Zone Soil Water Dynamics in Subsurface Drip Irrigation Under Cotton-Weed Interactions [Abstract]. ASA, CSSA, SSSA International Annual Meeting, Salt Lake City, UT. https://scisoc.confex.com/scisoc/2021am/meetingapp.cgi/Paper/133482
19. Zimmerman, A. J., Garcia-Gutierrez, D., **Deb, S. K.**, Landrot, G., & Siebecker, M. G. (2021) Extraction and Bioavailability of Arsenic from Titanium Dioxide Filter Waste [Abstract]. ASA, CSSA, SSSA International Annual Meeting, Salt Lake City, UT. https://scisoc.confex.com/scisoc/2021am/meetingapp.cgi/Paper/138701
20. Singh, A.*, and **Deb, S. K.** (2021) Evaluating Root Zone Soil Water Dynamics in Cotton Grown Under Various Agronomic Considerations in a Semiarid Environment [Abstract]. ASA, CSSA, SSSA International Annual Meeting, Salt Lake City, UT. https://scisoc.confex.com/scisoc/2021am/meetingapp.cgi/Paper/139110

21. Singh, A.*, **Deb, S. K.**, Slaughter, L. C., Guo, W., & Singh, S. (2021) Modeling of Soil Water Dynamics in Cotton Production Systems Using Multi-Model Approach [Abstract]. ASA, CSSA, SSSA International Annual Meeting, Salt Lake City, UT. https://scisoc.confex.com/scisoc/2021am/meetingapp.cgi/Paper/136194 **[Award: won the second place in graduate student competition in the Soil and Water Management and Conservation Division in 5 min rapid oral and poster session presentation]**
22. Singh, A.*, Mohawesh, O., and **Deb, S. K.** (2021) Effects of Biochar on Soil Physical and Hydraulic Properties and Plant Responses in a Drip-Irrigated Early-Planted Cotton [Abstract]. ASA, CSSA, SSSA International Annual Meeting, Salt Lake City, UT. https://scisoc.confex.com/scisoc/2021am/meetingapp.cgi/Paper/139033
23. Mohawesh, O., A. Albalasmeh, and S.K. Deb (2021) Potential use of biochar as an amendment to improve soil fertility and plant growth under arid conditions. Mediterranean Geosciences Union (MedGU) Annual Meeting, Nov. 25-28, 2021, Istanbul, Turkey.
24. Singh, M., Singh, S., **Deb, S. K.**, G. Ritchie, and R. Wallace (2021) Physiology, growth and yield of sweet corn as affected by biochar application under deficit irrigation. ASHS (American Society for Horticultural Science) Annual Conference, August 5-9, 2021, Denver, Colorado.
25. Singh, M., Singh, S., V. Parkash, **Deb, S. K.**, G. Ritchie, and R. Wallace (2021) Water use efficiency, soil water depletion and root growth patterns in sweet corn under deficit irrigation and biochar application. ASHS (American Society for Horticultural Science) Annual Conference, August 5-9, 2021, Denver, Colorado.
26. Gu, H., W. Guo, G. Ritchie, K. Lewis, **S. K. Deb**, and C. Wang. Spatial and temporal dynamics of soil nitrogen in dryland cotton in the Southern High Plains. 2021 Beltwide Cotton Conferences (Virtual), January 5-7, 2021.
27. Singh, A.*, **S.K. Deb**, S. Singh, and W. Guo. 2020. A multi-model approach for analyzing soil water dynamics and root water uptake patterns of cotton grown under semiarid conditions. The 2020 American Society of Agronomy, Crop Science Society of America, and Soil Science Society of America Virtual Annual Meeting, Nov. 9-13, 2020. (poster)
28. Singh, A.*, **S.K. Deb**, and R. Shim. 2020. Effects of early season planting and soil physical environments on seedling emergence, growth, development, and yield of cotton germplasm with cold germination ability. The 2020 American Society of Agronomy, Crop Science Society of America, and Soil Science Society of America Virtual Annual Meeting, Nov. 9-13, 2020. (oral & poster)
29. Singh, A.*, E. Escamilla*, and **S.K. Deb**. 2020. Modeling of root zone soil water dynamics in drip irrigated cotton under cotton-weed interactions. The 2020 American Society of Agronomy, Crop Science Society of America, and Soil Science Society of America Virtual Annual Meeting, Nov. 9-13, 2020. (poster)
30. Escamilla, E.*, J.R. Young, and **S.K. Deb**. 2020. Spatial variability of plant water parameters from golf course fairway soils. The 2020 American Society of Agronomy, Crop Science Society of America, and Soil Science Society of America Virtual Annual Meeting, Nov. 9-13, 2020. (poster)

31. Singh, A.*, and **S.K. Deb**. 2020. Root zone soil water dynamics under cotton-weed interactions. The 2020 American Society of Agronomy, Crop Science Society of America, and Soil Science Society of America Virtual Annual Meeting, Nov. 9-13, 2020. (poster)
32. Young, J.R., S.K. Deb, and D.E. Karcher. 2020. Effect of water pertaining or retaining surfactants on putting green surface characteristics. The 2020 American Society of Agronomy, Crop Science Society of America, and Soil Science Society of America Virtual Annual Meeting, Nov. 9-13, 2020. (oral)
33. Zimmerman, A.J., D. Garcia-Gutirrez, D.C. Weindorf, V.M. Campos, **S.K. Deb**, S. Ulate-Chacon, G. Landrot, and M. Siebecker. 2020. Arsenic geochemistry in titanium dioxide (TiO_2) drinking water filter waste and impacted soils: Implications for urban environmental and human health. The 2020 American Society of Agronomy, Crop Science Society of America, and Soil Science Society of America Virtual Annual Meeting, Nov. 9-13, 2020. (oral)
34. Singh, M., S. Singh, V. Parkash, and **S.K. Deb**. 2020. Root growth responses of sweet corn to water deficit and biochar amendment. The ASHS 2020 Virtual Conference, Aug. 10-13, 2020. (poster)
35. Parkash, V., S. Singh, **S.K. Deb**, G. Ritchie, and R.W. Wallace. 2020. Physiology, yield and water-use efficiency of cucumber affected by deficit irrigation. The ASHS 2020 Virtual Conference, Aug. 10-13, 2020. (oral)
36. Singh, A.*, **S.K. Deb**, R.B. Gannaban, R.B. Angeles-Shim, P.K. Mangat, and J. Singleton. 2019. Evaluation of interactive effects of soil moisture and temperature on the growth and development of early-planting cotton. The 2019 American Society of Agronomy, Crop Science Society of America, and Soil Science Society of America Annual Meeting, Nov. 10-13, San Antonio, TX. (poster)
37. Escamilla, E.*, **S.K. Deb**, and J.R. Young. 2019. Spatial variability of soil physical properties in golf course fairways. The 2019 American Society of Agronomy, Crop Science Society of America, and Soil Science Society of America Annual Meeting, Nov. 10-13, San Antonio, TX. (oral)
38. Singh, A.*, R. Saini, S. Singh, and **S.K. Deb**. 2019. Effect of mustard and sunflower seed meals on soil physical properties and yield in pumpkin. The 2019 American Society of Agronomy, Crop Science Society of America, and Soil Science Society of America Annual Meeting, Nov. 10-13, San Antonio, TX. (poster)
39. Singh, A.*, **S.K. Deb**, S. Singh, and E. Escamilla*. 2019. Modeling of spatial and temporal root water uptake under deficit irrigation in west Texas. The 2019 American Society of Agronomy, Crop Science Society of America, and Soil Science Society of America Annual Meeting, Nov. 10-13, San Antonio, TX. (oral)
40. Singh, A.*, **S.K. Deb**, S. Singh, and E. Escamilla*. 2019. Soil moisture depletion in drip-irrigated cotton under deficit irrigation practices in Texas High Plains. The 2019 American Society of Agronomy, Crop Science Society of America, and Soil Science Society of America Annual Meeting, Nov. 10-13, San Antonio, TX. (oral)
41. Escamilla, E.*, **S.K. Deb**, and J.R. Young. 2019. Evaluation of Hydraulic properties of selected growing media mixes for greenhouse crop production. The 2019 American Society of Agronomy, Crop Science Society of America, and Soil Science Society of America Annual Meeting, Nov. 10-13, San Antonio, TX. (poster)

42. Edwards, B.**, D.C. Weindorf, **S.K. Deb**, N. Bakr, V. Acosta-Martinez, and L.C. Slaughter. 2019. Establishing an on-farm model to build soil health and productivity and sustain local food production systems in west Texas. The 2019 American Society of Agronomy, Crop Science Society of America, and Soil Science Society of America Annual Meeting, Nov. 10-13, San Antonio, TX. (oral)
43. Singh, A.*, **S.K. Deb**, S. Singh, E. Escamilla*, B. Bhattarai, and I. L. Pabuayon. 2019. Soil water depletion in drip irrigated forage crops under different levels of irrigation. Soil Science Society of America International Soils Meeting, Jan. 6-9, San Diego, CA. (oral)
44. Kharel, G.*, **S.K. Deb**, C.P. West., and L.C. Slaughter. 2019. Evaluation of soil thermal conductivity models in semiarid pasture soils. Soil Science Society of America International Soils Meeting, Jan. 6-9, San Diego, CA. (oral)
45. Singh, A.*, **S.K. Deb**, E. Escamilla*, and S. Singh. 2019. Modeling root water uptake patterns of cotton under deficit subsurface drip irrigation. Soil Science Society of America International Soils Meeting, Jan. 6-9, San Diego, CA. (oral)
46. Singh, A.*, and **S.K. Deb**. 2019. Modeling root water uptake of cotton under deficit subsurface drip irrigation. The 10th Texas Tech Annual Biological Sciences Symposium, April 26-27, 2019, Texas Tech University, Lubbock, TX. (poster)
47. Singh, A.*, E. Escamilla*, S. Singh, and **S.K. Deb**. 2019. Numerical modeling of root water uptake of cotton under deficit subsurface drip irrigation. The 18th Annual Graduate School Poster Competition, April 26, 2019, Texas Tech University, Lubbock, TX. (poster)
48. Siebecker, M.G., A.J. Zimmerman, D.C. Weindorf, V.M. Campos, **S.K. Deb**, S.U. Chacon, and G. Landrot (2019). Quantification and mobility of arsenic from sediments and soils enriched with titanium dioxide (TiO_2) drinking water filter waste. The 2019 American Society of Agronomy, Crop Science Society of America, and Soil Science Society of America Annual Meeting, Nov. 10-13, San Antonio, TX. (oral)
49. Dhakal, M., C.P. West, **S.K. Deb**, C. Villalobos, and G. Kharel (2019). Trade-off between forage quality improvement and crop water use for alfalfa-grass system. The 2019 American Society of Agronomy, Crop Science Society of America, and Soil Science Society of America Annual Meeting, Nov. 10-13, San Antonio, TX. (oral)
50. Singh, A.*, and **S.K. Deb**. 2019. Evaluation of root water uptake of cotton under deficit subsurface drip irrigation using HYDRUS (2D/3D) model. 1st Annual PSS Graduate Student Research Symposium, Apr. 22, Texas Tech University, Lubbock, TX. (oral)
51. Otuya, R., L.C. Slaughter, C.P. West, V. Acosta-Martinez, and **S.K. Deb**. 2019. Soil microbial communities and soil health in semi-arid pastures of the Texas Southern High Plains. Soil Science Society of America International Soils Meeting, Jan. 6-9, San Diego, CA. (oral)
52. Escamilla, E.*, **S.K. Deb**, and J.R. Young. 2018. Effects of cultivation practices and product treatments on soil moisture retention characteristics in golf course soils with contrasting textures. The 2018 American Society of Agronomy and Crop Science Society of America Meeting, Nov. 4-7, Baltimore, MD. (oral)
53. Kharel, G., **S.K. Deb**, C.P. West. 2018. Evaluation of different models for quantifying water retention and thermal properties of semi-arid pasture soils. International Aridlands Conference, Aug. 13-14, Lubbock, TX. (poster)

54. Paxton, H.**, H. Dekker**, **S.K. Deb**, L.C. Slaughter, and C.P. West. 2018. Greenhouse gas emissions from soils of semi-arid pastures: Response to legume presence. Southern Region SARE Young Enhancement Grant Poster Requirements, SSARE program, University of Georgia, Griffin, GA. [Invited] (poster)
55. Neupane, J., W. Guo, F. Zhang, Z. Lin, Y. Sun, A. Raihan, **S.K. Deb**, and C.P. West. 2018. Cotton yield variability in relation to irrigation rates, soil physical properties, and topography. The 2018 American Society of Agronomy and Crop Science Society of America Meeting, Nov. 4-7, Baltimore, MD. (oral)
56. Sun, Y., W. Guo, D.C. Weindorf, F. Sun, **S.K. Deb**, Z. Lin, J. Neupane, A. Raihan, and C.P. West. 2018. Assessing within-field spatial variability of Ca using proximal remote sensing. The 2018 American Society of Agronomy and Crop Science Society of America Meeting, Nov. 4-7, Baltimore, MD. (oral)
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