

TEXAS A&M AGRILIFE

Digging Deeper: Addressing soil health to improve water quality

Celina Gauthier Lowry, celina.lowry@ag.tamu.edu



DISASTER ASSESSMENT
AND RECOVERY



AGRILIFE.TAMU.EDU

Green Infrastructure for Texas



Education

- Workshops
- Presentations
- Technical Assistance
- Student Internships



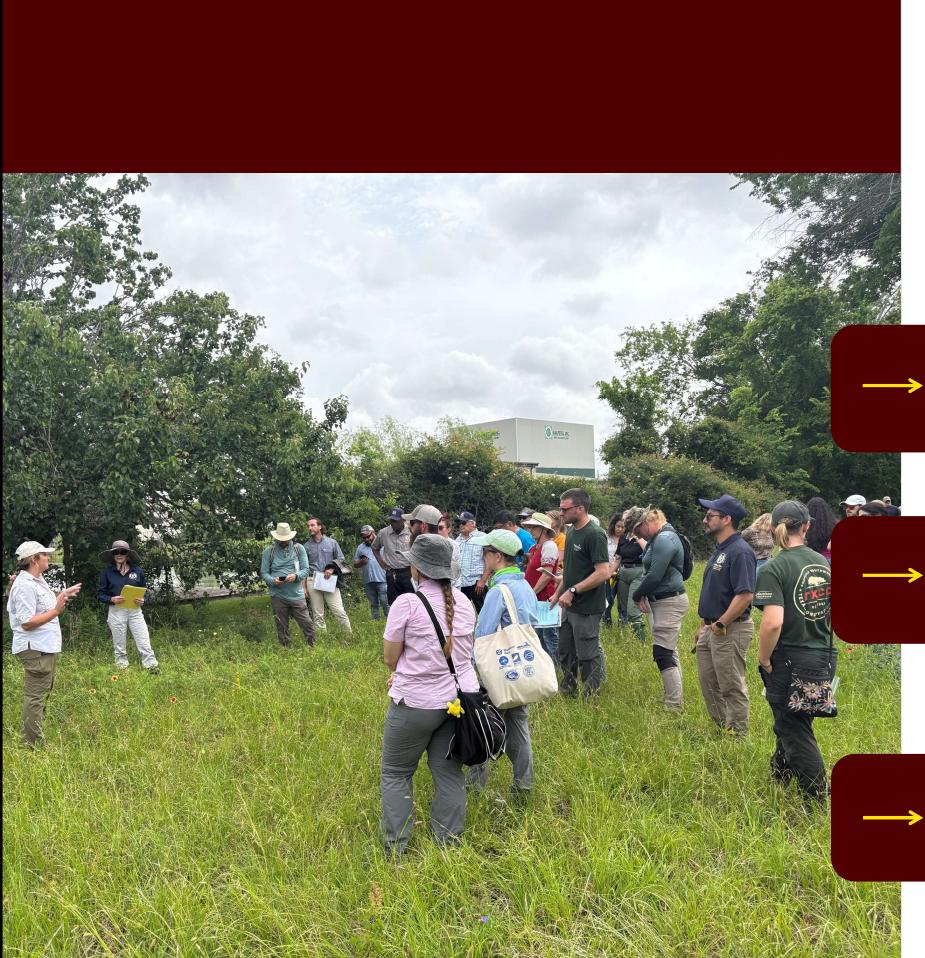
On-the-Ground Projects

- Exploration Green
- Ghirardi Family WaterSmart Park
- Sheldon Lake State Park restoration
- Hitchcock City Parks
- Houston City College - Katy



Research

- Water quality
- BMP Performance
- Plant propagation



Overview

Award Amount-

\$57,894

Project Highlights -

- 2 workshops & 1 field day in the Lower Galv Bay watershed
- Focus on applying soil health principals in suburban and urban landscapes

Project Partners & Advisors -

Ag and Natural Resource Extension agents in multiple counties; TSSWCB; local NRCS office; Soil and Water Conservation District



Outreach, workshops, and resources to...

- Expand the conversation about soil health and NPS reduction into suburban and urban watersheds, building on established resources from the agricultural community
- Strengthen understanding of connection between soil health, green infrastructure, and NPS
- Encourage the formation of local strategies and partnerships that recognize and champion soil health
- Encourage a vision of lawns and landscaped areas as productive ecosystems

TEXAS A&M
AGRILIFE
EXTENSION

DISASTER ASSESSMENT
AND RECOVERY



If you increase the organic matter in 1 acre of soil by 1%, how many more gallons of water can that soil hold in the top 6 inches?

- a) 500
- b) 25,000
- c) 300,000



For every 1% increase in organic matter, soils increase their water holding capacity by

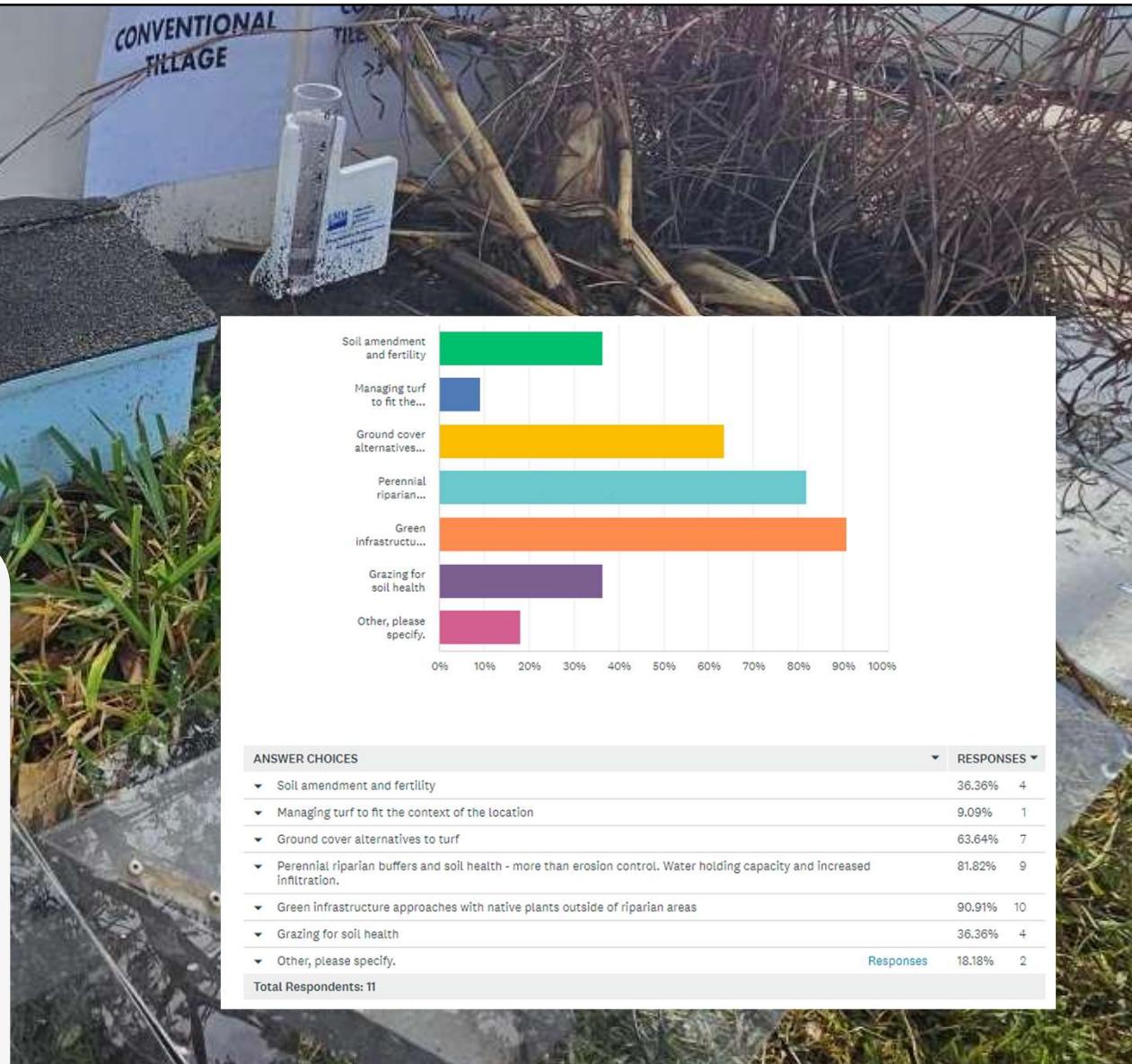
**25,000-27,000
gallons**

(per acre in the top 6 inches)

TEXAS A&M
AGRILIFE
EXTENSION

DISASTER ASSESSMENT
AND RECOVERY

What soil health focus areas do you consider most needed by municipalities and other watershed stakeholders?



Partnership-Driven Workshops & Field Day

**DIG DEEPER
INTO SOIL HEALTH**
A WORKSHOP FOCUSED ON
URBAN AND SUBURBAN LANDSCAPES



Healthy, living soils improve water storage and water quality, reduce disease and pest problems, are resilient to drought, temperature extremes, fire and flood, and much more. Soil health applies to more than growing food and rural land use. It's time to recognize the role of healthy soil in our communities.

OCTOBER 29, 2024
9:00 AM - 2:00 PM
LUNCH PROVIDED BY HARRIS COUNTY SWCD
SIGN IN BEGINS AT 8:30 AM

HOUSTON COMMUNITY COLLEGE
HCC SOUTH
1990 AIRPORT BLVD
HOUSTON, TX 77051

Register Here tx.ag/SoilHealthOct29

TOPICS

- Principles of soil health
- Improved soil conditions to promote water infiltration and retention
- Managing water on-site with green stormwater infrastructure
- Strategies to incorporate best practices in your operations
- Undeveloped lands as productive ecosystems

Multi-speaker agenda
Hands-on demonstrations
Interactive Q&A

Local practitioners at parks departments, ISDs, counties, drainage districts, hospital campuses, MUDs and municipalities will benefit from attending with homeowners, urban gardeners and farmers, and small landowners welcome.

Prepared in cooperation with the Texas Commission on Environmental Quality and U.S. Environmental Protection Agency



**DIG DEEPER
INTO SOIL HEALTH**
A WORKSHOP FOCUSED ON
URBAN AND SUBURBAN LANDSCAPES



Healthy, living soils improve water storage and water quality, reduce disease and pest problems, are resilient to drought, temperature extremes, fire and flood, and much more. Soil health applies to more than growing food and rural land use. It's time to recognize the role of healthy soil in our communities.

TUESDAY, MARCH 4, 2025
9:00 AM - 3:00 PM
SIGN IN BEGINS AT 8:30 AM
MORNING REFRESHMENTS PROVIDED BY CITY OF MONT BELVIEU
LUNCH PROVIDED BY ONEOK

EAGLE POINTE RECREATION COMPLEX
MAGNOLIA ROOM
12450 EAGLE POINTE DRIVE
MONT BELVIEU TX, 77523

NO COST TO ATTEND
SEATING IS LIMITED
REGISTRATION IS REQUIRED

Register Here tx.ag/SoilHealthMar4

TOPICS

- Principles of soil health
- Improved soil conditions to promote water infiltration and retention
- Managing water on-site with green stormwater infrastructure
- Strategies to incorporate best practices in your operations
- Undeveloped lands as productive ecosystems

Multi-speaker agenda
Hands-on demonstrations
Interactive Q&A

Local practitioners at parks departments, ISDs, counties, drainage districts, hospital campuses, MUDs and municipalities will benefit from attending with homeowners, urban gardeners and farmers, and small landowners welcome.

Prepared in cooperation with the Texas Commission on Environmental Quality and U.S. Environmental Protection Agency





DIG DEEPER INTO SOIL HEALTH
URBAN AND SUBURBAN LANDSCAPES

Healthy, living soils improve water storage and water quality, reduce pest problems, are resilient to drought, temperature extremes, fire and flood, and much more.

Local practitioners at parks departments, ISDs, counties, drainage districts, hospital campuses, MUDs and municipalities will benefit from attending with homeowners, urban gardeners and farmers, and small landowners welcome.

FIELD DAY
TUESDAY, APRIL 29
8:30am - 12:30pm

Start and End @ **Sylvan Rodriguez Park**
1201 Clear Lake City Blvd, Houston, TX 77062

• Hands-on Demonstrations
• Expert Guides
• Soil Health Principles in Action
• Transportation Provided
• Multiple locations: including Almeda Road Nature Reserve



Prepared in cooperation with the Texas Commission on Environmental Quality and U.S. Environmental Protection Agency

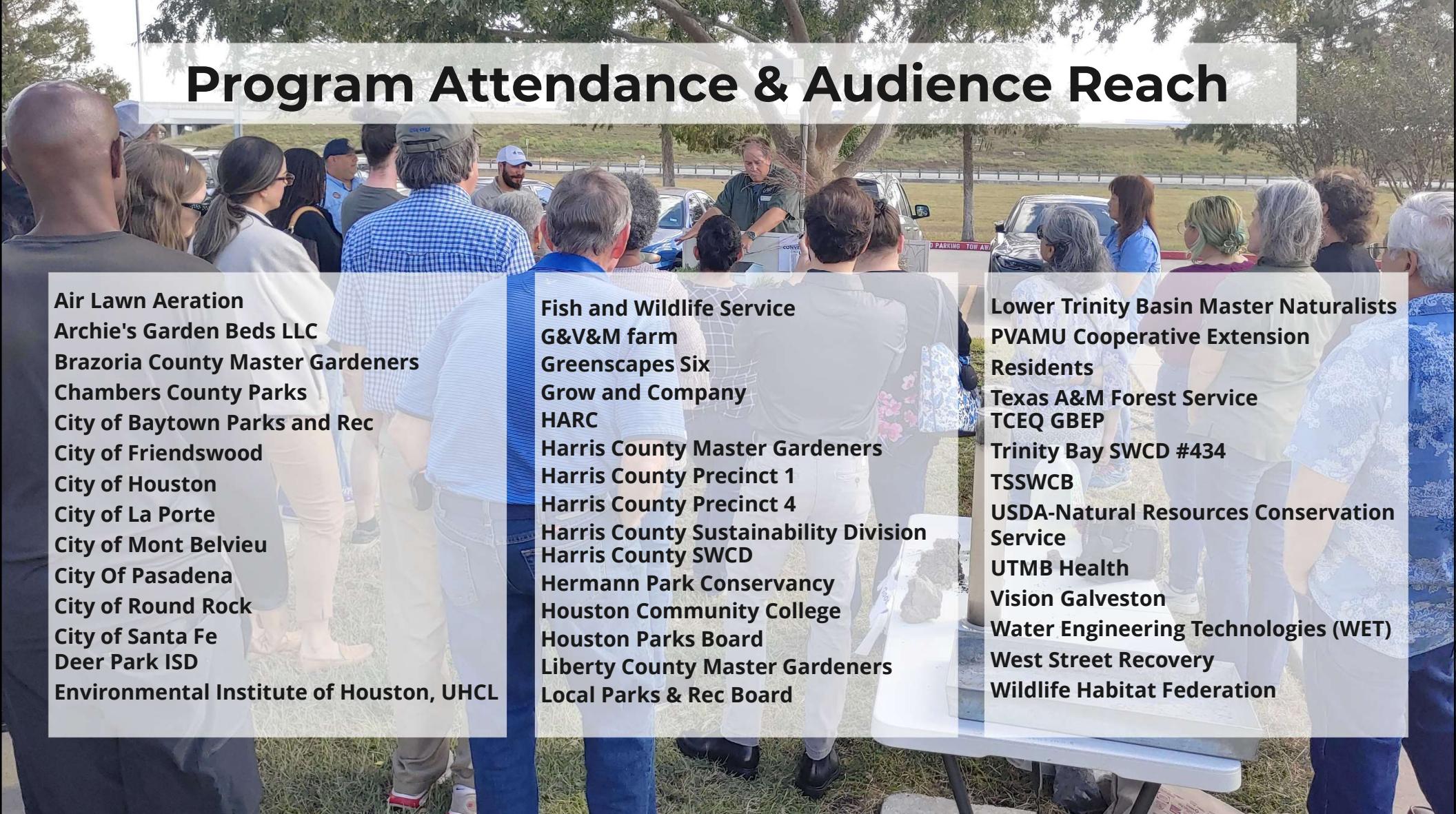

**TEXAS A&M
AGRICULTURE
EXTENSION**
**DISASTER ASSESSMENT
AND RECOVERY**

**DISASTER ASSESSMENT
AND RECOVERY**

Hands-on Demonstrations and Discussions



Program Attendance & Audience Reach

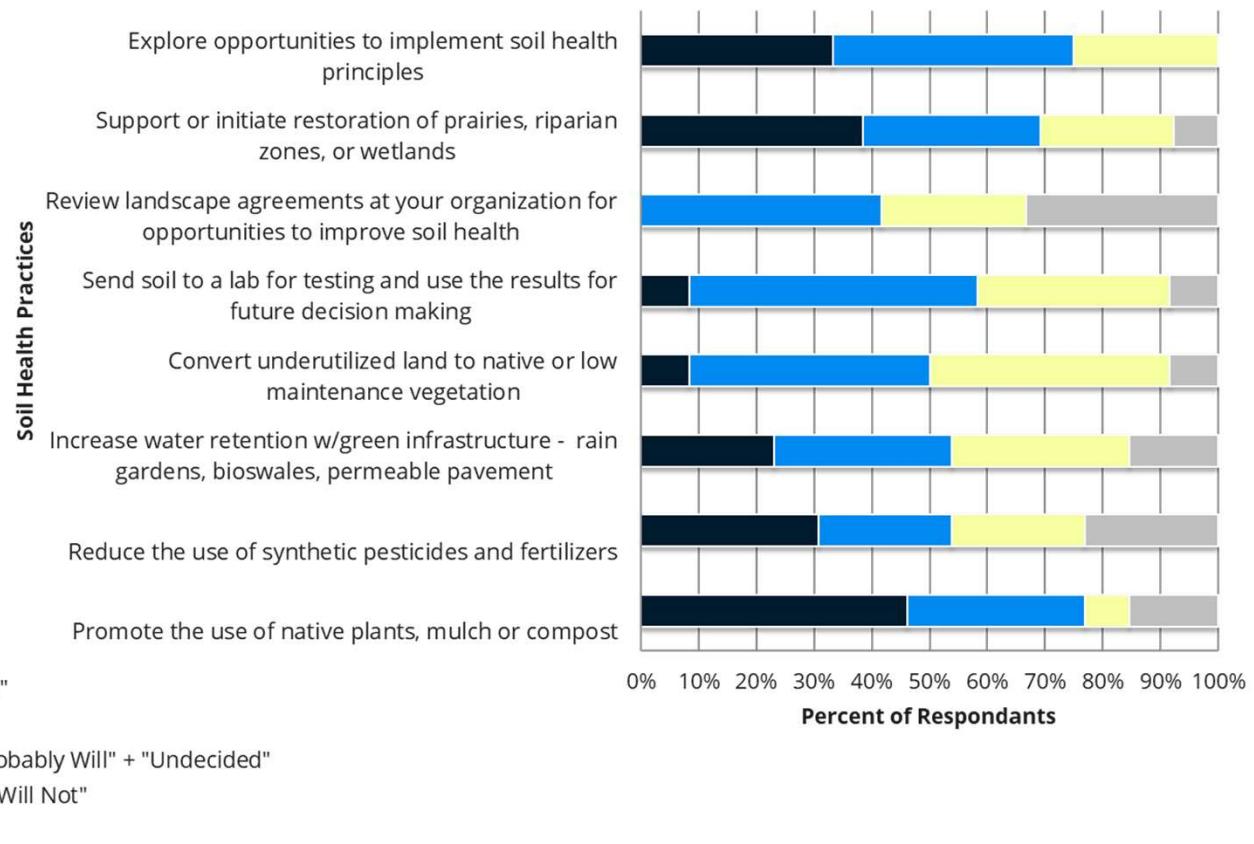


Air Lawn Aeration
Archie's Garden Beds LLC
Brazoria County Master Gardeners
Chambers County Parks
City of Baytown Parks and Rec
City of Friendswood
City of Houston
City of La Porte
City of Mont Belvieu
City Of Pasadena
City of Round Rock
City of Santa Fe
Deer Park ISD
Environmental Institute of Houston, UHCL

Fish and Wildlife Service
G&V&M farm
Greenscapes Six
Grow and Company
HARC
Harris County Master Gardeners
Harris County Precinct 1
Harris County Precinct 4
Harris County Sustainability Division
Harris County SWCD
Hermann Park Conservancy
Houston Community College
Houston Parks Board
Liberty County Master Gardeners
Local Parks & Rec Board

Lower Trinity Basin Master Naturalists
PVAMU Cooperative Extension
Residents
Texas A&M Forest Service
TCEQ GBEP
Trinity Bay SWCD #434
TSSWCB
USDA-Natural Resources Conservation Service
UTMB Health
Vision Galveston
Water Engineering Technologies (WET)
West Street Recovery
Wildlife Habitat Federation

Action and Intention to adopt by Soil Health Practice



Green Infrastructure Design Took Kit

- Multiple design sets
 - Common challenges & considerations to address them
 - Design elements
 - Relevant values and calculations
 - Permitting, construction, and maintenance considerations
 - Standard details



agrilife.org/gift/resources/



Free Online Training

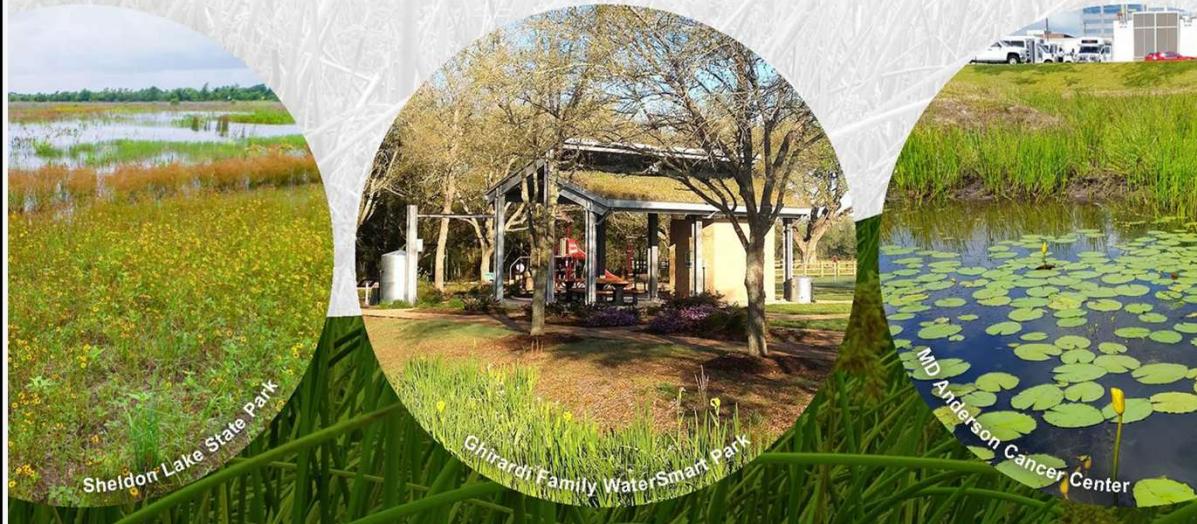
January 15, 2026, 12:30-2pm
Registration information
available soon.



GIFT

GREEN INFRASTRUCTURE FOR TEXAS

agrilife.org/gift



Empowering Texans to build resilient communities adaptable to social, economic, and environmental change.



Celina Gauthier Lowry
Watershed Program Specialist II
celina.lowry@ag.tamu.edu



AgriLife.org/GIFT

TEXAS A&M
AGRILIFE
EXTENSION

DISASTER ASSESSMENT
AND RECOVERY