Wenxuan Guo, Ph.D.

Department of Plant and Soil Science, Texas Tech University
Department of Soil and Crop Sciences, Texas A&M AgriLife Research
Bayer Plant Science Building, P.O. Box 42122
2911 15th Street, Lubbock, TX 79409
Office Phone: (806) 834-2266 | Fax: (806) 742-0775
E-mail: wenxuan.guo@ttu.edu | wenxuan.guo@ag.tamu.edu

EDUCATION:

1996	B.S.	Crop Science	Agricultural University of Hebei, Baoding, China
2002	M.S.	Plant, Soil, and Environmental Science	West Texas A&M University, Canyon, Texas
2005	Ph.D.	Crop Science	Texas Tech University, Lubbock, Texas

PROFESSIONAL EXPERIENCE:

1996 - 1999	*Lecturer*, Department of Agronomy, Handan Agricultural College, Handan, China
2006 - 2013	*Precision Agriculture Scientist*, South Plains Precision Ag, Plainview, TX
2013 - 2016	*Global Environmental Modeling Scientist*, Breeding Organization, Monsanto Company, St. Louis, MO
2016 - present	*Assistant/Associate Professor of Crop Ecophysiology/Precision Agriculture*, Department of Plant and Soil Science, Texas Tech University, Lubbock, TX
2019 - present	*Assistant/Associate Professor of Crop Ecophysiology/Precision Agriculture*, Texas A&M AgriLife Research, Lubbock, TX

MEMBERSHIP IN PROFESSIONAL SOCIETIES:

Professional:

1) American Society of Agronomy, 2005 to present
2) Crop Science Society of America, 2005 to present
3) Soil Science Society of America, 2005 to present
4) American Geophysical Union, 2018 to present
5) International Society of Precision Agriculture, 2020 to present

INTERNATIONAL EXPERIENCE:

2017. Hosted Visiting Professor from Agricultural University of Hebei, China: Aijun Zhang. Currently collaborating on irrigation and dryland agriculture research.

2017. Improving water use efficiency with precision agriculture technologies. Anyang, China. August 23, 2017. Invited presentation.

2018. Data-driven Precision Agriculture: State of the Art and Outlook. Agricultural University of Hebei, Baoding, China. June 29, 2018. Invited presentation.

2018. Data-driven Precision Agriculture: Opportunities and Challenges. Huazhong Agricultural University, Wuhan, China. July 5, 2018. Invited presentation.

2018-2019. Hosted Visiting Assistant Professor from Jinlin Agricultural University of Jilin, China: Liying Cao.

2019. Hosted Visiting Scholar from Chonnam National University, South Korea: Jonghan Ko.

2019-2020. Hosted Visiting Scholar from Huazhong Agricultural University, China: Le Xu.

2020-2021. Hosted Visiting Scholar and postdoctoral research associate from University of Damanhour, Egypt: Ahmed Hammad.

2023-2024. Hosting Visiting Scholar and postdoctoral research associate from Agricultural Research Corporation, Department of Agricultural Engineering, Sudan: Alwaseela Hassan.

2024-present. Postdoctoral Research Associate, Daniel Cudjoe.

2024-present. Postdoctoral Research Associate, Sanai Li.

LICENSES AND CERTIFICATIONS:

2004. SSToolbox Geographic Information System. SST Software.

2017. Remote Pilot Certificate. Federal Aviation Administration.

2019. DSSAT Training Certificate, DSSAT Foundation.

AREAS OF EXPERTISE:

1) High-throughput plant phenotyping using unmanned aerial systems (UAS).
2) Plant growth simulation and environmental modeling.
3) Precision agriculture, including precision water and nutrient management, integrating spatial technologies such as GPS, geographic information system, and remote sensing.
4) Irrigation scheduling.
5) Agricultural remote sensing and image analysis.
6) Computer programming and simulation using Python and R.
7) Geospatial data analysis and mapping using GIS programs.
8) Machine learning and deep learning in agriculture.

HONORS AND AWARDS:

Honors:

1) 2018. Program Lead of Precision Agriculture Program at Texas Tech University as one of the 25 Best Colleges for Precision Agriculture by PrecisionAg.com.
2) 2018 Nominee, Robert Foster Cherry Award for Great Teaching. Texas Tech University, Nominated by Department of Plant and Soil Science. Texas Tech University
3) 2021. Nominee - CASNR Junior Faculty Award, CASNR, College. Nominated by Department of Plant and Soil Science. Texas Tech University
4) 2024. Nominee - Graduate Advising Award. CASNR, College. Nominated by Department of Plant and Soil Science. Texas Tech University

Awards:

1) 2014. Above and Beyond Award, Monsanto Company
2) 2014. Technology Recognition, Monsanto Company
3) 2015. Breeding Operational Excellence Award, Monsanto Company
4) 2016. Breeding Operational Excellence Award, Monsanto Company
5) 2024. Outstanding Research Award. Davis College of Agriculture and Natural Resources, Texas Tech University.

PUBLICATIONS:

Book Chapters

1. Guo, W., Cui, S., Torrion, J., & Rajan, N. (2015). Data-Driven Precision Agriculture: Opportunities and Challenges. In L. Rattan & B. A. Stewart (Eds.), *Soil-Specific Farming: Precision Agriculture* (pp. 353–372). CRC Press.
2. Guo, W., Gu, H., Adedeji, O., & Ghimire, B. (2023). Advances in Remote/aerial Sensing of Crop Water Status. In C. Lobsey & A. Biswas (Eds.), *Advances in Sensor Technology for Sustainable Crop Production (pp. 1-39)*. Burleigh Dodds Science Publishing.

Refereed Journals (*: Corresponding author)

1. Karn, R., Rabia, A. H., Lewis, K., Siebecker, M. G., & Guo, W*. (2025). Principles and application of nitrogen management in precision agriculture. *Advances in Agronomy*, 191. (In Press).
2. Adedeji, O., Abdalla, A., Ghimire, B., Ritchie, G., & Guo, W*. (2024). Flight altitude and sensor angle affect unmanned aerial System cotton plant height assessments. *Drones*, 8(12), 746. https://doi.org/10.3390/drones8120746.
3. Gu, H., Mills, C., Ritchie, G., & Guo, W*. (2024). Water stress assessment of cotton cultivars using unmanned aerial system images. *Remote Sensing*, *16*(14), 2609.

4. Neupane, J., Wang, C., Ritchie, R., Zhang, F., Deb, S., & Guo, W*. (2024). Spatial and temporal patterns of cotton profitability in management zones based on soil properties and topography. *Precision Agriculture*, 25(4):1-24. https://doi.org/10.1007/s11119-024-10158-5.
5. Abdalla, A., Karn, R., Adedeji, O, & Guo, W*. (2024). Dual-stage color calibration of UAV imagery using multivariate regression and deep learning. *Computers and Electronics in Agriculture*, 224 (2024) 109170.
6. Karn, R., Hillin, D., Helwi, P., Scheiner, J., & Guo, W*. (2024). Assessing grapevine vigor as affected by soil physicochemical properties and topographic attributes for precision vineyard management. *Scientia Horticulturae, 328*, 112857.
7. Abdalla, A., Wheeler, T. W., Dever, J., Lin, J., Arce, J., & Guo, W*. (2024). Assessing fusarium oxysporum disease severity in cotton using unmanned aerial system images and a hybrid domain adaptation deep learning time series model. *Biosystems Engineering, 237*, 220-231.
8. Singh, A., Deb, S. K., Slaughter, L. C., Singh, S., Ritchie, G. L., Guo, W., & Saini, R. (2023). Simulation of root zone soil water dynamics under cotton-silverleaf nightshade interactions in drip-irrigated cotton. *Agricultural Water Management, 288*, 108479.
9. Rabia, A. H., Neupane, J., Lin, Z., Lewis, K., Cao, G., & Guo, W*. (2022). Principles and Applications of Topography in Precision Agriculture. *Advances in Agronomy, 171*, 143-189.
10. Neupane, J., Guo, W*., Cao, G., Zhang, F., Slaughter, L., & Deb, S. (2022). Spatial patterns of soil microbial communities and implications for precision soil management at the field scale. *Precision Agriculture, 23*, 1008–1026.
11. Wen, M., Zhao, W., Guo, W., Wang, x., Li, P., Cui, J., Liu, Y., & Ma, F. (2022). Coupling effects of reduced nitrogen, phosphorus and potassium on drip-irrigated cotton growth and yield formation in Northern Xinjiang. *Archives of Agronomy and Soil Science, 68*(9), 1239-1250.
12. Neupane, J., Guo, W*., Lin, Z., West, C., & Zhang, F. (2021). Effects of irrigation rates on cotton yield as affected by soil physical properties and topography in the Southern High Plains. *Plos One, 16*(10), e0258496.
13. Gikunda, R. M., Lawver, D., Baker, M., Boren Alpizar, A., & Guo, W. (2021). Extension education needs for improved adoption of sustainable organic agriculture in Central Kenya. *American Journal of Geographic Information System, 10*(2), 61-71.
14. Lin, Z., & Guo, W*. (2021). Cotton stand counting from unmanned aerial system imagery using MobileNet and CenterNet deep learning models. *Remote Sensing, 13*(14), 2822.
15. Sun, Y., Guo, W*., Weindorf, D., Sun, F., Deb, S., Cao, G., Neupane, J., Lin, Z., & Raihan, A. (2021). Field-scale calcium spatial variability in a semi-arid region: Implications for soil erosion and site-specific management. *Pedosphere, 31*(5), 705–714.
16. Gu, H., Lin, Z., Guo, W*., & Deb, S. (2021). Retrieving surface soil water content using a soil texture adjusted vegetation index and unmanned aerial system images. *Remote Sensing, 13*(1), 145.

17. Lin, Z., & Guo, W*. (2020). Sorghum head detection and counting using unmanned aerial system images and deep learning. *Frontiers in Plant Science, 11*, 1346.

18. Lin, Y., Zhu, Z., Guo, W., Sun, Y., Yang, X., & Kovalskyy, V. (2020). Continuous monitoring of cotton stem water potential using Sentinel-2 imagery. *Remote Sensing, 12*(7), 1176.

19. Pabuayon, I. L. B., Sun, Y., Guo, W., & Ritchie, G. (2019). High-throughput phenotyping in cotton: A review. *Journal of Cotton Research, 2*(1), 18.

20. Gusso, A., Guo, W., & Rolim, S. (2019). Reflectance-based model for soybean mapping in United States at common land unit scale with Landsat 8. *European Journal of Remote Sensing, 52*(1), 522-531.

21. Thompson, C. N., Guo, W., Sharma, B., & Ritchie, G. L. (2019). Using normalized difference red edge index to assess maturity in cotton. *Crop Science, 59*(5), 2167-2177.

22. Neupane, J., & Guo, W*. (2019). Agronomic basis and strategies for precision water management: A review. *Agronomy, 9*(2), 87.

23. Guo, W*. (2018). Spatial and temporal trends of irrigated cotton yield in the Southern High Plains. *Agronomy, 8*(12), 298.

24. Guo, W*. (2018). Application of geographic information system and automated guidance system in optimizing contour and terrace farming. *Agriculture, 8*(9), 142.

25. Chen, T., Zeng, R., Guo, W., Hou, X., Lan, Y., & Zhang, L. (2018). Detection of stress in cotton (Gossypium hirsutum L.) caused by aphids using leaf level hyperspectral measurements. *Sensors, 18*(9), 2798.

26. Torrion, J., Maas, S., Guo, W., Bordovsky, J., & Cranmer, A. (2014). A three-dimensional index for characterizing crop water stress. *Remote Sensing, 6*(5), 4025-4042.

27. Guo, W*., Maas, S. J., & Bronson, K. (2012). Relationship between cotton yield and soil electrical conductivity, topography, and Landsat imagery. *Precision Agriculture, 13*(6), 678-692.

28. Guo, W*., & Maas, S. J. (2012). Terrace layout design utilizing geographic information system and automated guidance system. *Applied Engineering in Agriculture, 28*(1), 31-38.

29. Ko, J., Piccinni, G., Guo, W., & Steglich, E. (2009). Parameterization of EPIC crop model for simulation of cotton growth in South Texas. *Journal of Agricultural Science, 147*(2), 169-178.

30. Todd, R. W., Cole, N. A., Clark, R. N., Rice, W. C., & Guo, W. (2008). Soil nitrogen distribution and deposition on shortgrass prairie adjacent to a beef cattle feedyard. *Biology and Fertility of Soils, 44*(8), 1099-1102.

31. Todd, R. W., Guo, W., Stewart, B. A., & Robinson, C. (2004). Vegetation, phosphorus, and dust gradients downwind from a cattle feedyard. *Journal of Range Management, 57*(3), 291-299.

32. Meng, Q., Meng, A., Wang, J., Liu, Z., Guo, W., & Cui, M. (1998). The path analysis of main quantity characters and dry leaf yield of Stevia Rebaudiano Bertoni. *Journal of Jilin Agricultural University, 20*, 17-19.

Manuscripts under Review:

1. Ghimire, B., Adedeji, O., Ritchie, G. L., & Guo, W. Simulating crop yields and water productivity for three cotton-based cropping systems in the Texas High Plains. *Crop and Environment* (in review).
2. Lin, Z., Guo, W., Gill, N. S., Ritchie, G., Kelly, B., & Song, X.-P. Open cotton boll detection using LiDAR point clouds and RGB images from unmanned aerial systems. *Current Plant Biology* (in review).

Abstract

1. Guo, W. (2025). Advanced technologies for precision water management. *Beltwide Cotton Conference*. January 14-16, 2025. New Orleans, Louisiana.
2. Alcantara, R. T., Wang, C., Guo, W., Johnson, P., Che, Y. (2025). *An Economic Analysis of Climate Resilience of Irrigated Cotton-Based Cropping Systems in the Texas High Plains Region*. January 14-16, 2025. New Orleans, Louisiana.
3. Chowdhury, T., Guo, W. (2025). Assessing the Relationship Between Stomatal Conductance and Water Stress in Cotton Using UAV Multispectral and Thermal Imagery. *Beltwide Cotton Conference*. January 14-16, 2025. New Orleans, Louisiana.
4. Li, S., Guo, W. (2025). Machine Learning-Based Cotton lint Yield Estimation Using Satellite Imagery. *Beltwide Cotton Conference*. January 14-16, 2025. New Orleans, Louisiana.
5. Wieber, E., Guo, W., Adedeji, O., Karn, R., Ghimire, B. (2025). Using UAV Remote Sensing to Assess Cotton Cultivars for Water Stress Resistance in West Texas. *Beltwide Cotton Conference*. January 14-16, 2025. New Orleans, Louisiana.
6. Guo, W., Ghimire, B., Alcantara, R., Wang, C., Ritchie, G., & Lege, K. (2024). A DSSAT-based framework for simulating resilience of cropping systems under climate change. ASA, CSSA, SSSA International Annual Meeting. ASA-CSSA-SSSA. San Antonio, Texas. November 9-12, 2024.
7. Salyer, G., Ghimire, B., Adedeji, O., & Guo, W. (2024). Sorghum phenotyping using unmanned aerial system images. ASA, CSSA, SSSA International Annual Meeting. ASA-CSSA-SSSA. San Antonio, Texas. November 9-12, 2024.
8. Karn, R., Ritchie, G., Lewis, K. L., Adedeji, O., Ghimire, B., & Guo, W. (2024). Cotton yield and fiber quality response to nitrogen rates, soil physicochemical, and topography attributes. ASA, CSSA, SSSA International Annual Meeting. ASA-CSSA-SSSA. San Antonio, Texas. November 9-12, 2024.
9. Chowdhury, T., & Guo, W. (2024). Assessment of cotton water stress using UAV-based hyperspectral remote sensing. ASA, CSSA, SSSA International Annual Meeting. ASA-

CSSA-SSSA. San Antonio, Texas. November 9-12, 2024.

10. Ghimire, B., Guo, W., Karn, R., Adedeji, O., Ritchie, G., Wieber, E., & Chowdhury, T. (2024). Modeling future climate change impacts on cotton production in Texas High Plains. ASA, CSSA, SSSA International Annual Meeting. ASA-CSSA-SSSA. San Antonio, Texas. November 9-12, 2024.
11. Karn, R., Hassan, A. A. M., Adedeji, O., Ghimire, B., & Guo, W. (2024). Within-field cotton yield prediction using temporal satellite imagery combined with deep learning. ASA, CSSA, SSSA International Annual Meeting. ASA-CSSA-SSSA. San Antonio, Texas. November 9-12, 2024.
12. Wieber, E., Adedeji, O., Karn, R., Ghimire, B., & Guo, W. (2024). Evaluating the Impact of Irrigation Rate, Timing, and Maturity-Based Cotton Cultivars on Yield and Fiber Quality in West Texas. 16th International Conference on Precision Agriculture, *July* 21-24, 2024. Manhattan, KS.
13. Adedeji, O., & Guo, W. (2024). Assessing Precision Water Management in Cotton using Unmanned Aerial Systems and Satellite Remote Sensing. 16th International Conference on Precision Agriculture, *July* 21-24, 2024. Manhattan, KS.
14. Adedeji, O., Ghimire, B., & Guo, W. (2024). Predicting Within-field Cotton Yield Variability Using DSSAT for Decision Support in Precision Agriculture. 16th International Conference on Precision Agriculture, *July* 21-24, 2024. Manhattan, KS.
15. Karn, R., Adedeji, O., Ghimire, B., Abdalla, A., Sheng, V., Ritchie, G., & Guo, W. (2024). Within-field cotton yield prediction using temporal satellite imagery combined with deep learning. *16th International Conference on Precision Agriculture*, July 21–24, 2024. Manhattan, KS.
16. Adedeji, Oluwatola, Alwaseela Abdalla Mohamed, Rupak Karn, Bishnu Ghimire, Emily Wieber, and Wenxuan Guo. 2024. Assessing Precision Irrigation Management Using Satellite Remote Sensing. *Beltwide Cotton Conference.* Fort Worth, Texas. *January* 3- 5, 2024.
17. Ghimire, Bishnu, Oluwatola Adedeji, Rupak Karn, Glen Ritchie, and Wenxuan Guo. 2024. Prediction of Cotton Yield under a Changing Climate Using DSSAT in Texas High Plains. *Beltwide Cotton Conference.* Fort Worth, Texas. *January* 3- 5, 2024.
18. Ghimire, Bishnu, Oluwatola Adedeji, Rupak Karn, Glen Ritchie, and Wenxuan Guo. 2024. Application of DSSAT Model to Assess Climate Resilient Cropping Systems in West Texas. *Beltwide Cotton Conference.* Fort Worth, Texas. *January* 3- 5, 2024.
19. Guo, Wenxuan. 2024. Precision Irrigation for Sustainable Agriculture in the Southern High Plains. *The International Conference for On-Farm Precision Experimentation. South Padre Island, Texas.* January 9 – Jan 11, 2024.
20. Karn, R., Adedeji, O., Hassan, A., Ghimire, B., Guo, W. (2023). *A machine learning approach to estimate biophysical and biochemical parameters of cotton using multi-source remote sensing images*. Pasadena, CA.

21. Adedeji, O., Hassan, A., Ghimire, B., Wieber, E., Karn, R., Guo, W. (2023). *Cotton Yield Prediction using Satellite Remote Sensing and Machine Learning*. Pasadena, CA.
22. Ghimire, B., Adedeji, O., Karn, R., Hassan, A., Wieber, E., Guo, W. (2023). *Simulation of regional cotton growth and yield using remote sensing data and crop model in west Texas*. Pasadena, CA.
23. Wieber, E., Adedeji, O., Karn, R., Ghimire, B., Guo, W. (2023). *Using UAV remote sensing to assess cotton cultivars for water stress resistance in West Texas*. Pasadena, CA.
24. Ghimire, B., Guo, W. (2023). *Application of DSSAT model to simulate cotton yield response to different irrigation system in the Southern High Plains of Texas*. New Orleans, LA: Beltwide Cotton Conference.
25. Karn, R., Guo, W., Adedeji, O., Lewis, K., Deb, S., Ritchie, G., Wang, C. (2023). *Estimation of canopy nitrogen content in dryland cotton from Sentinel-2 Images*. New Orleans, LA: Beltwide Cotton Conference.
26. Adedeji, O., Ghimire, B., Karn, R., Wieber, E., Guo, W. (2023). *Estimation of Cotton Plant height using UAS and RTK-GNSS technology*. New Orleans, LA: Beltwide Cotton Conference.
27. Adedeji, O., Wieber, E., Karn, R., Ghimire, B., Guo, W. (2022). *Assessment of within-field spatial variabilities and management zones for precision Irrigation in the Southern High Plains*. Baltimore, MD: ASA-CSSA-SSSA.
28. Ghimire, B., Karn, R., Adedeji, O., Guo, W. (2022). *Integration of remote sensing data into crop model for estimating cotton growth and yield in West Texas*. Baltimore, MD: ASA-CSSA-SSSA.
29. Karn, R., Guo, W., Lewis, K., Ritchie, G., Deb, S., Ghimire, B., Adedeji, O. (2022). *Response of cotton fiber quality to nitrogen rates, soil, and topographic properties*. Baltimore, MD: ASA-CSSA-SSSA.
30. Ghimire, B., Karn, R., Gu, H., Guo, W. (2022). *Simulation of nitrogen uptake and yield in dryland cotton using DSSAT crop modeling*. Baltimore, MD: ASA-CSSA-SSSA.
31. Adedeji, O., Guo, W. (2022). *Estimation of cotton biomass using unmanned aerial systems and satellite-based remote sensing*. Minneapolis, MN: International Society of Precision Agriculture.
32. Karn, R., Gu, H., Guo, W., Lewis, K., Ritchie, G. (2022). *Evaluation of unmanned aerial vehicle images in estimating cotton nitrogen content*. Minneapolis, MN: International Society of Precision Agriculture.
33. Gu, H., Guo, W. (2022). *Integration of unmanned aerial systems images and yield monitor in improving cotton yield estimation*. Minneapolis, MN: International Society of Precision Agriculture.
34. Ghimire, B., Adedeji, O., Lin, Z., Guo, W. (2022). *Modeling spatial and temporal variability of cotton yield using DSSAT for decision support in precision agriculture*.

Minneapolis, MN: International Society of Precision Agriculture.

35. Lin, Z., Guo, W., Gill, N., Ritchie, G., Kelly, B., Song, X. (2022). *Open Cotton Boll Detection using LiDAR Point Cloud and RGB Images*. Minneapolis, MN: International Society of Precision Agriculture.
36. Guo, W. (2022). *On-farm Research on Precision Irrigation – Opportunities and Challenges in a Semi-arid Environment.* Corpus Christi, Texas.
37. Sehga, A., Snider, J. L., Echevarria Laza, H., Guo, W., Kaur, G., Chastain, D. (2022). *Genotype-By-Environment Interaction Effects on Morphological and Physiological Traits of Modern and Obsolete Cotton Cultivars across Southern Cotton Belt*. San Antonio, TX: National Cotton Council.
38. Lin, Z., Guo, W. (2022). *Cotton Open Boll Counting Using UAS Imagery and Deep Learning*. San Antonio, TX: National Cotton Council.
39. Adedeji, O., Lin, Z., Guo, W. (2022). *Effects of Spatial and Temporal Scales on Assessing Cotton Water Stress Using Unmanned Aerial System Images*. San Antonio, TX: National Cotton Council.
40. Gu, H., Guo, W. (2022). *Integration of Unmanned Aerial Systems Images and DSSAT Modeling in Predicting Cotton Growth and Yield*. San Antonio, TX: National Cotton Council.
41. Karn, R., Guo, W., Lewis, K., Deb, S., Ritchie, G., Wang, C. (2022). *Optimizing Nitrogen Management in Dryland Cotton using Precision Agriculture Technologies in the Southern High Plains*. San Antonio, TX: National Cotton Council.
42. Poudyal, C., Rajan, N., Adams, C., Guo, W., Bhandari, M., Fontana, G. (2021). *Analyzing Cotton Growth and Development Using Multispectral and Thermal Sensors on Unmanned Aerial Vehicles*. Salt Lake City, UT: ASA-CSSA-SSSA.
43. Poudyal, C., Rajan, N., Adams, C., Guo, W., Bhandari, M., Fontana, G. (2021). *Comparing Destructive and Non-Destructive Methods for Estimating Leaf Area Index of Cotton*. Salt Lake City, UT: ASA-CSSA-SSSA.
44. Neupane, J., Guo, W. (2021). *Spatio-Temporal Variability of Vegetation Indices in Relation to Soil Properties, Topography, and Cotton Yield*. Salt Lake City, UT: ASA-CSSA_SSSA.
45. Buckingham, B., Lin, Z., Guo, W. (2021). *Assessing Two Unmanned Aerial Systems in Determining Elevation at the Field Scale*. San Francisco, CA: World Academy of Science, Engineering and Technology.
46. Lin, Z., Guo, W., Rabia, A. (2021). *Cotton Stand Count using UAS Imagery and Deep Learning*. Beltwide Cotton Conferences, National Cotton Council.
47. Lin, Z., Guo, W., Rabia, A. (2021). *Cotton stand count with UAS imagery using image processing tools and deep learning algorithm*. Beltwide Cotton Conference.
48. Gu, H., Guo, W., Lewis, K., Deb, S., Ritchie, G., Wang, C. (2021). *Optimizing Nitrogen*

Management in Dryland Cotton using Precision Agriculture Technologies in the Southern High Plains. Beltwide Cotton Conferences, National Cotton Council.

49. Rabia, A., Guo, W., Gu, H. (2020). *Crop water use estimation using uav thermal images to improve irrigation water management*. Madison, WI: ASA-SSSA-CSSA.
50. Gu, H., Guo, W., Lin, Z. (2020). *Retrieving surface soil water content using unmanned aerial system multispectral and thermal images*. Madison, WI: ASA-SSSA-CSSA.
51. Neupane, J., Wang, C., Guo, W. (2020). *Spatial and temporal variability of cotton yield and profit as affected by topography and soil properties at the field-Scale*. Madison, WI: ASA-SSSA-CSSA.
52. Sun, Y., Guo, W., Yang, X., Kovalskyy, V., Lin, Z., Neupane, J. (2019). *Assessing cotton water stress in Southern High Plains Using Unmanned Aerial Systems*. San Antonio, TX: ASA-CSSA-SSSA.
53. Neupane, J., Acosta-Martinez, V., Cao, G., Cao, G., Lin, Z., Guo, W. (2019). *Assessing spatial pattern of soil microbial community at landscape scale for precision soil management*. San Antonio, TX: ASA-CSSA-SSSA.
54. Lin, Z., Guo, W., West, C., Jin, F., Sun, Y. (2019). *Unmanned Aerial Systems and Crop Modeling for Irrigation Scheduling in the Southern High Plains*. San Antonio, TX: ASA-CSSA-SSSA.
55. Guo, W. (2019). *Precision soil and crop management using sensor data*. Lubbock: After Design: Monitoring + Managing The Texas Landscape.
56. Sun, Y., Guo, W., Weindorf, D., Sun, F., Deb, S., Lin, Z., Neupane, J., Raihan, A., West, C. (2018). *Assessing within-field spatial variability of Ca using proximal and remote sensing*. Baltimore, MD: ASA-CSSA-CSA.
57. Neupane, J., Guo, W., Raihan, A., Lin, Z., West, C. (2018). *Cotton yield variability in relation to topography and soil physical properties in the Texas High Plains*. Baltimore, MD: ASA-CSSA-CSA.
58. Guo, W., Neupane, J., Raihan, A., Sun, Y., Lin, Z. (2018). *Sensor-based Water Management in Precision Agriculture – a Case Study*. Baltimore, MD: ASA-CSSA-CSA.
59. Raihan, A., Guo, W., Deb, S., Zhu, Z., Neupane, J., Lin, Z., Sun, Y., West, C. (2018). *Application of Unmanned Aerial Systems for Estimating Soil Water Content in the Southern High Plains*. Lubbock: Texas Tech University.
60. Sun, Y., Guo, W., Weindorf, D., Sun, F., Deb, S., Lin, Z., Neupane, J., Raihan, A., West, C. (2018). *Identifying Soil Properties Using Proximal Sensors in the Southern High Plains*. Lubbock: Texas Tech University.
61. Neupane, J., Guo, W., Zhang, F., Deb, S., Lin, Z., Raihan, A., Sun, Y., West, C. (2018). *Irrigation Rates, Soil Physical Properties and Topography Effects on Cotton Yield in the Southern High Plains*. Lubbock: Texas Tech University.
62. Neupane, J., Guo, W., Raihan, A., Lin, Z., Bennett, J. E., West, C. (2017). *Cotton growth*

variability in relation to topography and soil physical properties in the High Plains. Tampa, FL: ASA-CSSA-CSA.

63. Raihan, A., Guo, W. (2017). *Multi-Sensor Data Fusion to Estimate Soil Moisture and Evapotranspiration for Irrigation Scheduling*. Tampa, FL: ASA-CSSA-CSA.
64. Guo, W., Acosta-Martinez, V., Cano, A., Neupane, J., Raihan, A., Lin, Z. (2017). *Relationship between microbial community composition, soil physicochemical properties and cotton yields at a field scale*. Tampa, FL: ASA-CSSA-CSA.
65. Guo, W., Bronson, K., Maas, S., Rajapakse, S., Brightbill, J. (2005). *Electrical Conductivity, Elevation, Landsat Imagery, and Yield Maps to Delineate Management Zones in Irrigated Cotton*. Salt Lake City, UT: ASA-CSSA-SSSA.

Conference Proceeding

1. Nguyen, L., Zhu, J., Lin, Z., Du, H., Yang, Z., Guo, W., Jin, F. (2019). Spatial-temporal Multi-Task Learning for Within-field Cotton Yield Prediction. In Qiang Yang, Zhi-Hua Zhou, Zhiguo Gong, Min-Ling Zhang, Sheng-Jun Huang (Ed.), *Advances in Knowledge Discovery and Data Mining. PAKDD 2019. Lecture Notes in Computer Science* (vol. 11439, pp. 343-354). Springer.
2. Guo, W., Maas, S., Moudy, G., Brightbill, J. (2008). *Application of yield monitor, EC mapping, remote sensing, and topographic properties in precision agriculture*. Denver, CO: Proceedings of the 9th International Conference on Precision Agriculture.
3. Maas, S., Guo, W., Brightbill, J., Hooton, J. (2005). *Using aerial imagery in variable-rate cotton growth regulator application*. Weslaco, TX: 20th Biennial Workshop on Aerial Photography, Videography, and High Resolution Digital Imagery for Resource Assessment.
4. Maas, S., Torrion, J., Rajapakse, S., Guo, W. (2005). *Using satellite imagery to radiometrically calibrate digital airborne multispectral imagery*. Weslaco, TX: 20th Biennial Workshop on Aerial Photography, Videography, and High Resolution Digital Imagery for Resource Assessment.
5. Guo, W., Maas, S., Lascano, R., Brightbill, J., Farms, B. (2005). Mapping spatial and temporal variability of cotton yield in west Texas. *Proceedings of Beltwide Cotton Conferences* (pp. 2067--2073). New Orleans, LA: National Cotton Council of America.
6. Maas, S. J., Rajapakse, S., Guo, W., Ko, J., Lascano, R., Booker, J. (2005). Relationship between RADARSAT imagery and cotton field characteristics. *Proceedings of Beltwide Cotton Conferences*. New Orleans, LA: National Cotton Council of America.
7. Maas, S., Lascano, R., Cooke, D., Richardson, C., Upchurch, D., Wanjura, D., Krieg, D., Mengel, S., Ko, J., Payne, W., Rush, C., Brightbill, J., Guo, W., Bronson, K., Rajapakse, S. (2004). *Within-season estimation of evapotranspiration and soil moisture in the High Plains using YieldTracker*. Lubbock, TX: Proceedings of High Plains Groundwater Resources Conference.
8. Guo, W., Maas, S., Hequet, E., Lascano, R., Brightbill, J. (2004). Variability of cotton

fiber quality in West Texas. *Proceedings of Beltwide Cotton Conference* (pp. 5-9). San Antonio, TX: National Cotton Council of America.

9. Todd, R., Guo, W., Stewart, B. A., Robinson, C. (2003). Vegetation and soil changes in shortgrass prairie near a beef cattle feedyard. *American Water Resources Association 2003 Spring Specialty Conference Proceedings*. Kansas City, MO: American Water Resources Association.
10. Todd, R., Guo, W., Stewart, B. A., Robinson, C. (2003). Long-term changes in shortgrass prairie adjacent to a beef cattle feedyard. *Society for Range Management 56th Annual Meeting*. Casper, WY: American Society of Range Management; Society for Range Management.
11. Guo, W., Todd, R., Robinson, C., Stewart, B. A. (2002). Feedyard wind-blown dust effects native rangeland soil chemical properties. *Great Plains Foundation Symposium Meeting*. Amarillo, TX: Great Plains Foundation.

TEACHING

Courses Taught (Texas Tech University)

- PSS 4001, Problems. Precision Agriculture.
- PSS 4340, Irrigation Management Seminar.
- PSS 5001, Problems in Plant and Soil Science: Turf Nematodes Study.
- PSS 5323, Environmental Crop Physiology.
- PSS 5329, Precision Agriculture.
- PSS 6000, Master's Thesis.
- PSS 6001, UAS Application in Agriculture.
- PSS 6301, Quantitative Agricultural Remote Sensing.
- PSS 6302, Plant Growth Modeling.
- PSS 7000, Research.
- PSS 8000, Doctor's Dissertation.

Directed Student Learning

1. Yazhou Sun, Doctoral Advisory Committee Chair, Plant & Soil Science. (January 2025 - Present).
2. Raju Sapkota, Doctoral Advisory Committee Chair, Plant & Soil Science. (August 2024 - Present).
3. Tahsin Chowdhury, Doctoral Advisory Committee Chair, Plant & Soil Science. (January 2024 - Present).
4. Reymark Alcantara, Master's Thesis Committee Member, Agricultural & Applied Economics. (September 2022 – August 2024).
5. Emily Wieber, Doctoral Advisory Committee Chair, "Estimating evapotranspiration using remote sensing," Plant & Soil Science. (January 2022 - Present).

6. Bishnu Ghimire, Doctoral Advisory Committee Chair, "Modeling climate-resilient cropping systems," Plant & Soil Science. (June 2021 - Present).
7. Oluwatola Adedeji, Doctoral Advisory Committee Chair, "Quantifying water stress for precision irrigation," Plant & Soil Science. (January 2021 - Present).
8. Rupak Karn, Doctoral Advisory Committee Chair, "Precision nitrogen management," Plant & Soil Science (August 2020 – December 2024).
9. Vaishnavi Varikuti, Doctoral Advisory Committee Member, Plant & Soil Science. (January 2024 - Present).
10. Merlin Malayka Yerra, Master's Thesis Committee Member, Crop and Soil Sciences, Texas A&M University. (January 2024 – Present).
11. Troy Ostmeyer, Doctoral Advisory Committee Member, Plant & Soil Science (March 2022 - August 2023).
12. Kyle Lauterbach, Master's Non-Thesis Committee Member, Plant & Soil Science (May 2023).
13. Gabriella Alisa Hale, Doctoral Advisory Committee Member, Plant & Soil Science (June 2022 - May 2023).
14. Atinderpal Singh, Doctoral Advisory Committee Member, Plant & Soil Science (May 2018 - December 2022).
15. Zhe Lin, Doctoral Advisory Committee Chair, "Application of UAV images and big data in plant phenotyping and irrigation scheduling," Plant & Soil Science. (September 2019 - August 6, 2022).
16. Haibin Gu, Doctoral Advisory Committee Chair, "Precision agriculture and plant phenotyping for cotton stress," Plant & Soil Science. (June 1, 2019 - August 6, 2022).
17. Jasmine Neupane, Doctoral Advisory Committee Chair, "Precision water management," Plant & Soil Science. (January 1, 2019 - August 2021).
18. Ubaldo Torres, Master's Thesis Committee Member, "UAS remote sensing in weed management," Plant & Soil Science. (January 2019 - August 2021).
19. Spencer Cox, Master's Non-Thesis Committee Chair, Plant & Soil Science. (June 2019 - May 2021).
20. Mark Mayo, Master's Thesis Committee Member, Plant & Soil Science. (January 2019 - December 2020).
21. Cole VonOhlen, Master's Non-Thesis Committee Member, Plant & Soil Science. (January 2017 - May 18, 2020).
22. Yazhou Sun, Master's Thesis Committee Chair, "Assessment of cotton water stress using unmanned aerial systems," Plant & Soil Science. (August 2017 - December 2019).
23. Corey Thompson, Doctoral Advisory Committee Member, Plant & Soil Science. (2016 - December 2019).

24. Zhe Lin, Master's Thesis Committee Chair, "Unmanned Aerial Systems and Crop Modeling for Irrigation Scheduling in the Southern High Plains," Plant & Soil Science. (August 2017 - August 2019).
25. Raphael Gikunda, Doctoral Advisory Committee Member, Agricultural Education & Communications. (August 2016 - August 2019).
26. Abir Raihan, Master's Thesis Committee Chair, "Surface Soil Moisture Estimation Using Unmanned Aerial System and Satellite Images," Plant & Soil Science. (January 1, 2017 - December 31, 2018).
27. Jasmine Neupane, Master's Thesis Committee Chair, "Cotton Yield Variability in Relation to Irrigation Rates, Soil Physical Properties and Topography," Plant & Soil Science. (January 1, 2017 - December 31, 2018).

Media Contributions

Internet

CASNR NewsCenter. (November 2018).

PrecisionAg.com. (March 2018).

CASNR NewsCenter. (November 2017).

Davis College NewsCenter. (October 2023).

Davis College PSS Newsroom. (August 2024).

Magazine

The Agriculturist. (2018).

TV

KLBK News. (December 11, 2018).

Fox34. (December 11, 2018).

CONTRACTS, GRANTS AND SPONSORED RESEARCH

Awarded

1. Guo, W., Sheng, S., Wang, C., "Capacity Building for AI-driven Research and Education on UAS Applications in Precision Agriculture," Sponsored by USDA NIFA, Federal, $749,999. (June 1, 2023 - May 31, 2026).
2. Texas A&M AgriLife Research FY25 New Post Doc and New Graduate Student Support, Funded by Texas A&M University. $40,000. (September 1, 2024 - August 31, 2025).
3. Jagadish S.V.K., Ritz, R., Slaughter, L., Laza, H., McCallister, D., Guo, W., Boren, A., Somayanda, I., and Siebecker, M. “Establishing climate smart commodities with reduced greenhouse gas footprints to enhance environmental and economic sustainability in the Texas High Plains.” USDA Climate Smart Commodities. $4,945,552. (1/01/2023 -

12/31/2027).

4. Guo, W., "On-farm precision water management for sustainable agriculture in the Southern High Plains of Texas," Sponsored by Cotton Incorporated, Other Nonprofit Org, $20,000. (January 1, 2024 - December 31, 2024).
5. Guo, W., Mills, C., Dodge, W., "AI-Based Assessment of Cotton Genotypes for Water Stress Resistance Using Time Series UAV Images and Environmental Data. Sponsored by Project Revolution (BASF), $275,855. (March 1, 2024 – Feb 28, 2027).
6. Guo, W., Ritchie, G., Wang, C., "Integrating a resilient cropping system and precision conservation for sustainable agriculture in a semi-arid region," Sponsored by USDA NIFA, Federal, $300,000. (March 15, 2022 - March 14, 2026).
7. Guo, W., "On-farm precision water management for sustainable agriculture in the Southern High Plains of Texas," Sponsored by Cotton Incorporated, Other Nonprofit Org, $20,000. (January 1, 2023 - December 31, 2023).
8. Dotray, P., Guo, W., “Weed Image Repository” Sponsored by Cotton Inc. $20,000 (Jan 1, 2023-December 31, 2023).
9. Krishna, J., Ritz, R., Slaughter, L., Laza, H.E., McCallister, D., Guo, W., Alpizar, A.B., Siebecker, M. “Establishing climate smart commodities with reduced greenhouse gas footprints to enhance environmental and economic sustainability in the Texas High Plains.” Sponsored by USDA NIFA, Federal. $4,945,552. (Jan 1, 2023 – Dec 31, 2027).
10. Bratcher, C., Guo, W., McCallister, D., Singh, S., Saini, R., Williams, R., Deb, S., Wang, C., "OAP- Precipitation and Irrigation Management to Optimize Profits from Crop Production - OAP 3rd Phase with TTU," Sponsored by USDA Agricultural Research Service, Federal, $218,936. (September 2021 - August 2024).
11. Guo, W., Mills, C., "High-throughput cotton maturity phenotyping using unmanned aerial systems," Sponsored by Project Revolution, College or University, $169,864. (January 1, 2021 - December 31, 2023).
12. Helwi, P., Guo, W., "Improving Fruit Quality and Profitability by Increasing Vineyard Uniformity with Remote Sensing Coupled with Precision Viticulture," Sponsored by Texas Department of Agriculture (Texas A&M AgriLife Extension), State of Texas Agency, $58,367. (December 2021 - September 2023).
13. Guo, W., "On-farm precision water management for sustainable agriculture in the Southern High Plains of Texas," Sponsored by Cotton Incorporated, Other Nonprofit Org, $20,000. (January 1, 2022 - December 31, 2022).
14. Guo, W., "On-farm precision water management for sustainable agriculture in the Southern High Plains of Texas," Sponsored by Cotton Incorporated, Other Nonprofit Org, $20,000. (January 1, 2022 - December 31, 2022).
15. Guo, W., Deb, S., Lewis, K., Ritchie, G., Wang, C., "Optimizing Nitrogen Management in Dryland Cotton using Precision Agriculture Technologies in the Southern High Plains," Sponsored by Cotton Inc (TSSC), Other Nonprofit Org, $25,000. (January 2022 -

December 2022).

16. Guo, W., "Integrating Phenotyping with Cotton Growth and Development Functions," Sponsored by Cotton Inc (TSSC), Other Nonprofit Org, $15,000. (January 31, 2022 - December 2022).
17. West, C., Slaughter, L., Hudson, M., Williams, R., Burow, M., Mitchell, D., Singh, S., Guo, W., Deb, S., "OAP: Precipitation and Irrigation Management to Optimize Profits from Crop Production," Sponsored by USDA Agricultural Research Service, Federal, $257,468. (September 2019 - August 31, 2022).
18. Guo, W., "Integrating Phenotyping with Cotton Growth and Development Functions (WG)," Sponsored by Cotton Inc (TSSC), Other Nonprofit Org, $15,000. (January 2021 - December 2021).
19. Guo, W., "On-farm precision water management for sustainable agriculture in the Southern High Plains of Texas," Sponsored by Cotton Incorporated, Other Nonprofit Org, $20,000. (January 2021 - December 2021).
20. Guo, W., "Undergraduate research on Unmanned Aerial System application in precision agriculture," Sponsored by Texas Tech University, College or University, $2,000. (January 1, 2021 - December 31, 2021).
21. Guo, W., Deb, S., Lewis, K., Ritchie, G., Wang, C., "Optimizing Nitrogen Management in Dryland Cotton using Precision Agriculture Technologies in the Southern High Plains," Sponsored by Cotton Inc (TSSC), Other Nonprofit Org, $30,000. (January 1, 2021 - December 31, 2021).
22. Guo, W., Lewis, K., Ritchie, G., Deb, S., Wang, C., "Optimizing Nitrogen Management in Dryland Cotton using Precision Agriculture Technologies in the Southern High Plains," Sponsored by Cotton Incorporated, Other Nonprofit Org, $30,000. (January 1, 2021 - December 31, 2021).
23. Guo, W., "Integrating Phenotyping with Cotton Growth and Development Functions," Sponsored by Texas State Support Committee (TSSC), Other Nonprofit Org, $18,000. (January 1, 2021 - December 31, 2021).
24. Guo, W., Price, K., Mills, C., Aleman-Sarinana, L., "Cotton stress assessment using multispectral and thermal sensors on unmanned aerial systems," Sponsored by Bayer - Project Revolution, Foundation, $133,156. (January 1, 2019 - December 31, 2021).
25. Guo, W., "On-farm precision water management for sustainable agriculture in the Southern High Plains of Texas," Sponsored by Cotton Incorporated, Other Nonprofit Org, $20,000. (January 1, 2020 - December 3, 2021).
26. Dever, J., T. W., Isakeit, T., Shan, L., He, P., Hague, S., Stelly, D., Monclova-Santana, C., Maeda, M., Arce, J., Flores, O., Guo, W., "Fov4 in Texas Cotton Strategic Research Initiative," Sponsored by Texas A&M AgriLife Research, State of Texas Agency, $900,000. (September 1, 2019 - August 31, 2021).
27. Guo, W., Deb, S., Lewis, K., Ritchie, G., Wang, Y., "Optimizing Nitrogen Management in

Dryland Cotton using Precision Agriculture Technologies in the Southern High Plains," Sponsored by Cotton Inc (TSSC), $30,000. (January 1, 2020 - December 31, 2020).

28. Montague, D., Hellman, E., Guo, W., "Improving High Plains Vineyard Irrigation Scheduling for Enhanced Water Use Efficiency," Sponsored by USDA Agricultural Research Service, Federal, $69,201. (January 2019 - August 2020).
29. Guo, W., "Crop Water Stress and Disease Monitoring using Remote Sensing and Smartphone Photographs," Sponsored by Monsanto Company, Industry/For Profit, $3,054. (October 2019 - August 31, 2020).
30. Guo, W., "Crop Water Stress and Disease Monitoring using Remote Sensing and Smartphone Photographs," Sponsored by Monsanto, Industry/For Profit, $119,508. (April 2019 - August 31, 2020).
31. Guo, W., "On-farm precision water management for sustainable agriculture in the Southern High Plains of Texas," Sponsored by Cotton Incorporated, Industry/For Profit, $20,000. (January 8, 2019 - December 31, 2019).
32. Ritchie, G., Guo, W., "Minimizing Effects of Field Variability in Plot Research through Imagery," Sponsored by Cotton Incorporated, Industry/For Profit, $15,000. (January 1, 2019 - December 31, 2019).
33. Young, J., Ritchie, G., Guo, W., Deb, S., Weindorf, D., Bernard, E., Williams, R., McCall, D., "Enhancing Water Conservation through Remote Sensing from Unmanned Systems," Sponsored by USDA ARS Ogallala Aquifer Program, Federal, $73,189. (September 2017 - December 2019).
34. Guo, W., Zhu, Z., "Quantifying Cotton Water Stress using Unmanned Aerials Systems and Satellite Remote Sensing," Sponsored by Monsanto Company, Industry/For Profit, $129,999. (April 1, 2018 - May 31, 2019).

SERVICE

University Service

Committee Member, Davis College Water Center. (August 2022 - Present).

Texas Tech University Climate Science Center. (August 2018 - Present).

Workshop Organizer, LICOR Training Workshop. (April 10, 2019).

College Service

Management team, Texas Alliance for Water Conservation. (September 2016 - December 2020).

Department Service

Committee Member, PSS Awards Committee. (September 2016 - Present).

Committee Member, PSS Curriculum Committee. (September 2016 - Present).

Attendee, Meeting, Department symposium. (April 19, 2023).

Committee Member, Annual PSS Graduate Research Symposium. (March 2019 - December 2019).

Professional Service

Board Member/Foundation, Crop and Environment (Springer Nature). (January 2022 - Present).

Associate Editor, Agrosystems, Geosciences & Environment. (2024 – present).

Guest Editor, Remote Sensing journal, Basel. (May 2024 - Present).

Reviewer, Journal Article, Precision Agriculture. (September 2022 - Present).

Program Coordinator, American Society of Agronomy, San Antonio, Texas. (January 1, 2021 - December 31, 2021).

Reviewer, Journal Article, Field Crops Research. (February 2021 - March 2021).

Reviewer, Journal Article, Water (MDPI). (December 2020 - February 2021).

Reviewer, Grant Proposal, BARD, the United States - Israel Binational Agricultural Research & Development Fund. (January 11, 2021 - February 19, 2021).

Program Coordinator, American Society of Agronomy, San Antonio, Texas. (January 1, 2020 - December 31, 2020).

Reviewer, Journal Article, MDPI. (January 1, 2020 - December 31, 2020).

Reviewer, Journal Article, Agronomy Journal (ASA). (October 2020 - November 2020).

Reviewer, Journal Article, Artificial intelligence in agriculture. (July 1, 2020 - July 30, 2020).

Reviewer, Journal Article, Remote Sensing (MDPI). (December 2019 - February 2020).

Reviewer, Grant Proposal, University of Idaho. (January 2020).

Program Organizer, American Society of Agronomy, San Antonio, Texas. (January 1, 2019 - December 31, 2019).

Reviewer, Journal Article, Agronomy (MDPI). (December 16, 2019 - December 30, 2019).

Reviewer, Journal Article, Precision Agriculture (Springer). (May 1, 2019 - June 1, 2019).

Reviewer, Agronomy (MDPI). (December 2018 - February 2019).

Reviewer, Journal Article, Geoderma (Elsevier). (August 2018 - December 2018).

Reviewer, Journal Article, Frontiers in Plant Science. (February 2018 - May 2018).

Reviewer, European Journal of Agronomy (Elsevier). (July 2017 - December 2017).

Public Service

Guest Speaker, Art Exhibitions interdisciplinary research space between the fields of art and agriculture, Lubbock, Texas (April 6, 2019).

Guest Speaker, Texas Tech University, Lubbock, Texas. (April 6, 2019).

Vice Chair, US-Sino Agricultural Research Forum, Baltimore, MD (January 1, 2018 - December 31, 2018).

Chair, US-Sino Agricultural Research Forum, Baltimore, MD (January 1, 2019 - December 31, 2019).

Service/Performance Partnerships

On-farm precision nitrogen management, Engaged Research and Creative Activity, Texas. (January 1, 2019 - Present).

On-farm precision water management, Texas. (January 1, 2019 - Present).

Texas Alliance for Water Conservation, Economic Engagement, Technical or Expert Assistance, Demonstration, research and education on irrigation conservation, Colorado. (September 13, 2018 - August 2020).

Water conservation using precision agriculture technology, Economic Engagement, apply on-farm study in agricultural fields to provide knowledge and information for water conservation and profit gain., Texas. (January 1, 2018 - Present).

Texas Alliance for Water Conservation, Research and Creative Activity, Service on Boards, Committees, and Commissions, Demonstration, research and education on irrigation conservation, Colorado. (September 1, 2016 - August 2017).

Development Activities Attended

Workshop, DSSAT 2019 International Training Program, The University of Georgia at Griffin, Georgia, USA, Griffin, Georgia, USA. (May 20, 2019 - May 25, 2019).

Workshop, Grant Writing Workshop, Texas Tech University, Lubbock, TX, US. (February 1, 2019).