

2024 Soil Survey & Land Resource Workshop



61th Annual
February 7-8, 2024
Best Western Premier, Bryan



Wednesday, February 7, 2024

Session I: Cooperative Updates

Moderator: Julie Howe

- 8:30 am Welcome Address
Amir Ibrahim, *Associate Director and Chief Scientific Officer, Texas A&M AgriLife Research*
- 8:45 am Introductions
Alan Stahnke, *USDA NRCS*
- 9:00 am Highlights of the National Cooperative Soil Survey in Texas
Jo Parsley, *Soil Survey Regional Director, South Central Region, USDA NRCS*
Roy Vick, *Associate Director of Operations, Soil and Plant Science Division, USDA NRCS*
Felipe Aburto, *Assistant Professor, Texas A&M AgriLife Research*
Jake Mowrer, *State Extension Soil Specialist, Texas A&M AgriLife Extension*
Alan Stahnke, *State Soil Scientist, USDA NRCS*
- 10:30 am Updates from the National Soil Survey Center
Deb Harms, *Acting Director of the National Soil Survey Center, USDA NRCS*
- 10:45 am BREAK and POSTERS***
- 11:15 am PSSAT Update
Charlie Thompson Memorial Scholarship
Richard Griffin, *President, Professional Soil Scientist of Texas*
- 11:30 am Texas Board of Professional Geoscientists Update
Brycen Arnold, *Compliance Investigator, Texas Board of Professional Geoscientists*
- 11:45 pm LUNCH and POSTERS***

Session II: Student Presentations

Moderator: Jake Mowrer

- 1:00 pm Using X-ray computed tomography to quantify preferential flow paths in a shrink-swell soil.
Kathryn Watson, *Texas A&M University*
- 1:15 pm Climate-smart potentials of cover crops in cotton production systems.
Noriki Miyanaka, *Texas A&M University*
- 1:30 pm Greenhouse gas emissions from croplands: The Influence of Soil Microbes.
Mia Martinez, *University of Texas Rio Grande Valley*
- 1:45 pm Natural forest replacement by exotic tree plantations induces CNP stoichiometric changes across contrasting soils.
Alejandro Atenas, *Texas A&M University*
- 2:00 pm Effects of agricultural intensification on Mineral Weathering.
Deepa Khadka, *Texas A&M University*
- 2:15 pm Uncovering the hidden impact of red-imported fire ants' bioturbation on soil biogeochemical functions.
S'vani Campos, *Texas A&M University*
- 2:30 pm Becoming Martian: Challenges and opportunities of farming on Mars.
Harrison Coker, *Texas A&M University*
- 2:45 pm Effect of soil preservation on measurement of phosphatase activity.
Leila Joharzadeh, *Texas A&M University*

3:00 pm Biochars and GHG pollution mitigation in soils

3:30 pm End of session questions for student presenters

3:30 pm BREAK

Divia Ghanghas, *Texas A&M University*

Session III: Early Career Panel

Moderator: Ashley Anderson

3:45 pm Come work for USDA NRCS. Overview on USAJobs

Alan Stahnke, *State Soil Scientist, USDA NRCS*

3:55 pm Career panel discussion

Yanuel A. Charriez Rosado, *USDA-NRCS*
Annalee Epps, *Texas A&M AgriLife Extension*
Sarah Hetrick Coffman, *Yardstick*
Nicole Shigley, *Aquatech*

4:15 pm POSTER SESSION*

6:00 pm Dinner and Awards Announcement

ADJOURN

***Poster Session**

1 West Cross Timbers (MLRA 84B) dynamic soil properties.

Sidney Paulson, *USDA, NRCS*

2 Ecological site description updates for F133BY010TX Very deep sandy upland and R087AY008TX very deep sand.

Antonio Argullin, *USDA, NRCS*

3 Oklahoma-Kansas state line join of the Kingfisher/Nashville Soil Series.

Jeremy Dennis, *USDA, NRCS*

4 MLRA 77E - Dynamics of soil properties and ecological community phases of cropland returned to grassland.

Brandon Vaverka, *USDA, NRCS*

5 MLRA 77/78 MIR model development, research, and database.

Yanuel Charriez, *USDA, NRCS*

6 Can MIR technology replace traditional soil analyses methods used in MLRA Soil Survey office labs?

Beyhan Amichev, *USDA, NRCS*

Student Posters

S1 Measuring soil moisture: Multistate in situ sensor testbeds.

Syedali Azizi, *Texas A&M University*

S2 Alternative rain garden design for stormwater management.

Dallas M. Williams, *Texas A&M University*

S3 Exploring the potential of enhanced weathering rock powder for carbon capture.

Deepa Khadka, *Texas A&M University*

S4 Radiocarbon reveals changes in carbon pool dynamics after native forest conversion to tree plantations.

Alejandro Atenas, *Texas A&M University*

S5 Could restoration of dense woodlands to open savannas increase groundwater recharge to the Carrizo-Wilcox aquifer?

Mingxiu Wang, *Texas A&M University*

S6 Evidence of fast soil recovery on a rewilded fly ash deposit

Jonathan Kerman, *Texas A&M University*

S7 Wildfire-induced change of dynamic soil properties in the Santa Monica Mountains.

Benjamin Newcomb, *Texas Tech University*

S8 Do shallow lithic contacts impact soil structure and hydraulic properties?

Baishnavi Varikuti, *Texas Tech University*

S9 Soil carbon and mineralization are affected by tillage and cover cropping in an organic cotton system in Texas.

Parker Murphree, *Texas A&M University*

S10 Investigating impacts of agricultural management practices on dynamic soil properties.

Ke Ni, *Texas A&M University*

S11 Role of Root Exudates on Microaggregate Formation and Organic Carbon Stabilization under Drought Conditions

Caleb Shackelford, *Texas A&M University*

S12 Nutrient bioavailability of feldspathoids in a simulated desert environment.

Daniel Propes, *Texas A&M University*

S13 Engineering applications of bentonites in the disposal of radioactive waste

Camilo Sanchez, *Texas A&M University*

S14 Explore the potentials of feldspathoids in bauxite residues as nutrient carriers.

Chiawei Lin, *Texas A&M University*

S15 Developing a soil physical and hydraulic property database for TexMesonet monitoring sites. Bismark Osei, *Texas A&M University*

S16 Mechanisms influencing positive to negative impacts of no-tillage on soil organic carbon across a climate gradient Rishabh Singh, *Texas A&M University*

Thursday, February 8, 2024

Session IV: Applications of Soil Survey

Moderator: Kelly Attebury

8:30 am Pedernales DSP Project. Travis Waiser, *USDA NRCS*

8:45 am Field experiment on the accumulation of carbonates under irrigation and in native desert soils: First results and future developments. Maria Bronnikova, Elena Sevostianova, Curtis Monger, *Texas Tech University*

9:00 am Soil characterization lab expanding into soil health. Isaiah Robertson, *Texas A&M AgriLife Research*

9:15 am Update of coastal zone soil survey - completion of West Galveston Bay and future. Greg Taylor, *USDA NRCS*

9:30 am BREAK

Session V: Advances in soil and water sciences

Moderator: Felipe Aburto

9:45 am Texas Climate-Smart Initiative – Update. Julie Howe, *Texas A&M AgriLife Research*

10:00 am Quantitative pedology in an integrated science world: Opportunities and challenges. Daniel Hirmas, *Texas Tech University*

10:15 am Effects of novel nitrogen and phosphorus-based fertilizers on soil chemical properties and plant response. Matthew Siebecker, *Texas Tech University*

10:30 am Phosphorus solid phase speciation and Hedley sequential extraction residues: using μ -XRF mapping and μ -XANES to speciate P in agricultural soils. Kate Szerlag, *Texas A&M AgriLife Research*

10:45 am Update of TTU Soil Ecology Group. Lindsey Slaughter, *Texas Tech University*

11:00 am Measuring in-situ soil carbon stocks at scale: A study using a novel handheld Vis-NIR probe. Ayush Gyawali, *Soil Health Institute*

11:15 am Evaluating and monitoring soil health at scale. Erin Hourihan, *Soil Health Institute*

11:30 am Dynamic soil characterization and impact on soil water relationships. Rabi Mohtar, *Texas A&M AgriLife Research*

11:45 am Quantifying intra-seasonal variations in soil physical properties in agricultural lands. Briana Wyatt, *Texas A&M AgriLife Research*

12:00 pm Closing Remarks - ADJOURN Felipe Aburto, *Texas A&M AgriLife Research*

Previous years SSLRW's programs and presentations can be reviewed at:

<https://soilcrop.tamu.edu/outreach-efforts-and-flagship-programs/#Soil-Survey-and-Land-Resource-Workshop>