CURRICULUM VITAE

Haydee Laza, Ph.D.
Assistant Professor
Texas Tech University
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EDUCATION

1997 Bachelor of Science, Diploma in Biology, Havana University, Cuba
2002 Master of Science in Plant Biology, Physiology, Havana University, Cuba
2007 Master of Science in Int. Agriculture. Humboldt University of Berlin, Germany
2018 Doctor of Philosophy in Plant and Soil Science, Texas Tech University, US

PROFESSIONAL EXPERIENCE

1995 – 1997 Graduate Intern Aquaculture Research Institute (CIP), Havana, Cuba
1997 – 2003 Research Scientist – Horticultural Research Institute, Havana, Cuba
2002 – 2002 Graduate Fellow – Dep. of Crop Sc., HU-Berlin, Berlin, Germany
2006 – 2007 Graduate Research Assistant – Phytomedicine, HU-Berlin, Germany
2006 – 2007 Research Assistant – Federal Ecotoxicology/Chemistry, Germany
2007 – 2007 Research Assistant - Inst of Vegetable crops, Grossbeeren, Germany
2008 – 2009 Certified Teacher, Austin ISD, Austin, TX
2010 – 2014 Associate Plant Scientist, Syngenta, Vernon, TX
2015 – 2016 Biological Sc. Technician - USDA-ARS – Lubbock, TX
2015 – 2018 Teaching/graduate assistant – Biotechnology and Plant Sc. TTU
2018 – 2019 Research Plant Physiologist, USDA-ARS – Lubbock, TX
2019 – Present Assistant Professor, Texas Tech University, Lubbock, TX

LICENSES AND CERTIFICATIONS: (Career)

2018. Sc. Communication –Texas Tech University, Lubbock and Alan Institute, NY
2009. Texas Teaching Certification – Texas Education Agency, Austin, Texas.
1999. Marine Ecology – Aquaculture Institute, Havana, Cuba.

INTERNATIONAL EXPERIENCE: (Career)

2022. Invited external associate supervisor, QC Univ, Australia
2022. Invited speaker, EMBRAPA-Texas A&M legume production conference
2022. Invited to be part of the World Legume Production Group Experts
2022. Invited. Women in Genome Editing book
2021. Collaboration with scientists, “Nutrition and Human Health”, Vietnam
2021. Invited reviewer, Doctoral Confirmation of Candidature, QC Univ, Australia
2018. Host for visiting associate professor, Burkina Faso

2018. Provide microscopy training to sorghum breeder from Burkina Faso.
2016. Invited speaker. Climate change research presentation to students and professors from Chapingo Autonomous University, Mexico (February 2015), USDA
2014. Invited speaker. International Breeding Conference, Syngenta.
2002. DAAD Fellow. Invited presentation at Humboldt University of Berlin.

MEMBERSHIP IN PROFESSIONAL AND HONORARY SOCIETIES

Professional:

1. Crop Science Society of America (CSS), (2017-Present)
2. America Peanut Research and Education Society (APRES), (2017-present)
3. Agronomy Science Society of America (ASS), (2017-present)
4. Soil Science Society (SSS) of America (2017-present)
5. America Society of Plant Biology (ASPB) (2016-present)
6. Southern Section America Society of Plant Biology (2016-Present)
7. Ecological Society of America (2020-present)

HONORS AND AWARDS

Honors:

1. Horn Professor Achievement Graduate Award, Texas Tech Univ, (nominee, 2018)
2. Fellow, Faculty Writing Group (Early/Mid-term career). TTU, (2020-2022)
3. Alumni Association New Faculty Award, (nominee, 2021)
4. Alumni Association New Faculty Award, (nominee, 2022)
5. Chair-Elect, Crop Science Society-Crop Physiology, (2023-2024)
6. Chair, CSSA, (2024-2025)

Awards:

1. Outstanding undergraduate Research Award, Biology department, Havana, (1997)
2. Research scientific forum, Havana Univ. 2nd place (university)
3. Research scientific forum, Havana Univ. 1st place (department)
4. President of junior scientist's organization (2000-2003)
5. National conference," Lilifat", Oral Award, 1st place, 2002
6. Co-Author in release of three triticale varieties at Syngenta (2012-2014)
7. German International Academic Fellowship (DAAD), (2002)
8. TTU Dregne PSS AG Scholarship (2015-2016), (2016-2017)
9. J. Davidson Fellowship, Texas Tech University (2017-2018)
10. Award of merit "Superior", USDA-ARS, Cropping System Lab. Lubbock, Tx (2019)
11. Crop Sc. Society, Crop Physiology, Oral Award, 2nd place, 2021
12. Crop Sc. Society, Crop Physiology, Poster Award, 1st place, 2022

AREA OF EXPERTISE:

1.Plant physiology and biochemistry
2.Plant communication
3.Plant and human health
4.Integrative system physiology

5.Agrometeorology

RESEARCH AND TEACHING INTERESTS

Plant physiology, integrative system biology/physiology, plant communication, plant acclimation to water deficit, high and low temperature, resource allocation under future climates, acclimation, priming, and phenotypic plasticity under plant-insect interaction, and disease resistance, carbon and water footprint, algae physiology, plant and human health, ecosystems, and crop production resiliency/sustainability.

PATENTS: total of __0__ (Career)

PUBLICATIONS[1,2]: (Since last promotion; use numbered lists)

Books: total of __0__

Book Chapters: total of __1__; 0 since hire date.

Gangurde, S.S. *et al.* (2019). Climate-Smart Groundnuts for Achieving High Productivity and Improved Quality: Current Status, Challenges, and Opportunities. In: Kole, C. (eds) Genomic Designing of Climate-Smart Oilseed Crops. Springer, Cham. https://doi.org/10.1007/978-3-319-93536-2_3

Books and Book Chapters Edited: total of __0___

Refereed Journal Articles: Total of 16; 9 since hire date, in press __0__, submitted __5__

Published:

1. Mahan, J., Payton, P., **Laza, H**. Seasonal Canopy Temperatures for Normal and Okra Leaf Cotton under Variable Irrigation in the Field. Agriculture 2016, 6(4), 58; https://doi.org/10.3390/agriculture6040058.
2. Gitz III, D. C., Baker, J. T., **Echevarria-Laza, H**., Payton, P., Mahan, J. R, Lascano, R. J. 2017. CO2 and chamber effects on epidermal development in field-grown peanut (Arachis hypogaea L.)." American Journal of Plant Science 8(3):349-362. doi:10.4236/ajps.2017.83025.
3. Emendack, Y., Burke, J., Sanchez, J., **Echevarria Laza, H**., Hayes, C., 2018. Agro-morphological characterization of diverse sorghum lines for pre-and post-flowering drought tolerance. Australian Journal of Crop Science 12, 135–150.doi:10.21475/ajcs.18.12.01. pne790.

[1] Indicate your graduate students with an asterisk (*).
[2] Put your name in **bold**.

4. Emendack, Y., Burke, Sanchez, J., **Echevarria Laza, H**., Hayes, C. 2018. Grain composition, functional components and physical characteristics of stay-green and senescent grain sorghum [Sorghum bicolor (L.) Moench] lines grown under variable water availability. Cereal Chemistry 95(5). doi:10.1002/cche.10077.

5. Emendack, Y., Burke, Bean, S., J., Wilson, J., Hayes, C., **Laza, H**., 2018. Variability of sorghum leaf dhurrin and soluble sugars content with plant development under variable water availability. Crop Science 58(4): 1706.doi:10.2135/cropsci2018.01.005.

6. Gangurde L., Kumar R, Burow M, **Laza H**, Puppala N, Varshney R, and Pandey M. 2019: Genomic Designing of Climate-Smart Oilseed Crops; Chapter 3"Climate-smart groundnuts for achieving high Productivity and improved quality: current status, challenges and opportunities". In: Kole C. (eds) Genomic Designing of Climate-Smart Oilseed Crops. Springer, Cham: doi.org/10.1007/978-3-319-93536-2_3.

7. Chen J, and Xin Z. **Laza H**, 2019. Registration of BTx623dw5 - a new sorghum dwarf mutant. Journal of Plant Registration. doi: 10.3198/jpr2018.09.0058crgs.

Since hire date

8. Chen J, Jiao b Y, **Laza H**, Payton P, Wareb, D, Xin Z., 2019.Sorghum Male-sterile9 Encodes a PHD-finger Protein Required for Pollen Development. The Plant Genome. doi:10.3835/plant genome2019.03.0020.
    - *Journal IF=5.8. No Open Access.* This manuscript is a result of a collaborative research. I assisted conducting the experiment, collecting samples, taking micro-images, writing, and editing.
9. Naoura, G., Sawadogo, N., Atchozou, E.A. et al**. Laza, H**. Assessment of agro-morphological variability of dry-season sorghum cultivars in Chad as novel sources of drought tolerance. Sci Rep 9, 19581 (2019). https://doi.org/10.1038/s41598-019-56192-6.
    - *Journal IF=5.0. Open Access.* This manuscript is a result of an international research project. I contributed with the analysis, reviewing and editing.
10. Naoura, G., Emendack, Y., Baloua, N. et al. **Laza, H**. Characterization of semi-arid Chadian sweet sorghum accessions as potential sources for sugar and ethanol production. Sci Rep 10, 14947 (2020). https://doi.org/10.1038/s41598-020-71506-9.
    - *Journal IF=5.0. Open Access*. This manuscript is a result of an international research project. I contributed with the analysis, reviewing and editing.
11. Emendack, Y., Sanchez, J., Hayes, C., Nesbitt, M., **Laza, H**. & Burke, J. Seed-to-seed early-season cold resiliency in sorghum. Sci Rep 11, 7801 (2021). https://doi.org/10.1038/s41598-021-87450-1.
    - *Journal IF=5.0. Open Access.* This manuscript was based on work conducted in collaboration with the USDA-ARS team. I contributed with data analysis, reviewing and editing the manuscript.
12. **Laza, H. E**., & Chen, J. (2021). High-throughput imaging of fresh-frozen plant reproductive samples in a variable pressure SEM. MethodsX, 8, 101392. https://doi.org/10.1016/j.mex.2021.101392.

- *IF-NA. Open access*. This manuscript is a result of my idea to develop a simple method to screen fresh samples. My contribution includes, idea conception, design, conducting experiment, analyzing the data. the idea,

13. **Laza, H.E**., Baker, J.T., Burow, M.D., Ritchie, G.L., Payton, P.R., 2021. Effect of elevated CO_2 on peanut performance in a semi-arid production region. Agric. For. Meteorology. 308–309, 108599. https://doi.org/10.1016/j.agrformet.2021.108599.
    - *Journal IF=6.4. Open Access*. This manuscript was based on my PhD research at Texas Tech University. I was responsible for experimental design, data collection and analysis, the lead writer/author of the manuscript, and corresponding author.
14. Chen, J., **Laza, H**., Burow, G., Hayes, C., Burke, J. J., Emendack, Y., & Xin, Z. (2022). Registration of two novel grain sorghum nuclear male sterile mutants: BTx623ms9-1 and BTx623ms9-3. Journal of Plant Registrations, 00, 1– 5. https://doi.org/10.1002/plr2.20251.
    - *Journal IF=0.96. Open Access* This manuscript was the outcome of a collaboration with USDA scientists, at the USDA-ARS. I was responsible for data collection, analysis, writing and editing the manuscript
15. Kathi, S*., **Laza, H**., Singh, S. et al. Increasing vitamin C through agronomic biofortification of arugula microgreens. Sci Rep 12, 13093 (2022). https://doi.org/10.1038/s41598-022-17030-4.
    - *Journal IF=5.0. Open Access*. This manuscript was based on work conducted by a graduate student (Kathi Shivani) in Dr. Catherine Simpson's program at TTU. I served on her Ph.D. advisory committee and assist with experimental setting ideas, helped with writing and revising the manuscript.
16. **Laza, H.E**., Kaur-Kapoor, H*., Xin, Z. et al. Morphological analysis and stage determination of anther development in Sorghum [Sorghum bicolor (L.) Moench]. Planta 255, 86 (2022). https://doi.org/10.1007/s00425-022-03853-y.
    - *Journal IF=4.54. Open Access*. This manuscript was the outcome of a collaboration with USDA scientists, at the USDA-ARS. I was responsible for data collection and analysis and edited the manuscript

In press: Total of **0**

Submitted: Total of **5**

1. **Laza E. Haydee**, Acosta-Martinez, Veronica, Cano Amanda, Baker Jeff, Mahan James, Gitz Dennis, Emendack Yves, Slaughter Lindsey, Lascano Robert, Tissue David T, and Payton Paxton. Elevated [CO_2] enhances soil respiration and AMF abundance in a semiarid peanut agroecosystem.
2. Harsimran Kaur Kapoor*, Bishwoyog Bhattarai*, **Haydee E. Laza**, Understanding Upland Cotton (*Gosyypium hirsutum* L.) Resiliency to Drought in Semi-arid Environments.
3. Shivani Kathi*, **Haydee Laza**, Sukhbir Singh, Leslie Thompson, Wei Li, and Catherine Simpson. Trends in Agronomic Biofortification of Horticultural Crops (2012-2022): A Systematic Review.

4. Shivani Kathi*, **Haydee Laza**, Sukhbir Singh, Leslie Thompson, Wei Li, and Catherine Simpson. Vitamin C Biofortification of Broccoli Microgreens and Resulting Effects on Nutrient Composition.
5. Ethan Triplett*, Chad Hayes, Yves Emendack, Scott Longing, Cecilia Monclova, and **Haydee Laza**. Leaf structural and ultrastructural traits linked to innate of uninfected sugarcane aphid 1 resistance and susceptible in sorghum.

Proceedings: total of _4_

1. Sehgal, A., Snider, J. L., **Laza, H**., Guo, W., Kaur, G., & Chastain, D. (2022, Jan). Genotype-By-Environment Interaction Effects on Morpho- logical and Physiological Traits of Modern and Obsolete Cotton Cultivars across Southern Cotton Belt. National Cotton Council. San Antonio, TX January 2022
2. Snider, J., **Laza, H**., Sehgal, AL., Guo, W., Kaur, G., & Chastain, D. (2023, Jan). Genotype-By-Environment Interaction Effects on Morpho- logical and Physiological Traits of Modern and Obsolete Cotton Cultivars across Southern Cotton Belt. National Cotton Council. San Antonio, TX January 2023
3. Dotray, J., Wheeler, T., **Laza, H**., & Monclova-Santana, C. (2021, October). Screening cotton cultivars for resistance to Fusarium oxysporum f. sp. vasinfectum races 1 and 2 and Meloidogyne incognita. In *PHYTOPATHOLOGY* (Vol. 111, No. 10, pp. 18-18). 3340 PILOT KNOB ROAD, ST PAUL, MN 55121 USA: AMER PHYTOPATHOLOGICAL SOC.
4. Junping Chen, **Haydee Laza**, Zhanguo Xin. Allelism Test and Morphological Characterization of Sorghum Male Sterile Mutants. Plant and Animal Genome XXVIII Conference (January 11-15, 2020). Publisher PAG

Abstracts: total of __60(presented at state/national/international meetings)

(*graduate students; **undergraduate students)

2019—2021 (33 post-hire) Year 2022=12

1.Sung, J*., Burow, M., Payton, P., Chagoya, J., Echevarria **Laza, H**., Kulkarni, R., "Improved Water Deficit Irrigation Methods for Peanut," Crop Science Society of America, San Antonio, TX. (2019).

2.Echevarria **Laza, H**. ASA, CSSA and SSSA International Annual Meetings, "Characterizing the variability of cold resiliency in grain sorghum," San Antonio, Texas. (November 2019).

3.Chen, J., Echevarria **Laza, H**., ASA, CSSA and SSSA International Annual Meetings, "Genetic and Molecular Analyses of Nuclear Male Sterility Loci in Sorghum," San Antonio, Texas. (November 2019).

4.Junping Chen, **Haydee Laza**, Zhanguo Xin. Allelism Test and Morphological Characterization of Sorghum Male Sterile Mutants. Plant and Animal Genome XXVIII Conference (January 11-15, 2020). Publisher PAG

5.**Laza, H.,** (Moderator), International Plant Biology Meeting-ASPB, America Society of Plant Biology. (August 2020).

6. Petermann, B. J.*, Lewis, K., Acosta-Martinez, V., **Laza, H**., Steffan, J., and L. Slaughter. 2020. "Soil Microbial Response to Long-Term Management Practices in Cotton Systems of the Texas Southern High Plains." Rapid poster + oral presentation at the ASA-CSSA-SSSA International Annual Meeting (Virtual), American Society of Agronomy, Crop Science Society of America, Soil Science Society of America. (November 10, 2020).

7.Kaur Kapoor, H.*, Echevarria **Laza, H**., Bhattarai, B., ASA, CSSA and SSSA International Annual Meetings, "Understanding Drought Resiliency in Cotton," Agronomy and Crop Science Societies. (November 11, 2020).

8. Petermann, B.J.*, Lewis, K., Acosta-Martinez, V., Steffan, J., **Laza, H.,** and L.C. Slaughter. 2021. “Microbial responses under differing ecosystems to promote agricultural sustainability on the Texas Southern High Plains.” Planned for ASA-CSSA-SSSA International Annual Meeting, Salt Lake City, UT. November 7-10, 2021.

9. Bakliwal, G**. Echevarria **Laza, H** " Universalization of Plant Stress Diagnosis with Artificial Intelligence”, TTU Undergraduate Conference (March, 2021).

10. Kaur Kapoor*, H., Echevarria **Laza, H**., Bhattarai, B., " Understand upland cotton (Gossypium hirsutum L.)”, TTU Graduate School Conference (March, 2021).

11. Petermann, B.J.*, Lewis, K., Acosta-Martinez, V., Steffan, J., **Laza, H.E**., and L.C. Slaughter. 2021. “Microbial responses under differing ecosystems to promote agricultural sustainability on the Texas Southern High Plains.” Oral presentation at the Soil Survey and Land Resource Workshop, Texas A&M University, College Station, TX. February 5, 2021.

12. Kaur Kapoor, H.*, **Laza, H**., Bhattarai, B., OAP conference, "Understanding Drought Resiliency in Cotton," (January, 2021).

13. B Bhattarai*, HK Kapoor*, **HE Laza**. Physiological Basis of Carbon Partitioning in Peanut Under Water-Stress Conditions. ASA, CSSA, SSSA International Annual Meeting, Salt Lake, 2021.

14. HK Kapoor*, B Bhattarai*, **HE Laza**, C Monclova-Santana, P Payton. Understanding the Early Season Morpho-Physiological Mechanisms of Thermal Resiliency in Upland Cotton (*Gossypium hirsutum* L.). ASA, CSSA, SSSA International Annual Meeting, Salt Lake, November, 2021.

15. B Bhattarai*, HK Kapoor*, **HE Laza**. Physiological Basis of Selecting Superior Peanut Genotype Under Water-Stress Conditions. ASA, CSSA, SSSA International Annual Meeting, Salt Lake, November, 2021.

16. EL Triplett*, **HE Laza**, C Hayes, YY Emendack. Evaluating the Morphophysiological Basis of Sugarcane Aphid Resistance in Sorghum. ASA, CSSA, SSSA International Annual Meeting. Salt Lake, November, 2021.

17. Harsimran Kaur Kapoor, **Haydee E. Laza**, Bishwoyog Bhattarai*, Paxton Payton, Cecilia Monclova-Santana. Understanding the Early Season Morpho-physiological Mechanisms of Thermal Resiliency in Upland Cotton (*Gossypium hirsutum* L.). ASA-CSSA-SSSA International Annual Meeting 2021. Oral

18. Harsimran Kaur Kapoor, **Haydee E. Laza**, Bishwoyog Bhattarai, Paxton Payton, Cecilia Monclova-Santana. Morpho-physiological responses of upland cotton during germination under sub-optimal temperature conditions. ASA-CSSA-SSSA International Annual Meeting 2021. Poster

19. Harsimran Kaur Kapoor, **Haydee E. Laza**, Bishwoyog Bhattarai. Understanding Upland cotton (*Gossypiym hirsutum* L.) Resiliency to Drought in Semi-arid Environments. ASA-CSSA-SSSA International Annual Meeting 2020, 20th annual Graduate Student Research Poster Competition (TTU), PSS symposium 2021, American society of Plant Biology (ASPB), Southern section. Oral

20. Harsimran Kaur Kapoor, **Haydee E. Laza**, Bishwoyog Bhattarai. Understanding Upland cotton (*Gossypiym hirsutum* L.) Resiliency to Drought in Semi-arid Environments. ASA-CSSA-SSSA International Annual Meeting 2020, 20th annual Graduate Student Research Poster Competition (TTU), PSS symposium 2021, American society of Plant Biology (ASPB), Southern section. Poster presentations

21. Harsimran Kaur Kapoor*, **Haydee E. Laza**, Bishwoyog Bhattarai. Effect of Temperature Fluctuations on Early Season Growth and Development of Cotton (*Gossypium hirsutum).* Cotton Beltwide conference 2021. Poster

22. B Bhattarai*, HK Kapoor*, A. Rodriguez*, L. Slaughter, V. Acosta-Martinez, G. Ritchie, M. Burow, HE Laza. Water-Stress Affects the Root Nodulation, Growth, and Biomass Allocation of Peanut (*Arachis hypogaea* L.). ASA, CSSA, SSSA International Annual Meeting, Baltimore, 2022.

23. B Bhattarai*, HK Kapoor*, A. Rodriguez*, L. Slaughter, V. Acosta-Martinez, G. Ritchie, M. Burow, **HE Laza**. Physiological Basis of Carbon Partitioning in Peanut Under Water-Stress Conditions. ASA, CSSA, SSSA International Annual Meeting, Baltimore, 2022.

24. EL Triplett*, **HE Laza**, C Hayes, YY Emendack. Evaluating the Morphophysiological Basis of Sugarcane Aphid Resistance in Sorghum. ASA, CSSA, SSSA International Annual Meeting. Baltimore, November, 2022.

25. **H. Laza** -CSSA-C2 (moderator) Symposium – Root Phenotyping. Baltimore, November, 2022

26. Chen, J., **Laza, H**., ASA, CSSA and SSSA International Annual Meetings, "Genetic and Molecular Analyses of Nuclear Male Sterility Loci in Sorghum," Baltimore, MA, November, 2022.

27. Petermann, B. J*., Lewis, K., Acosta-Martinez, V., Steffan, J., Laza, H., Slaughter, L., ASA-CSSA-SSSA International Annual Meeting, "Conservation Management Practices Influence Soil Microbial Communities Regardless of Irrigation in Sandy Loam Cotton Systems of the Semi-Arid Texas Southern High Plains," American Society of Agronomy, Crop Science Society of America, Soil Science Society of America, Baltimore, MD. (November 7, 2022).

28. Petermann, B. J.*, Lewis, K., Acosta-Martinez, V., Steffan, J., Laza, H., Slaughter, L., USDA-ARS & TTU Research Spotlight, "Soil Microbial Response to Long-Term Management Practices in Gossypium hirsutum Systems of the Texas Southern High Plains," USDA-ARS; TTU Office of Research and Innovation, Lubbock, TX. (October 18, 2022).

29. Sehrish, A.*, Vyavhare, S., Parajulee, M., Coldren, C., Laza, H., Simpson, C., American Society of Horticultural Sciences annual meeting, "Effect of water stress on physiology and different neonicotinoid compound concentrations in treated cotton seeds," ASHS, Chicago, Il. (July 2022).

30. Kathi, S*. R. (Presenter & Author), Singh, S., Li, W., Thompson, L., Laza, H. (Author Only), Simpson, C., American Society of Horticultural Sciences annual meeting, "Foliar application of ascorbic acid in hydroponically grown arugula leafy greens," ASHS, Chicago, Il. (July 2022).

31. Kathi, S. R*. (Presenter & Author), Singh, S., Li, W., Thompson, L., Echevarria Laza, H., Simpson, C., American Society of Horticultural Sciences annual meeting, "Super-greens," ASHS, Chicago, Il. (July 2022).

32. Kathi, S. R*., Singh, S., Li, W., Thompson, L., Laza, H., Simpson, C., American Society of Horticultural Sciences annual meeting, "Supergreens," ASHS, Chicago, Il. (July 2022).

33. Sehrish, A., Parajulee, M., Vyavhare, S., Coldren, C., Laza, H., Simpson, C., Lone Star Horticulture Forum, "Effect of Seed Treatments on Physiology and Nutrition of Cotton Seedlings," TNLA, College Station, TX. (January 10, 2022).

34. Kathi, S.*, Singh, S., **Laza, H**., Thompson, L., Li, W., and Simpson, C.R. Foliar Spray of Ascorbic Acid Improves Vitamin C in Arugula Leafy Greens. Lone Star Hort Forum, January 8-11, 2023 2.

35. Snider, J. L., **Laza, H**., Sehgal, A., Guo, W., Kaur, G., Chastain, D. (Jan. 2023). *Genotype-By-Environment Interaction Effects on Morphological and Physiological Traits of Modern and Obsolete Cotton Cultivars across Southern Cotton Belt*. New Orleans, LU: National Cotton Council.

Technical reports: total of _0_

Other publications: total of __1__

Blog. Texas Tech Researchers Search for Ways to Improve Cotton Farming, (November 2020). Research Creative Activity/ TTU Discoveries
https://www.depts.ttu.edu/research/discoveries/posts/Fall-2020/cotton.php

PRESENTATIONS AND LECTURES: since hire total of 40 (10 listed below plus 30 listed above in abstracts presented at scientific meetings)

1. Laza, H. Invited speaker. International EMBRAPA Conference, (September, 2022)
2. Laza, H. Invited speaker. Latino/Hispanic Faculty and Staff Association (LHFSA), (February, 22, 2022)
3. Laza, H. Invited panelist. CASNR Faculty Fellows Panel Work/Life Balance, (December 21th, 2021)
4. Laza, H., December, 2020. Guest lecturer for PSS 1400: Introduction to Sustainable Agriculture, Dr. Siebeker. TTU.
5. Laza, H., DOE, "C Bioeconomic." (October 13, 2020).
6. Laza, H. (Panelist), Waste-Management and Education Research Conference (WERC 2020). (May 2020).
7. Laza, H. Guest speaker, “climate change” PSS seminar (2020)
8. Laza, H. Guest lecturer, PSS 1100, (2020)
9. Laza, H. Guest speaker, Faculty of Color Reception-Mentor-Mentee (February, 2020)
10. Laza, H, ‘Future research” Advisory board (2019)

GRADUATE STUDENT COMMITTEES: 28 (Since last promotion)

All students’ programs in the Department of Plant and Soil Science at TTU unless otherwise noted.

Graduate Student Advising and Committees Total 28; 28 since hire date.

Graduate Student	Completion Year	Degree	Role	Location
Irish Pabuayon	2020	Ph.D.	Committee	Texas Tech University
Jacobo Sanchez	2021	Ph.D.	Committee	Texas Tech University
Harsimran Kapoor	2021	M.S.	Advisor	Texas Tech University
Mary Staublin	2021	M.S.	Committee	Texas Tech University
Raven Johnson	2021	M.S.	Committee	Texas Tech University
Jessica Dotray	2022	M.S.	Committee	Texas Tech University
Chagal Marciano	2022	M.S.	Advisor	Texas Tech University
Diana Vargas	2021	Ph.D.	Dean Rep.	Texas Tech University
Pablo Tovar	2021	Ph.D.	Dean Rep.	Texas Tech University
Yi Chen	2019	Ph.D.	Dean Rep.	Texas Tech University
Bishwoyog Bhattharai	2023	Ph.D.	Advisor	Texas Tech University
Casiani Soto	2023	M.S.	Advisor	Texas Tech University
Garret Wesley	2023	M.S.	Advisor	Texas Tech University
Ethan Triplett	2023	Ph.D.	Advisor	Texas Tech University
Billi Jean Petermann	2023	Ph.D.	Committee	Texas Tech University
Shivani Kathi	2023	M.S.	Committee	Texas Tech University
Sehrish, Aqeela	2023	Ph.D.	Committee	Texas Tech University
Alexander Rodriguez	2024	M.S.	Advisor	Texas Tech University
Dakota Kesey	2024	M.S.	Advisor	Texas Tech University
Ayla Loughry	2024	Ph.D.	Advisor	Texas Tech University
Gautam, Surendra	2025	Ph.D.	Committee	Texas Tech University
Obumneke Ohiaeri	2025	Ph.D.	Advisor	Texas Tech University
Dario Rueda Kunz	2025	Ph.D.	Committee	Texas Tech University
Paulo Victor Lima De Matos	2024	M.S.	Advisor	Texas Tech University
Mark Henry Dettman	2020	M.S.	Advisor	Texas Tech University
Matthew Taylor	2020	M.S.	Advisor	Texas Tech University
Jessica Synnes	2021	M.S.	Advisor	Texas Tech University
Kia Mcdaniels	2022	M.S.	Advisor	Texas Tech University

Completed: total of __7

Chaired: total of __2__

M.S.

1. Kapoor, Harsimran, completed (June 2020 - December 2021). M.S. Thesis: title: "Understanding drought and thermal resiliency of cotton agroecosystems in semiarid regions.
2. Chagal Marciano. Completed in December 2022. Non-thesis MS, PSS.

Ph.D.

Co-Chaired: total of __0__

Committee member of: total of __5__

M.S.

1. Jessica Dotray. Completed SP2022. Thesis title: "Screening Cotton Cultivars for Resistance to Meloidogyne incognita and *Fusarium oxysporum* f. sp. *Vasinfectum* race 1 and 2 in the Southern High Plains of Texas." (M.S., Dr. Monclova)
2. Mary Staublin. Completed in 2021. Non-thesis MS, PSS.
3. Raven Johnson. Completed in 2021. Non-thesis MS, PSS.

Ph.D.

1. Pabuayon, Irish. Ph.D. 2021. Dissertation title: "A Fresh Look at Resource Assimilation and Partitioning in Cotton." (Ph.D., Dr. Ritchie)
2. Jacobo Sanchez. Ph.D. Completed in SP2022: "Analysis of Genetic and Physiological Factors Governing Drought and Cold Stress Effects on Yield Penalty in Model Cereal Species." (Ph.D., Dr. de los Reyes)

In progress: total of __18__

Chair: total of _13_

M.S.

1. Casiani Soto. Anticipated completion date 2023.
2. Wesley Garret. Anticipated completion date 2023. Non-thesis PSS.
3. Ayla Loughry. Anticipated completion date 2025. Non-thesis PSS.
4. Alexander Rodriguez. Anticipated completion date 2023. Thesis PSS
5. Kelsey Dakota Anticipated completion date 2023. Thesis PSS.
6. Paulo Victor Lima De Matos, Anticipated completion date 2025. Non-thesis
7. Mark Henry Dettman. Non-thesis PSS. (Interrupted, Covid-19)
8. Matthew Taylor. Non-thesis PSS. (Interrupted, Covid-19)
9. Jessica Synnes. Anticipated completion date 2025. Non-thesis PSS.
10. Kia Mcdaniels. Anticipated completion date 2025. Non-thesis PSS.

Ph.D.

1. Bishwoyog. Anticipated completion date 2023.
2. Ethan Triplett. Anticipated completion date 2023.
3. Obumneke Ohiaeri. Anticipated completion date 2025.

Committee member of: total of _5_

M.S.

Ph.D.

1. Billi Jean Petermann. Anticipated completion date 2023. Dissertation title: Microbial responses under differing ecosystems to promote agricultural sustainability on the Texas Southern High Plains.
2. Shivani Kathi. Anticipated completion date 2024

3. Aqeela Sehrish. Anticipated completion date 2023
4. Dario Rueda Kunz. Anticipated completion date 2025
5. Gautam, Surendra. Anticipated completion date 2025

UNDERGRADUATE ADVISING: (Since last promotion) total of 12
Typically advise 3—4 undergraduate research projects per semester

Completed: total of 6

1.Cody Lee Ashmore. Completed in Summer 2020
2.Gautam Bakliwal. Undergraduate Honors. Completed in Spring 2021.
3.Nicholas Clark. Undergraduate Honors. Completed in 2021.
4.Sergio Hernandez. Undergraduate Honors. Completed in Spring 2022.
5.Jean-Marie Holmes. Texas A&M. Completed in Summer 2022
6.Elise Elizondo, UC Davis. Completed in Summer 2022

In-progress: total of 6

1.Abigail Oliver. 2020- present
2.Audra Stinson. 2021- present
3.Cary Hicks. 2022-present
4.Christian Wiley 2022-present
5.Persad, Sophia. 2022-present.
6.Stone, Priscilla Sophia, 2022-present

UNDERGRADUATE RESEARCH DIRECTED:

Completed: total of 4

1.Gautam Bakliwal, Undergraduate Honors Thesis, "Universalization of Plant Stress Diagnosis using Artificial Intelligence," Computer Science department. Completed in Spring 2021.
2.Nicholas Clark. Undergraduate Honors Thesis. "Exploring the Complexities in Atmospheric Boundary Layer Dynamics over Mountainous Regions and their Impact on Tracer Distribution" Geosciences department. Completed in 2021.
3.Sergio Hernandez. Project Title: "Developing CRBasic program for recording the C and water fluxes data measured at the plant-soil interface using infrared gas analyzer. Mechanical Engineering department. Completed 2022.
4.Jean-Marie Holmes. USDA, Federal Grant. Summer Practicum. Project title" 'Postharvest Physiology in Grapes. Completed 2022

In-progress: total of 6

1. Cary Hicks. Anticipated completion date 2024.
2. Abigail Oliver. Research practicum Anticipated completion date 2023.
3. Audra Stinson. Anticipated completion date 2024.
4. Persad, Sophia. Anticipated completion date 2023.
5.Stone, Priscilla. Anticipated completion date 2023.
6.Christian Wiley. Anticipated completion date 2023.

POST-DOCTORAL ASSOCIATES SUPERVISED:

Completed: total of ___
In progress: total of 1
1.Jacobo Sanchez. 2022-Present.

TEACHING RESPONSIBILITIES: (Since last promotion)

1. PSS 4325-001, Crop Water Management, 2 courses. (Spring/Fall, every year) 3 credits, 100% responsibility.
2. PSS 4325-D01, Crop Water Management, 2 courses. (Spring/Fall, every year) 3 credits, 100% responsibility.
3. PSS 6323-001, Plant-Water Relations, 1 course. (Spring-even years) 3 credits, 100% responsibility.
4. PSS 6323-D01, Plant-Water Relations, 1 course. (Spring-even years) 3 credits, 100% responsibility.
5. PSS 5323-001, Environmental Plant Physiology (Fall-odd years) 3 credits, 100% responsibility.
6. PSS 5323-D01, Environmental Plant Physiology (Fall-odd years) 3 credits, 100% responsibility.

FIVE YEAR SUMMARY OF TEACHING EVALUATIONS
Name: Dr. Haydee Laza

Evaluation scale: 5 = excellent, 4 = outstanding, 3 = good, 2 = fair, 1 = poor.
Entries are the section mean by term.

Term/Course	Number of Students	Course Objectives (Question #1) Mean	Instructor Overall (Question #2) Mean	Course/Valuable Learning Experience (Question #3) Mean
Spring 2020				
PSS 6323-D01	11	4.50	4.50	4.62
PSS 4325-001	17	3.78	3.22	3.33
PSS 4325-D01	11	4.22	4.00	3.89
Fall 2021				
PSS 4325-D01	15	4.20	4.00	4.10
PSS 4325-001	19	3.30	3.20	3.50
Fall 2022				
PSS 6323-001	14	4.20	4.30	4.30
PSS 6323-D01	12	3.40	3.60	3.60
PSS 6323-X01	1			
PSS 4325-D01	21	3.90	3.80	3.90
Average	121	4.0	3.9	4.0

(Section C, continued)

Other Teaching Responsibilities (courses)

2020

1. PSS 7000: Research. Total 3 student.
2. PSS 6001: Special Problems. Total 4 students.

2021

1. PSS 7000: Research. Total 3 students
2. PSS 6001: Special Problems. Total 1 student.
3. PSS 6000. Thesis. Total 1 student

2022

1. PSS 7000: Research. Total 4 student.
2. PSS 6001: Special Problems. 4 students.
3. PSS 4001: Special Problems-Environmental Engineering. Spring 1 student
4. PSS 4001: Special Problems-Environmental Engineering. Spring 1 student
5. PSS 6000: Master's Thesis. Spring 1 student.
6. PSS 8000: PhD dissertation. Fall 2 student

GRANTS AND AWARDS: Total funded $2,525,592.70 (My portion of total based on allocation of credit in ORS is $802,582.07)

Awarded in **Year 2022** (my share, ORS: $495,942.06; Correct: **$512, 413.06** ($495, 942.06 +$16, 461 from USCP project)

Funded:

Project Title	Role	Sponsor		Award Amount	Duratio	My share
Heat Treatment Effect on Cotton Seed Germination, Dormancy, and Viability	Lead-PI	Bayer Crop Science	100%	$50,620.00	2022-2024	$50,620.00
Transforming grain sorghum's climatic yield potential and grain quality through trait-based ideotype breeding	Co-PI	United Sorghum Checkoff Program	11%	$1,600,000.00	2022-2027	$176,000.00
REEU: Student Careers in Agricultural Research, Learning, and Extension Training (SCARLET)	Lead-PI	USDA-NIFA Texas AgriLife Extension Service	100%	$77,857.00	2022-2026	$77,857.00
Elucidating the Mechanisms of Resistance in Sorghum to the Sugarcane Aphid	Lead-PI	FFAR North Carolina State University	100%	$110,000.00	2020-2024	$110,000.00
Assessing Crop Ecophysiology for Sustainable Agricultural Production in the Southern High Plains	Lead-PI	USDA Agricultural Research Service	80%	$221,899.00	2021-2025	$136,269.20
Collaborative Research and Outreach to Facilitate Cotton Production in Thermo-limited Regions of the Southern Ogallala Aquifer Region	Co-PI	USDA Agricultural Research Service	32%	$291,000.00	020-202	$86,330.00
Improving Sustainability of Low-input Cropping Systems	Lead-PI	USDA Agricultural Research Service	95%	$174,216.70	2019-2024	$165,505.87
				$2,525,592.70		**$802,582.07**

Proposal submitted

Lead PI	Sponsor	My Role	Status
Catherine Simpson	USDA-NIFA Cooperative State Rese	Principal Investigator	Submitted
Haydee Echevarria Laza	USDA Agricultural Research Service	Lead Principal Investigator	Awarded
Haydee Echevarria Laza	USDA Agricultural Research Service	Lead Principal Investigator	Awarded
Lindsey Slaughter	USDA-NIFA Cooperative State Rese	Principal Investigator	Submitted
Haydee Echevarria Laza	USDA Agricultural Research Service	Lead Principal Investigator	Awarded
Krishna Jagadish SV	United States Department of Agricult	Principal Investigator	Submitted
Christy Bratcher	USDA Agricultural Research Service	Principal Investigator	Awarded
Sanjit Deb	Cotton Incorporated	Principal Investigator	Submitted
Christy Bratcher	USDA Agricultural Research Service	Principal Investigator	Submitted
Krishna Jagadish SV	United Sorghum Checkoff Program	Principal Investigator	Awarded
Haydee Echevarria Laza	National Science Foundation	Lead Principal Investigator	Not Funde
Haydee Echevarria Laza	Bayer Crop Science	Lead Principal Investigator	Awarded
Haydee Echevarria Laza	Kansas State University	Lead Principal Investigator	Old
Haydee Echevarria Laza	Texas AgriLife Extension Service	Lead Principal Investigator	Old
Christy Bratcher	USDA Agricultural Research Service	Principal Investigator	Awarded
Catherine Simpson	USDA-NIFA Cooperative State Rese	Principal Investigator	Old
Haydee Echevarria Laza	USDA-NIFA Cooperative State Rese	Lead Principal Investigator	Old
Haydee Echevarria Laza	USDA Agricultural Research Service	Lead Principal Investigator	Awarded
Haydee Echevarria Laza	North Carolina State University	Lead Principal Investigator	Awarded
Haydee Echevarria Laza	Texas AgriLife Extension Service	Lead Principal Investigator	Awarded
Wei Li	The Ohio State University	Principal Investigator	Old
Haydee Echevarria Laza	Texas A&M University	Lead Principal Investigator	Old
Aaron Norris	USDA-NIFA Cooperative State Rese	Principal Investigator	Not Funde
Haydee Echevarria Laza	DOE-Office of Science	Lead Principal Investigator	Not Funde
Yinping Jiao	Foundation for Food and Agriculture	Principal Investigator	Old
Haydee Echevarria Laza	USDA Agricultural Research Service	Lead Principal Investigator	Awarded
Cecilia Monclova-Santana	USDA-NIFA Cooperative State Rese	Principal Investigator	Not Funde
Mohammad Saed	National Science Foundation	Principal Investigator	Old
Haydee Echevarria Laza	Cotton Incorporated	Lead Principal Investigator	Not Funde
Catherine Simpson	USDA-NIFA Cooperative State Rese	Principal Investigator	Not Funde
Catherine Simpson	Energyene	Principal Investigator	Old
Haydee Echevarria Laza	ADM	Lead Principal Investigator	Old

Cash and Gifts-in-Kind

Funded: none

SERVICE TO PROFESSIONAL ORGANIZATIONS (Since last promotion)

National/International:

1. CSSA-Crop Science Society
    a. Judge for Crop Physiology Division Graduate Student Poster and Oral Competition at ASA-CSSA-SSSA meeting (2020,2021,2022).

b. Moderator for CSSA-International Meeting, C2: Crop Physiology and Metabolism Division", Oral presentation section at ASA-CSSA-SSSA (2021,2022). American Society of Agronomy, Crop Science Society of America, Soil Science Society of America, Salt Lake, US. (November 2021),
c. Moderator, Root Imaging Symposium, CSSA International Meeting, "C2: Crop Physiology and Metabolism Division," American Society of Agronomy, Crop Science Society of America, Soil Science Society of America, Baltimore, US. (November 2022).
d. Judge, CSSA International Meeting, "C2: Crop Physiology and Metabolism Division," American Society of Agronomy, Crop Science Society of America, Soil Science Society of America, Salt Lake, US. (November 2021).
e. Judge, CSSA International Meeting, "C2: Crop Physiology and Metabolism Division," American Society of Agronomy, Crop Science Society of America, Soil Science Society of America, Baltimore, US. (November 2021).

2. CSSA leadership
   a. 2022-Chair-elect finalist nominee for the CSSA-C2 Crop Physiology section
   b. CSSA-C2 Chair-elect in 2023
   c. CSSA-C2 Chair in 2024.
3. American Society of Plant Biology (member since 2016).
   a. Judge and moderator (US, Aug, 2020).
   b. Moderator, ASPB, "Temperature Stress," American Society of Plant Biology, (July 2021).
   c. Judge, Attendee, ASPB," American Society of Plant Biology, (July 2022).
4. Federal Grant Reviewer-United Sates Department of Agriculture, USDA-NIFA (26 proposals)
5. Federal Grant Reviewer, National Science Foundation, NSF (10 proposals and awarded an appreciation letter from the NSF program coordinator)
6. Invited Reviewer, RFP of the Valent Biosciences, Bayer Industry in 2021.
7. Invited reviewer for PhD candidate's Confirmation of Candidature, School of Health, Medical and Applied Sciences, CQ University Australia, 2022
8. Invited external supervisor, for PhD candidate, School of Health, Medical and Applied Sciences, CQ University Australia, 2023-2026.

Regional:

9. *Community and Industry*. Invited community leaders (City of Lubbock, Texas Water District, Food Bank, etc.) as guest speakers and mentors of the graduate student research-outreach projects focus on identifying and improving local water conservation practices. Reviewer for grant proposal. 2021.

State:

1. Multistate collaborative efforts, Texas, Kansas-California. Developing Sorghum Ideotype.2022-present
2. Multistate collaborative research, Texas, Mississippi, Georgia. Cotton Nectar.2020-present

3. Multistate collaborative research. Texas, Kansas. Cotton Thermal Regions. 2020-present

OTHER PROFESSIONAL SERVICE: (Since last promotion)

Peer reviewer for scientific journals, including: Agricultural Forest Meteorology, Frontiers in Plant Sc, Scientific Reports, Agrosystems, Geosciences and Technology, Field Crop Research, Crop Science, Remote Sensing, Planta.

CONSULTING ACTIVITIES: (Since last promotion)

SERVICE TO: (Since last promotion)

UNIVERSITY:

1. TTU Graduate Fellowship evaluator (12 applications, 2022)
2. TTU Diversity and Equity presidential faculty award committee (2020,2022).
3. TTU Faculty Hispanic association member (invited speaker, 2022).
4. TTU Institute of Obesity, member (2022-present). Texas Tech STEM-CORE Affiliate (2021-present)
5. TTU graduate commencement ceremony, PSS representative (2021, 2022).
6. TTU Climate Change Center. 2022-present
7. TTU Beginning/Intermediate Writing Group.2020-2022
8. Judge for Annual Texas Tech University Undergraduate Research Conference (TTU URC). The TTU Center for Active Learning and Undergraduate Engagement. 2020.
9. Graduate Dean's Representative for Ph.D. Defense of Diana Vargas Gutierrez, Biology, 2021.
10. Graduate Dean's Representative for Ph.D. Defense of Pablo Tovar, Biology, 2021.
11. Graduate Dean's representative for Ph.D. defense of Yi, Chen, 2020).
12. STEM Teaching, Engagement, and Pedagogy (STEP) Program. TTU Teaching, Learning, and Professional Development Center (TLPDC). 2019 to 2021.
13. TTU undergraduate Honor College research advisor and judge (2020, 2021).
14. TTU faculty of color reception (invited speaker, 2020).

COLLEGE:

1. Meeting, 2020 Ambassadors Forum events. (PSS representative, March 9, 2020).
2. CASNR Marketing Committee (2020-present).
3. TTU Annual Diversity Award meeting, (CASNR representative, 2022).
4. TTU-CASNR, Water Center (member, 2020-present).
5. TTU-CASNR, Cotton Research Institute (2020-present).

DEPARTMENT:

1. Committee Member, PSS Graduate Coordination Committee. (July 2020 - Present).
2. PSS Strategic committee (2020-present)
3. PSS Scholarship Committee (2022-present)
4. Commencement Ceremony-PSS representative, Dec 2021, May, 2022

5. Recruitment Activity. (September 2019 - December 2019).
6. Attendee, Meeting, Advisory Board Meeting. (October 2019).
7. Assignment, Control Env. Facility, proposal, building sketch. (Sep.2019- Oct.2019).
8. Special Project, Assignment, Upgrade of Building 803 at New Deal. (Sept.2019-Oct 2019).
9. Attendee, Meeting, Project Revolution. (October 15, 2019).

COMMUNITY:

1. Advise local cotton consultants about type, application doses, and time of growth regulator. 2021 to present.
2. Collaborative effort between TTU-Lubbock, USDA-Amarillo, and City of Lubbock. Undergraduate and Graduate -level class-research projects oriented to improve water conservation in the local and student's home town communities. 2022-present.
3. Expert Advisor/Consultant for student Sofia to improve business communication between local cotton producer and producers around the world to improve sale efficacy and profitability.2022-present

INDUSTRY:

1. Cotton Industry. Collaborative research to evaluate different priming treatments and overall crop performance, Bayer. 2022-2023.
2. Sorghum Industry. Collaborative research to develop sorghum ideotype. Sorghum Checkoff. 2022-2027.
3. Strawberry Industry-Preliminary experiments. strawberry productivity. 2022-2023
4. Peanut Industry-Preliminary experiments. Climate variability and maturity. 2022-2023

ADVISING RESPONSIBILITES:

Mark Henry Dettman
Matthew Taylor
Ayla Loughry
Jessica Synnes
Kia Mcdaniels
Paulo Victor Lima De Matos

GRADUATE STUDENT COMMITTEES:

Students completed:
Chair or Co-chair: __2__ (since last promotion) ____2__ (total)
Member: __5__ (since last promotion) ___5 (total)

Students in progress:
Chair or Co-chair: 3 (since last promotion) ___3___ (total)
Member: __5__ (since last promotion) ___5____ (total)

INVITED LECTURES: (State ____; Regional__1__; National ____; International _1__)

PROFESSIONAL DEVELOPMENT:

1. Teaching Distracted Minds: Old Challenges, New Contexts – (February 24, 2023 10:30 AM – 11:45 AM).
2. Teaching Academy Information Session: How to optimize your application for membership in the Texas Tech Teaching Academy – (January 31, 2023 02:00 PM – 03:00 PM).
3. Faculty Forum: What professional development would be beneficial to you? – (January 13, 2023 12:00 PM – 01:00 PM).
4. TLPDC-Teaching Consultation- Mitzi Ziegner, Associate Director. (2022-2023).
5. Drafting your Teaching Philosophy Workshop (TTU, 3 parts, April, 2022).
6. Davis College-Teaching Training (course deliverables and Blackboard organization), (Summer 2022), Karissa Greathouse
7. Workshop, "Women in leadership: Career Development in an Evolving World," WIL Network Series. (January 12, 2021).
8. Teaching Academy (2021).
9. The 17th Annual Advancing Teaching and Learning Conference (virtually via Zoom). Conference theme: Focusing on Quality Teaching and Teaching Evaluation. (March 5th, 2021).
10. Seminar, "Fall Early Career Faculty Proposal Writing Group," TTU, Lubbock, Texas, US. (August 2020 - December 2020).
11. Workshop, "CASNR Faculty Fellows Meeting," LUBBOCK, Texas, United States. (September 2019 - 2020).
12. Workshop, "The triple challenge of climate change, water quality, and food security.," Soil Health Institute. (December 22, 2020).
13. Workshop, "Write Winning Grant Proposals," TTU, Lubbock, TX, US. (August 2020 - November 2020).
14. Workshop, "Active Carbon and Soil Protein: New Frontiers for Monitoring Soil Health and Quality." (November 20, 2020).
15. Workshop, "Obesity Research Institute: Current Topics in Cancer Research Webinar," TTU. (November 20, 2020).
16. Service Learning Project, "New Faculty Tenue Academy," TTU TLPC, Lubbock, Texas, US. (November 17, 2020).
17. Seminar, "Broader Impact Seminar," STEM-CORE TTU1. (November 4, 2020).
18. Workshop, "Ecosystem flux workshop." (October 28, 2020).
19. Workshop, "Research Leadership Discussion." (September 24, 2020).
20. Continuing Education Program, "CR1000X Datalogger Training," Campbell Sc. (July 2020).
21. Tutorial, "Photosynthesis Training." (July 2020).
22. Seminar, "Summer Early Career Faculty Proposal Writing Group," TTU, Lubbock, Texas, US. (June 2020 - July 2020).
23. Tutorial, "Photosynthesis Training," Licor Sc., US. (July 9, 2020 - July 12, 2020).
24. Workshop, "CATT (Center for Agri-Science Communications at Texas Tech) workshop," TTU, Lubbock, Texas, US. (April 30, 2020).

25. Tutorial, "Blackboard," LUBBOCK, Texas, United States. (November 22, 2019).
26. Workshop, "Maintaining Presence in the Online Classroom," LUBBOCK, Texas, United States. (November 11, 2019).
27. Workshop, "Type, Teaching and Communication," LUBBOCK, Texas, United States. (October 16, 2019 - November 6, 2019).
28. Conference Attendance, "The 2019 John M. Burns Conference "A Chance at Birth"," LUBBOCK, Texas, United States. (October 21, 2019).
29. Workshop, "Get your Gauge Up! Using Blackboard Ally to Create Accessible Content," LUBBOCK, Texas, United States. (October 21, 2019).
30. Conference Attendance, "STEM Teaching and Learning Mini-Conference," LUBBOCK, Texas, United States. (October 14, 2019).
31. Workshop, "Advising Academy," LUBBOCK, Texas, United States. (October 9, 2019).
32. Workshop, "Keeping your Online Students Engaged," LUBBOCK, Texas, United States. (October 9, 2019).
33. Workshop, "Institutional Funding," LUBBOCK, Texas, United States. (September 2019).
34. Workshop, "Research Academy," LUBBOCK, Texas, United States. (September 17, 2019).
35. Tutorial, "Mediasite," LUBBOCK, Texas, United States. (September 12, 2019).
36. Workshop, "Sonic Mediasite Educational Opportunities," LUBBOCK, Texas, United States. (September 10, 2019).
37. Workshop, "TTU-EHS Safety Academic Open House," LUBBOCK, Texas, United States. (August 30, 2019).
38. Seminar, "New Faculty Orientation," LUBBOCK, Texas, United States. (August 21, 2019 - August 22, 2019).

PUBLIC SERVICE:

Southwest First 2020-BASF, Attendee, Meeting, Santa Fe, New Mexico, US. (January 31, 2020 - February 2, 2020).

AWARDS AND HONORS:

Honors:

1.Horn Professor Achievement Graduate Award, Texas Tech Univ, (nominee, 2018)
2. Fellow, Faculty Writing Group (Early/Mid-term career). TTU, (2020-2022)
3. Alumni Association New Faculty Award, (nominee, 2022)
4. Alumni Association New Faculty Award, (nominee, 2021)
5. Chair-Elect, Crop Science Society-Crop Physiology, (2023-2024)
6. Chair, CSSA, (2024-2025)

Awards:

1.Outstanding undergraduate Research Award, Biology department, Havana, (1997)
2. Research scientific forum, Havana Univ. 2nd place (university)
3.Research scientific forum, Havana Univ. 1st place (department)

4.President of junior scientist's organization (2000-2003)
5.National conference," Lilifat", Oral Award, 1st place, 2002
6.Co-Author in release of three triticale varieties at Syngenta (2012-2014)
7.German International Academic Fellowship (DAAD), (2002)
8.TTU Dregne PSS AG Scholarship (2015-2016), (2016-2017)
9.J. Davidson Fellowship, Texas Tech University (2017-2018)
10. Award of merit "Superior", USDA-ARS, Cropping System Lab. Lubbock, Tx (2019)
11. Crop Sc. Society, Crop Physiology, Oral Award, 2nd place, 2021
12. Crop Sc. Society, Crop Physiology, Poster Award, 1st place, 2022