

LINDSEY C. SLAUGHTER, Ph.D.

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EDUCATION

2012—2016 University of Kentucky (UK), Lexington, KY. Ph.D. Soil Science.

2010—2012 University of Kentucky (UK), Lexington, KY. M.S. Plant and Soil Sciences.

2006—2010 University of Tennessee at Martin (UTM), Martin, TN. B.S. Natural Resource Management.

PROFESSIONAL POSITIONS

2022—present Associate Professor, Texas Tech University (TTU), Department of Plant and Soil Science, Lubbock, TX. Research focus: Soil microbial ecology in semi-arid managed and natural ecosystems.

2016—2022 Assistant Professor, Texas Tech University (TTU), Department of Plant and Soil Science, Lubbock, TX. Research focus: Soil microbial ecology in semi-arid managed and natural ecosystems.

2012—2016 Graduate Research Assistant, University of Kentucky, Department of Plant and Soil Sciences, Lexington, KY. Primary Advisor: Rebecca L. McCulley. Ph.D. Dissertation: Effects of *Epichloë coenophiala*—Tall Fescue Symbiosis on Plant-Microbe-Soil Interactions in a Temperate Pasture.

2010—2012 Graduate Research Assistant, University of Kentucky, Department of Plant and Soil Sciences, Lexington, KY. Primary Advisor: Rebecca L. McCulley. M.S. Thesis: Soil Microbial Community Response to Climate Change: Results from a Temperate Kentucky Pasture.

TEACHING

PSS 2432: Principles and Practices in Soils. TTU. (4 credits, 100% responsibility, F)

PSS 4331: Soil Microbial Ecology. TTU. (3 credits, 100% responsibility, Sp)

PSS 6332: Advanced Soil Microbial Ecology. TTU. (3 credits, 100% responsibility, Sp-odd years)

PSS 1100: First-Year & Transfer Student Seminar. TTU. (1 credit, 100% responsibility every 3 years, F)

PUBLICATIONS AND ABSTRACTS

Peer-reviewed publications (* = corresponding author)

Laza, H.E., Acosta-Martinez, V., Cano, A., Baker, J., Mahan, J., Gitz, D., Emendack, Y., **Slaughter, L.**, Lascano, R., Tissue, D. and Payton, P., 2023. Elevated [CO₂] enhances soil respiration and AMF abundance in a semiarid peanut agroecosystem. *Agriculture, Ecosystems & Environment*, 355, p.108592.

Kharel G., Dhakal M., Deb S.K., **Slaughter L.C.**, Simpson C., and West C.P. 2023. Effect of Long-Term

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- Semiarid Pasture Management on Soil Hydraulic and Thermal Properties. *Plants* 12(7):1491. <https://doi.org/10.3390/plants12071491>
- Ghimire R., Thapa V.R., Acosta-Martinez V., Schipanski M., **Slaughter L.C.**, Fonte S.J., Shukla M.K., Bista P., Angadi S.V., Mikha M.M., Adebayo, O., and Noble Strohm, T. 2023. Soil Health Assessment and Management Framework for Water-Limited Environments: Examples from the Great Plains of the USA. *Soil Systems* 7(1):22. <https://doi.org/10.3390/soilsystems7010022>
- Dang, K., Ji, L., **Slaughter, L. C.**, Hou, J., Shen, M., Li, J., and Dong, Y. 2023. Synergistic changes of rhizosphere bacterial community and soil properties in greenhouse soils under long-term tomato monoculture. *Applied Soil Ecology*, 183, 104738.
- Albalasmeh, A., O. Mohawesh, M. Gharaibeh, S. Deb, **L. Slaughter** and A. El Hanandeh. 2022. Artificial neural network optimization to predict saturated hydraulic conductivity in arid and semi-arid regions. *Catena* 217: 106459.
- Neupane, J., Guo, W., Cao, G., Zhang, F., **Slaughter, L.**, and S. Deb. 2022. Spatial patterns of soil microbial communities and implications for precision soil management at the field scale. *Precision Agriculture* 23 (3), 1008-1026.
- Slaughter, L.**, Deb, S., Chakraborty, S., Li, B., Bakr, N., Edwards, B., and Weindorf, D. 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.
- Otuya, R., **Slaughter, L.C.***, West, C.P., Deb, S.K., and Acosta-Martinez, V. 2021. Compost and legume management differently alter soil microbial abundance and soil carbon in semiarid pastures. *Soil Science Society of America Journal*, 85(3), 654-664.
- Sapkota, M., Young, J., **Slaughter, L.**, Acosta-Martínez, V., and Coldren, C. 2021. Soil microbial biomass and composition from urban landscapes in a semiarid climate. *Applied Soil Ecology*, 158, 103810.
- Sapkota, M., Young, J., Coldren, C., **Slaughter, L.**, and Longing, S. 2020. Soil physiochemical properties and carbon sequestration of Urban landscapes in Lubbock, TX, USA. *Urban Forestry & Urban Greening*, 56, 126847.
- Brevik, E.C., **Slaughter, L.**, Singh, B.R., Steffan, J. J., Collier, D., Barnhart, P., and P. Pereira. 2020. Soil and Human Health: Current Status and Future Needs. *Air, Soil and Water Research*, 13, 1-23.
- Slaughter, L.C.***, Nelson, J. A., Carlisle, E., Bourguignon, M., Dinkins, R. D., Phillips, T. D., and R. L. McCulley. 2019. Tall fescue and *E. coenophiala* genetics influence root-associated soil fungi in a temperate grassland. *Frontiers in Microbiology*, 10.
- Li, J., Wan, X., Liu, X., Chen, Y., **Slaughter, L.C.**, Weindorf, D.C., and Y. Dong. 2019. Changes in soil physical and chemical characteristics in intensively cultivated greenhouse vegetable fields in North China. *Soil & Tillage Research*, 195.
- McDonald, M.D., K.L. Lewis, G.L. Ritchie, P.B. DeLaune, K.D. Casey, and **L.C. Slaughter**. 2019. Carbon dioxide mitigation potential of conservation agriculture in a semi-arid agricultural region. *AIMS Agriculture and Food* 4:206-222.

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Kalosa-Kenyon, E., **Slaughter, L.C.***, Rudgers, J.A., and R.L. McCulley. 2018. Asexual *Epichloë* endophytes do not consistently alter arbuscular mycorrhizal fungi colonization in three grasses. *The American Midland Naturalist*.

Slaughter, L.C.*, Nelson, J.A., Carlisle, E., Bourguignon, M., Dinkins, R.D., Phillips, T.D., and R.L. McCulley. 2018. Climate change and *Epichloë coenophiala* association modify belowground fungal symbioses of tall fescue host. *Fungal Ecology* 31, 37-46.

Slaughter, L.C.* and R.L. McCulley. 2016. Aboveground *Epichloë coenophiala*—grass associations do not affect belowground fungal symbionts or associated plant, soil parameters. *Microbial Ecology* 72: 682—691

Slaughter, L.C.*, A. E. Carlisle, J.A. Nelson, and R.L. McCulley. 2015a. Fungal endophyte symbiosis alters nitrogen source of tall fescue host, but not nitrogen fixation in co-occurring red clover. *Plant and Soil*:1-14. doi: 10.1007/s11104-015-2510-9.

Slaughter, L.C.*, M.N. Weintraub, and R.L. McCulley. 2015b. Seasonal effects stronger than three-year climate manipulation on grassland soil microbial community. *Soil Science Society of America Journal* 79:1352-1365. doi: 10.2136/sssaj2014.10.0431.

Book Chapters

Slaughter, L.C. 2021. Chapter 11: Rhizosphere. In: *Principles and Applications of Soil Microbiology*. T.J. Gentry, J.J. Fuhrmann, and D.A. Zuberer (eds.). Elsevier Inc., Cambridge, MA. P. 269-301.

Selected Published Abstracts and Presentations (* = student presenter, bold type = presenter)

Arora, R.*, Acosta-Martinez, V., Deb, S.K., West, C., Jagadish, K., Cooper-Norris, C., **Slaughter, L.C.** ASA-CSSA-SSSA International Annual Meeting, St. Louis, MO, “Influence of legume inclusion on greenhouse gas fluxes from pasture systems in the Southern High Plains of Texas”. International. October 30, 2023.

Slaughter, L.C., Vilela, M.S., Lewis, K. Ecological Society of America Annual Meeting, Portland, OR, “Soil microbiome response to drought under conservation management in semi-arid cotton production systems”. International. August 6-10, 2023.

Arora, R.*, Acosta-Martinez, V., Deb, S.K., West, C., Jagadish, K., Cooper-Norris, C., **Slaughter, L.C.** Ecological Society of America Annual Meeting, Portland, OR, “Influence of legume inclusion on greenhouse gas fluxes from pasture systems in the Southern High Plains of Texas”. International. August 6-10, 2023.

Vilela, M.S.*, **Slaughter, L.C.**, Castanheira, D.T., Carvalho, M.A.F, Netto, P.M., Campos, A.A.V., Alecrim, A.O., Faria, M.M.L., Figueiredo, O.J., Medeiros, F.L.C., Guimaraes, R.J., ASA-CSSA-SSSA International Annual Meeting, Baltimore, MD, “Soil Organic Matter in Different Coffee Cropping Systems.” International. November 9, 2022.

Arora, R.*, **Slaughter, L.C.**, West, C.P., Deb, S.K., Acosta-Martinez, V., ASA-CSSA-SSSA International Annual Meeting, Baltimore, MD, “Influence of Legume Inclusion on Greenhouse Gas Emissions from Pasture Systems in the Southern High Plains of Texas.” International. November 7, 2022.

Wilson, N.*, **Slaughter, L.C.**, Simpson, C., ASA-CSSA-SSSA International Annual Meeting, Baltimore, MD, “Interactions Between Beneficial Fungal Symbionts in Greenhouse Tomatoes.” International. November 7, 2022.

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- Petermann, B. J.***, Lewis, K., Acosta-Martinez, V., Steffan, J., Echevarria Laza, H., Slaughter, L., ASA-CSSA-SSSA International Annual Meeting, Baltimore, MD, "Conservation Management Practices Influence Soil Microbial Communities Regardless of Irrigation in Sandy Loam Cotton Systems of the Semi-Arid Texas Southern High Plains." International. November 7, 2022.
- Arora, R.*, **Slaughter, L.C.**, West, C.P., Deb, S.K., Acosta-Martinez, V., World Congress of Soil Science, Glasgow, Scotland, UK, "Influence of Legume Inclusion on Greenhouse Gas Emissions from Pasture Systems in the Southern High Plains of Texas." International. August 2, 2022.
- Petermann, B. J.***, Lewis, K., Acosta-Martinez, V., Steffan, J., Echevarria Laza, H., Slaughter, L., ASA-CSSA-SSSA International Annual Meeting, Salt Lake City, UT, "Microbial responses under differing ecosystems to promote agricultural sustainability on the Texas Southern High Plains," International. November 2021.
- Petermann, B. J.*, Lewis, K., Acosta-Martinez, **Slaughter, L.**, ASA-CSSA-SSSA International Annual Meeting, ASA-CSSA-SSSA, Salt Lake City, UT, "Biological soil crusts and conservation agriculture soils." International. November 2021.
- Petermann, B.J.***, Lewis, K., Acosta-Martinez, V., Steffan, J., Laza, H.E., Slaughter, L.C. 2021. Soil Survey and Land Resource Workshop, Texas A&M University, College Station, TX. "Microbial responses under differing ecosystems to promote agricultural sustainability on the Texas Southern High Plains." State. February 5, 2021.
- Slaughter, L.**, Lewis, K., Sharma, J., 2020. Texas State Support Committee Meeting, Texas State Support Committee, Lubbock, TX, "Exploration and Discovery of the Cotton Microbiome in the Texas Southern High Plains," State. December 2, 2020.
- Edwards, B.***, Slaughter, L., Acosta-Martinez, V., Cotton, J. 2020. ASA-CSSA-SSSA International Annual Meeting (Virtual), American Society of Agronomy, Crop Science Society of America, Soil Science Society of America, "The Effects of Storage Method and Soil Texture on Hydrolytic Enzyme Activities in Semi-Arid Soils" International. November 9, 2020.
- Petermann, B. J.***, Lewis, K., Acosta-Martinez, V., Echvarria Laza, H., Steffan, J., Slaughter, L. 2020. ASA-CSSA-SSSA International Annual Meeting (Virtual), American Society of Agronomy, Crop Science Society of America, Soil Science Society of America, "Soil Microbial Response to Long-Term Management Practices in Cotton Systems of the Texas Southern High Plains" International. November 10, 2020.
- Ramos, H.***, Slaughter, L., Lewis, K., Ritchie, G. 2020. ASA-CSSA-SSSA International Annual Meeting (Virtual), American Society of Agronomy, Crop Science Society of America, Soil Science Society of America, "Success of commercial arbuscular mycorrhizal fungi inoculum in colonizing cotton roots." International. November 10, 2020.
- Slaughter, L.**, Lewis, K., and G. Ritchie. 2019. "Potential Use and Efficacy of Beneficial Microorganisms to Enhance Cotton Productivity and Soil Health in the Texas Southern High Plains" Texas State Support Committee Meeting, Texas State Support Committee - Cotton Incorporated. December 5, 2019 in Lubbock, TX.
- Petermann, B. J.***, Steffan, J. J., Brevik, E. C., Slaughter, L. 2019. "Microbial Response to Altered Land Management Strategies in Eastern Montana" International. ASA-CSSA-SSSA International Annual Meeting, American Society of Agronomy, Crop Science Society of America, Soil Science

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Society of America. November 12, 2019 in San Antonio, TX.

Petermann, B. J., Lewis, K., Acosta-Martinez, V., Sharma, J., Steffan, J., **Slaughter, L.** 2019. "Soil Microbial Response to Long-Term Management Practices in Cotton Systems of the Texas Southern High Plains". ASA-CSSA-SSSA International Annual Meeting, American Society of Agronomy, Crop Science Society of America, Soil Science Society of America. November 12, 2019 in San Antonio, TX.

Sapkota, M.*, Young, J., Slaughter, L. 2019. "Soil Physicochemical Properties and Carbon Sequestration of Urban Landscapes in Lubbock, TX," ASA-CSSA-SSSA International Annual Meeting, American Society of Agronomy, Crop Science Society of America, Soil Science Society of America. November 12, 2019 in San Antonio, TX.

Decker, H.*, Slaughter, L., 2019. "Evaluating Commercial Microbial Amendments for Cotton Production in the Texas High Plains". ASA-CSSA-SSSA International Annual Meeting, American Society of Agronomy, Crop Science Society of America, Soil Science Society of America. November 10, 2019 in San Antonio, TX.

Edwards, B.*, Weindorf, D., Deb, S., Bakr, N., Acosta-Martinez, V., Slaughter, L. 2019. "Establishing an on-farm model to build soil health and productivity and sustain local food production systems in West Texas," ASA-CSSA-SSSA International Annual Meeting, American Society of Agronomy, Crop Science Society of America, Soil Science Society of America. November 10, 2019 in San Antonio, TX.

Hughes, P.*, Decker, H., Deb, S., Slaughter, L. C., and C. West. 2019. Greenhouse gas emissions from soils of semi-arid pastures: Response to legume presence. Poster presentation at the TTU Undergraduate Research Conference. April 03, 2019 in Lubbock, TX.

Decker, H.*, Hughes, P., Lewis, K., Ritchie, G., and L. C. Slaughter. 2019. Potential use and efficacy of beneficial microorganisms to enhance cotton productivity and soil health in the Texas Southern High Plains. Poster presentation at the TTU Undergraduate Research Conference. April 02, 2019 in Lubbock, TX.

Riley, M., and **L. C. Slaughter**. 2019. "Soil microbial dynamics in semi-arid wetlands". Oral presentation at the Soil Survey and Land Resource Workshop – Texas. February 07, 2019 in College Station, TX.

Riley, M.*, and L. C. Slaughter. 2019. "How does human development influence soil microbial biomass and activity in ephemeral playas?" Rapid oral and poster presentation at the 2019 SSSA International Soils Meeting. January 07, 2019 in San Diego, CA.

Otuya, R. O.*, and L. C. Slaughter. 2019. "Soil microbial communities and soil health in semi-arid pastures of the Texas Southern High Plains." Rapid oral and poster presentation at the 2019 SSSA International Soils Meeting. January 07, 2019 in San Diego, CA.

Hughes, P.*, Decker, H., Deb, S. Slaughter, L. C., and C. West. 2018. "Greenhouse gas emissions from soils of semi-arid pastures: Response to legume presence." Poster presentation at the Southern SARE Administrative Council meeting. September 2018 in Griffin, GA.

Otuya, R. O.*, and L. C. Slaughter. 2018. "Effects of compost manure on soil microbial community and soil health in a semi-arid improved pasture ecosystem." Poster presentation at the International

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Aridlands Conference. August 13-14, 2018 in Lubbock, TX.

Florence, K.*, Baxter, L., Slaughter, L. C., and C. West. 2017. “Managing winter annual cover crops for increased productivity and soil health.” Poster presentation at the Southern SARE Administrative Council meeting. September 2017 in Griffin, GA.

Slaughter, L. C., J. A. Nelson, E. Carlisle, M. Bourguignon, R. D. Dinkins, T. D. Phillips, and R. L. McCulley. 2016. “Climate change and *Epichloë coenophiala* association modify belowground fungal symbioses of tall fescue host.” Oral presentation at the 2016 ASA-CSSA-SSSA International Annual meetings. November 8, 2016 in Phoenix, AZ.

INVITED PRESENTATIONS & LECTURES

Slaughter, L.C. “Enhancing soil ecology and plant-microbe-soil interactions for improved productivity and ecosystem services in the semi-arid Southern High Plains”. Soil Survey and Land Resource Workshop. Bryan, TX. **February 8, 2024.**

Slaughter, L.C. Panelist for “Research GUIDE 3: Mastering the Review Process”, Office of Research Development, TTU, Lubbock, TX. **October 23, 2023.**

Slaughter, L.C. LGMA Intern Presentation, Lubbock Master Gardeners Association (LGMA), Lubbock, TX, "A Primer on Soil Ecology". **October 5, 2023.**

Slaughter, L.C. Soil Health and Food Security. II International Workshop on Food Security. Federal University of Lavras, Lavras, Minas Gerais, Brazil. **March 15, 2023.**

Slaughter, L.C. “Soil Biologicals – Friend or Foe?”. Concho Valley Cotton Conference. San Angelo, TX. **February 28, 2023.**

Slaughter, L.C. Soil Health Institute Educator Event, Soil Health Institute, Quarterway Cotton Growers, Plainview, TX, "Soil health visual assessment in field". **February 21, 2023.**

Slaughter, L.C., and Siebecker, M. “Developing strategies for nitrogen and phosphorus circular economies: An overview of CASFER at TTU and beyond”. Soil Survey and Land Resource Workshop. Bryan, TX. **February 9, 2023.**

Slaughter, L.C. Panelist for “What can I expect during my first years as a new faculty member? A Panel Discussion”. TTU TLPDC Seminar Series. Lubbock, TX. **September 21, 2022.**

Slaughter, L.C. “Soils and Ecology”. Lubbock Master Gardeners Association Intern Program. Lubbock, TX. **September 15, 2022.**

Slaughter, L.C. Panelist for “Women in STEM: Promising Practices for Persistence”. TTU STEM-CORE. **March 31, 2022.**

Slaughter, L.C. “Integrated Soil-Plant-Animal Approaches to Reach Net Zero in Dairy Systems”. Southwest Sustainable Dairy Research Meeting. Amarillo, TX. **March 3, 2022.**

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Slaughter, L.C. "Soils at the intersection of plant, animal, and human health: The importance of a systems-level approach." Catalyst Conference for The Nexus of Soil and Water Quality: Impacts on the Health of Humans, Animals and Ecosystems. Federation of American Societies for Experimental Biology. **February 2, 2022.**

Slaughter, L.C. "Seasonal Variation of Soil Microbes." Plant Party Seminar Series. Texas A&M AgriLife Extension Service. Virtual presentation. **September 22, 2021.**

Slaughter, L.C. "Plant-Soil Interactions in the Semi-arid Texas Southern High Plains". Invited seminar for the Noble Research Seminar Series. Noble Research Institute, Ardmore, OK. **February 13, 2020.**

Slaughter, L., Hu, C., STEM Teaching, Engagement, and Pedagogy Seminar Series, TTU-TLPDC, Lubbock, TX, "Common Course Challenges and What to Do About Them: An Open STEP Program Discussion," **April 9, 2019.**

Slaughter, L., Guest Lecture for Pi² course: Practicum in Inquiry and Investigative Thinking, Dr. Matthew Barnes, "Plant-Soil Interactions in Semi-arid Ecosystems," **April 8, 2019.**

Slaughter, L. C. Role of soil microbiology in sustainable agriculture. Guest lecture for PSS 2316: Introduction to Sustainable Agriculture, Dr. Sukhbir Singh. TTU. **November 1, 2018.**

Slaughter, L. C. Introduction to soils: A hands-on approach. Guest lecture for PSS 1321: Agronomic Plant Science, Dr. Brendan Kelley. TTU. **October 16, 2018.**

Slaughter, L. C. Soil: A Living Ecosystem. Invited panelist and speaker for *Earth: Echo of Footfall* exhibition, Charles Adams Studio Project. Lubbock, TX. **October 6, 2018.**

Slaughter, L. C. Soil Ecology and Microbiology. Guest lecture for MBIO 3401: Principles of Microbiology, Honors, Dr. Allie Smith. TTU. **October 5, 2018.**

Slaughter, L. C. Soil health and sustainability in drylands. Invited workshop for the University Dynamics of Cataratas (UDC). Foz do Iguacu, Parana, Brazil. **August 17, 2018.**

Slaughter, L. C. Plant-Soil Interactions in Semi-arid Ecosystems. Invited seminar for the University Dynamics of Cataratas (UDC). Foz do Iguacu, Parana, Brazil. **August 14-16, 2018.**

Slaughter, L. C. Climate change and aboveground fungal endophyte association modify belowground fungal symbioses in tall fescue. Invited seminar for the Association of Natural Resources (ANRS), Department of Natural Resources Management, TTU. **October 13, 2017.**

Slaughter, L. C. Tall Fescue—*Epichloë coenophiala*: Biology and Symbiosis. Guest Lecture for PLS 597: Special Topics in PLS: Population Genetics Lab, Dr. Olga Tsyusko-Unrine. UK. **September 9, 2015.**

Slaughter, L. C. Sustainability in Agriculture Systems. Guest Lecture for PLS 510: Forage Management and Utilization, Dr. Ben Goff. UK. **April 15, 2015.**

Slaughter, L. C. Methods in Environmental Research. Guest Lecture for EQM 310: Farm and Ranch

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Management, Krista Lea. Asbury University. **April 17, 2015.**

Slaughter, L. C. Plant-Microbe Interactions in Tall Fescue Pastures. Invited Research Presentation for C. Young Lab, Samuel Roberts Noble Foundation. Ardmore, OK. **May 19, 2014.**

HONORS AND AWARDS

2023. *Soil Science Society of America Journal* Outstanding Associate Editor Award. Soil Science Society of America.

2023. Davis College Teaching Award. Davis College of Agricultural Sciences and Natural Resources. Texas Tech University.

2022. *Soil Science Society of America Journal* Outstanding Associate Editor Award. Soil Science Society of America.

2019. Nominee, President's Excellence in Academic Advising Award. Texas Tech University.

Fall 2017—Spring 2018. Fellow, Women Faculty Writing Program (WFWP). Program Sponsors: President's Gender Equity Council, Women's Studies Program, and the University Writing Center. Texas Tech University.

2017. Nominee, Soil and Water Management and Conservation Young Scholar Award. Soil and Water Management and Conservation Division, Soil Science Society of America.

Fall 2017—Spring 2018. Fellow, Stem Teaching, Engagement, and Pedagogy (STEP) Program. Sponsored by TTU Teaching, Learning, and Professional Development Center (TLPDC).

SELECTED GRANTS AND AWARDS

Total grant awards as PI or Co-PI: \$15,215,201.45; My portion of award credit in ORS: \$1,437,217.39

2024—2028. PI. Implementing cover crops and compost additions to improve soil microbiomes and mitigate stress in semi-arid cotton production systems. USDA-NIFA Cooperative State Research & Extension Service. Total amount awarded \$294,000 (60% credit: **\$176,400.00**).

2023—2024. PI. Irrigation management effects on microbial activities and soil C accumulation under long-term compost application in semi-arid cotton systems. Texas State Support Committee (TSSC), Cotton Incorporated. Total amount awarded: \$25,000 (60% credit: **\$15,000.00**).

2023—2028. Co-PI. Establishing climate smart commodities with reduced greenhouse gas footprints to enhance environmental and economic sustainability in the Texas High Plains. USDA - Natural Resources Conservation Service. Total amount awarded: \$4,945,553.00 (5% credit: **\$247,277.65**).

2023—2025. Co-PI. Sorghum Cotton Rotation - A pragmatic route to improve farm productivity in water limited environments of the Southwest High Plains. USDA-NIFA Cooperative State Research Ed & Extension Service. Total amount awarded: \$294,000 (25% credit: **\$73,500**).

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2022—2024 (annual renewal, competitive). Co-PI. Effect of different herbicides on soil health in cotton production systems. Texas State Support Committee (TSSC), Cotton Incorporated. Cumulative amount awarded: \$45,000 (20% credit: \$11,250).

2021—2023. PI. Harnessing soil health to mitigate greenhouse gas emissions in semi-arid pasture ecosystems. USDA-NIFA Cooperative State Research Education & Extension Service. Total amount awarded \$500,000.00 (60% credit: **\$300,000.00**).

2020—2022. PI. Comparing the effects of forage mix and nutrient management on soil greenhouse gas flux in semi-arid improved pastures. Southern SARE, Subcontract from University of Georgia by USDA-NIFA. Total amount awarded \$16,450.00 (95% credit: **\$15,627.50**).

2019—2022 (annual renewal, competitive). PI. Exploration and Discovery of the Cotton Microbiome in the Texas Southern High Plains. Texas State Support Committee (TSSC), Cotton Incorporated. Cumulative amount awarded \$88,327 (60% credit: **\$52,996.20**).

2017—2022 (annual renewal, competitive). PI. Potential use and efficacy of beneficial microorganisms to enhance cotton productivity and soil health in the Texas Southern High Plains. Texas State Support Committee (TSSC), Cotton Incorporated. Cumulative amount awarded \$50,000 (60% credit: **\$30,000.00**).

2019—2020. PI. Establishing an on-farm model to build soil health and productivity and sustain local food production systems in West Texas (Renewal). Alcove Farms LLC. Total amount awarded \$5,000 (50% credit: **\$2,500.00**).

2019—2023. Co-PI. Traveling Laboratories: Inspiring Female and Minority Rural Students to Excel in STEM. USDA-NIFA Cooperative State Research Ed. & Extension Service. Total amount awarded \$97,182 (15% credit: **\$14,577.30**).

2019—2022. Co-PI. OAP: Precipitation and Irrigation Management to Optimize Profits from Crop Production. USDA Agricultural Research Service. Total amount awarded \$213,468 (10% credit: **\$21,346.80**).

2019—2021. Co-PI. Impact of the feedlot environment microbiome and soil chemistry on *Salmonella* survival and persistence and evaluation of mitigation strategies to remediate *Salmonella* in soil. National Cattlemen's Beef Association. Total amount awarded \$264,127.46 (20% credit: **\$52,825.49**).

2018—2020. Co-PI. Evaluating Economic and Soil Health Benefits of Cover Crop and Forages in Dryland Cropping Systems in the Central Great Plains. Ogallala Aquifer Program. USDA-ARS. Total amount awarded \$188,003 (4% credit: **\$7,520.12**).

2018—2019. PI. Establishing an on-farm model to build soil health and productivity and sustain local food production systems in West Texas. Cornerstone Business Holdings. Total amount awarded \$15,085 (45% credit: **\$6,788.25**).

2018—2019. Co-PI. Soil health variability among residential landscapes impact urban water conservation. High Plains Underground Water District No. 1. Total amount awarded \$7,173 (20% credit: **\$1,434.60**).

2018. Co-PI. Greenhouse gas emissions from soils of semi-arid pastures: Response to forage type and legume presence. Southern Region Sustainable Ag Research Education (SARE) 2017 James Harrison

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Hill, Sr. Young Scholar Enhancement Grant Program. Total amount awarded \$2,778 (45% credit: **\$1,250.10**).

2017. Co-PI. Managing winter annual cover crops for increased productivity and soil health. Southern Region Sustainable Ag Research Education (SARE) 2017 James Harrison Hill, Sr. Young Scholar Enhancement Grant Program. Total amount awarded \$2,531 (95% credit: **\$2,404.45**).

PROFESSIONAL MEMBERSHIPS

American Society of Agronomy (ASA)
Crop Science Society of America (CSSA)
Soil Science Society of America (SSSA)
Ecological Society of America
Soil Ecology Society
Professional Soil Scientists Association of Texas

PROFESSIONAL SERVICE

Professional activities

- Vice President, Professional Soil Scientists Association of Texas. **2024.**
- Incoming chair, Soil Biology and Biochemistry Division, Soil Science Society of America. **2023—2024.**
- Technical Specialist for Soil Health in the Texas High Plains region, Soil Health Institute. **2023—present.**
- Judge for Graduate Student Poster Competition, Soil Survey and Land Resource Virtual Workshop. Hosted by Texas A&M AgriLife Research and Extension. **February 9, 2022.**
- National Science Foundation, Reviewer for Grant Proposal. **2021.**
- Southern Sustainable Ag Research Education (SARE), Technical Reviewer for Grant Proposal. **2021.**
- Associate Editor, Soil Science Society of America Journal, Soil Biology and Biochemistry (S03) Division. **2020—present.**
- Planning Subcommittee member and session moderator for 2020 and 2021 ASA-CSSA-SSSA International Annual Meeting, Soil Biology and Biochemistry Division. **2020—present.**
- Reviewer of manuscripts for peer-reviewed scientific journals, including *Applied Soil Ecology*, *Microbial Ecology*, *Natural Sciences Education*, *Plant and Soil*, *PeerJ*, *Soil Biology and Biochemistry*, *The Journal of Agricultural Science*, *Science of the Total Environment*, *European Journal of Soil Science*, *Global Change Biology*, and *The Plant Genome*. **2016—present.**
- Foundation for Food and Agriculture Research, Reviewer for Grant Proposal. **November 18, 2019.**
- Judge for Students of Agronomy, Soils, and Environmental Sciences (SASES) speech contest, preliminary rounds, at ASA-CSSA-SSSA meeting in Tampa, FL. **October 22, 2017.**
- Moderator for Soil Biology and Biochemistry General Session I at ASA-CSSA-SSSA meeting in Tampa, FL. **October 23, 2017.**
- Judge for Soil Biology and Biochemistry Division Graduate Student Poster Competition at ASA-CSSA-SSSA meeting in Tampa, FL. **October 24, 2017.**

Departmental committees & activities

- PSS Search Committee: Associate/Full Professor of Pedology. **2021—2022.**
- Texas Tech Team: Undergraduate Collegiate Soils Judging, Faculty Advisor. **2020—present.**
- PSS Graduate Students Committee (chair). **2019—present.**
- PSS Website & Communication Committee. **2019—present.**
- Texas Tech Team: Undergraduate Collegiate Soils Judging, Assistant Faculty Advisor. **2019.**

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- Organizing committee chair: Annual PSS Student Research Symposium. **2019—present.**
- PSS Search Committee: PSS Department Chairperson. **2019.**
- PSS Search Committee: Assistant Professor of Applied Soil Chemistry. **2018.**
- PSS Search Committee: Assistant Professor of Ecohydrology. **2017.**
- PSS Undergraduate Research Committee (chair). **2017—present.**
- PSS Squad for e-Learning Compliance. **2017—present.**
- PSS Graduate Students Committee. **2016—2019.**

College committees & activities

- Committee member: 2021-CASNR AgriTechsan Interviews. **2021.**
- Davis College Recruitment, Retention, & Career Development Committee (member). **2020—present.**

University committees & activities

- Judge for 14th Annual Undergraduate Research Conference, Poster Session reviewer. **2021.**
- Specialist: Stem Teaching, Engagement, and Pedagogy (STEP) Program. TTU Teaching, Learning, and Professional Development Center (TLPDC). **Fall 2018—Spring 2019.**
- TTU ePortfolio Faculty Learning Committee. **2018—2019.**
- Judge for Undergraduate Research Conference, Poster Session reviewer. **2019.**
- Judge for 10th Annual Texas Tech University Undergraduate Research Conference (TTU URC). The TTU Center for Active Learning and Undergraduate Engagement. **2018.**
- Judge for 16th Annual Graduate Research Poster Competition. TTU Graduate School. **2017.**