



Growing Together: Lessons in Social and Environmental Progress from Cross-Commodity Engagement

Thursday 19 June: 16:00 – 16:45



With Speakers:



Dianna Bagnall
Research Soil
Scientist and
Program Director,
Soil Health Institute



Gerson Fajardo
Supply Chain
Director
(Consultant),
U.S. Cotton Trust
Protocol



Michael Kobori
Independent Board
Director, and
Sustainability
Advisor



**Eva Benavidez
Clayton**
Senior Director of
Membership &
Supply Chain,
Better Cotton

Moderator:

Efficacy in Collaboration



This month, Better Cotton released its first **US Impact Report**, reflecting on 10 years of our presence and progress in the States. Key themes throughout resonate beyond country specifics, emphasising what it takes to build a truly sustainable future while **keeping farmers' interests in our unobstructed view**:

Contextualisation

Story behind the numbers:
Painting a more complete picture of the nuances & complexities driving decision-making in cotton farming.


Regionalisation

Acknowledging the diversity among environmental and regulatory landscapes to better understand limitations of farmers working to meet our standards.

Collaboration

Joining forces to generate impact:
Recognising contributions of Programme Partners, Members, fellow initiatives, universities, researchers and forward-thinking farmers.



The background of the slide is a close-up photograph of a person's hands, likely of African descent, holding a cotton boll. The hands are weathered and the skin is a warm brown tone. The person is wearing a blue and white checkered shirt. The cotton boll is partially opened, revealing the white cotton fibers and the brown seed pod. A blue text box is overlaid on the center of the image.

"You have to learn
to manage the cons,
and take advantage
of the pros."



‘We’re not going to decode this in one year,
but maybe we can find a corner and start to
build off of that.’

- Zeb Winslow, Better Cotton-licensed farmer

Zeb, a fifth-generation farmer based in North Carolina, has long been stewarding his soil. Supported in part by innovation funds from Better Cotton, and in partnership with the Soil Health Institute and ag-tech providers GROWERS, he is implementing soil and plant testing to gather data to improve his land and yields.

The Soil Health Institute has been an important ally of Better Cotton, and their initiatives work toward our shared impact target areas.



Rallying around Shared Soils

Soil stewardship is a priority shared among all producers and is a key attribute found within Better Cotton's Principles & Criteria regarding natural resources. By implementing regenerative soil practices and participating in the collection of soil samples and data, Better Cotton-licensed farmers contribute to an indispensable pool of knowledge that benefits cotton producing soils across the country.

Collaboration

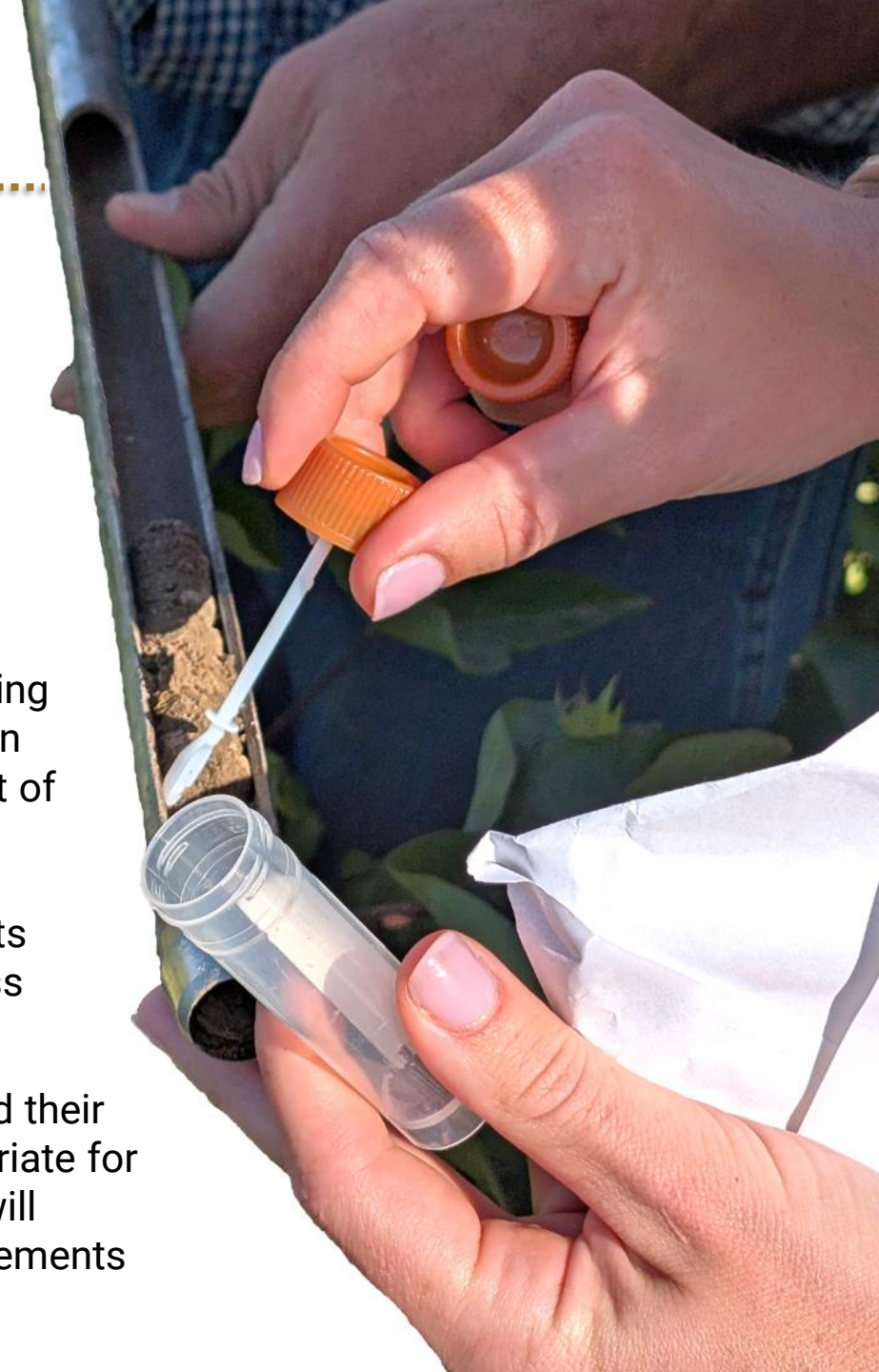
Better Cotton and SHI have crossed paths on innovation projects and at field events among our Programme Partners, facilitating with research and outreach to involve more producers in improving their soils while supporting them with the essential resources and opportunities.

Regionalisation

In the US Impact Report, metrics reflecting water and input usage, practice adoption and yields are framed within the context of each cotton-growing region.

This year, SHI is publishing seven reports addressing regional soil-related progress cotton producers are achieving.

The reports will empower producers and their advisors to set soil health goals appropriate for their respective soils and climate, and will demonstrate regionally-feasible improvements achieved using soil health practices.





SOIL HEALTH

— INSTITUTE —

Enriching Soil, Enhancing Life

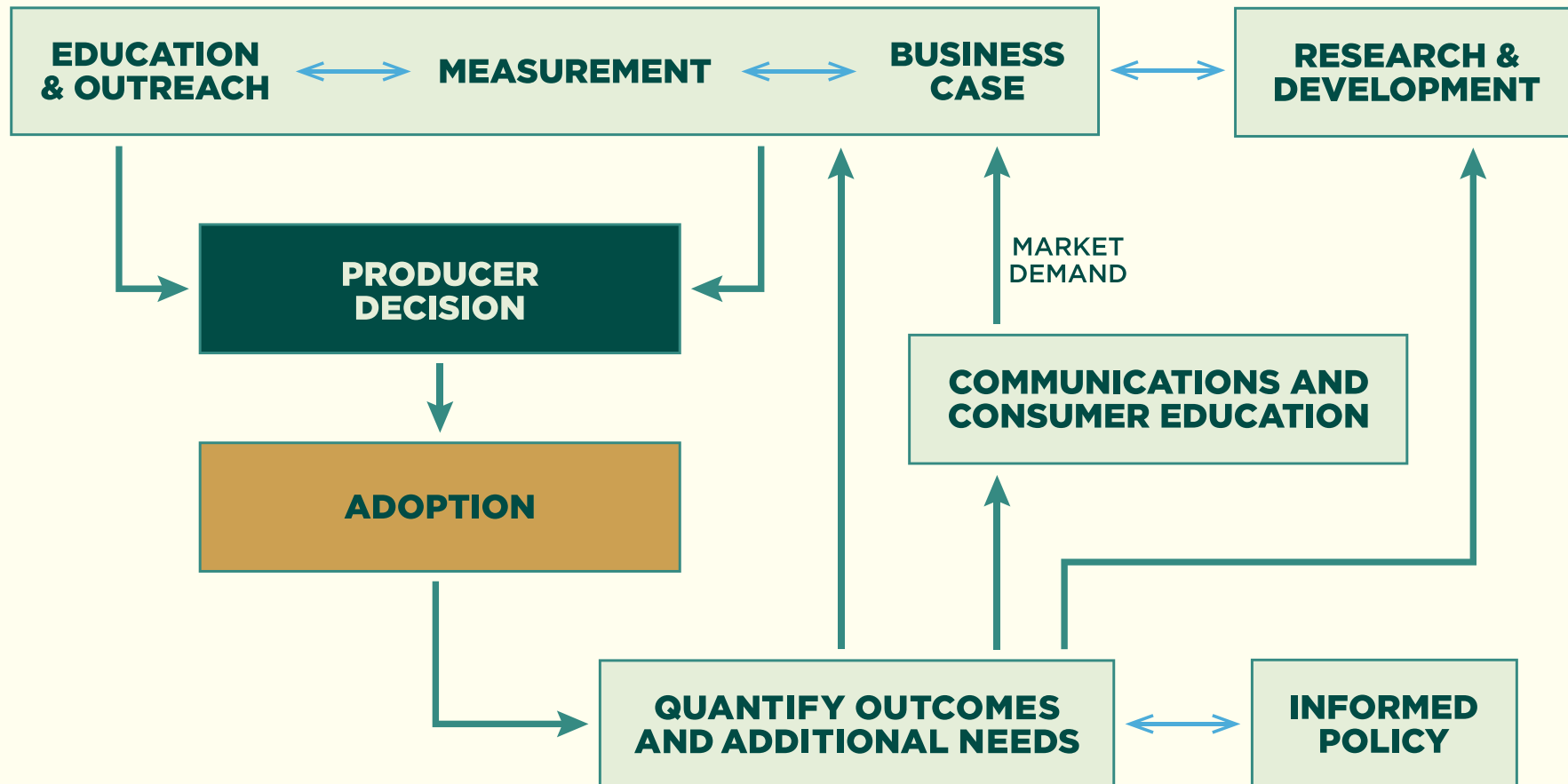
Regionality and Context for Cotton Soils and Farmers

BETTER COTTON CONFERENCE

Dianna Bagnall, Research Soil Scientist and Program Director

June 2025 - İzmir, Türkiye

COMPREHENSIVE STRATEGY TO INCREASE ADOPTION OF SOIL HEALTH MANAGEMENT SYSTEMS



BENCHMARKING SOIL HEALTH: REGIONAL REPORTS

Expected release in 2025

Regional Reports



Benchmarking Soil Health Northern Blackland Prairies, Texas

Long-term adoption of soil health management systems can reduce production costs, build resilience to extreme weather, and increase yield — but to set appropriate goals, growers need to understand how healthy their region's soils can be.

To meet this need, the Soil Health Institute evaluates minimally disturbed sites where soil health is optimal, comparing these **REFERENCE** sites to two types of crop production systems in the same region: typical **BASILINE** management and regenerative **SOIL HEALTH PRACTICES**.

In spring of 2021 and 2022, SHI sampled soils at 79 fields in the Northern Blackland Prairies Major Land Resource Area (MLRA 86A), representing 1.3 million acres of cropland.

The results show that growers in the Northern Blackland Prairies improved their soil health by adopting management practices to reduce soil disturbance and maximize living roots.

BASILINE	SOIL HEALTH PRACTICES	REFERENCE
cotton, corn, wheat with chisels, disks, and field cultivators both fall and spring	corn, cotton, wheat with no-till/strip till	pasture, hayfield
		
21 FIELDS	25 FIELDS	33 FIELDS

About the region



- 17% of the region is used for crop production, primarily cotton, corn, grain sorghum, and winter wheat.
- Conventional tillage (e.g., chisel, disk, and field cultivator) is used on 86%, reduced tillage on 9%, no-till on 5%, and cover crops on 2% of cropland in this region.
- Mean annual temperature for the region ranges from 57 to 64°F, and mean annual precipitation ranges from 31 to 50 inches.
- Most crop production is on high clay soils (>30% clay).
- Crop production challenges include:
 - Insufficient or poorly timed rainfall, leading to delays in planting and/or compaction during harvest
 - Low water infiltration rates, especially due to soil compaction
 - Weed competition, especially herbicide-resistant weeds

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Blackland Prairies, Texas

What we measured

At each location, we evaluated these essential indicators of soil health:

Organic carbon concentration (0 to 6 inch depth) promotes soil structure, microbial activity, plant-available water, and plant-available nutrients.

Aggregate stability (0 to 3 inch depth) measures soil structure and resistance to erosion. Soils with greater aggregate stability are more resistant to erosion and have improved aeration, water infiltration, and water storage.

Carbon mineralization potential (0 to 6 inch depth) is the amount of CO₂ produced by microbes after rewetting the soil. Increasing carbon mineralization potential boosts biological capacity to cycle nutrients and plant residues.

To estimate growers' current and potential carbon storage, we also measured **organic carbon stock** (0 to 12 inch depth), the amount of organic carbon stored in the soil using both organic carbon concentration and bulk density measurements.

What we found

In the fields sampled, **BASILINE** row crop practices included cotton rotations with tillage in fall to accelerate residue decomposition, incorporate fertilizer, and prepare the seedbed. **SOIL HEALTH PRACTICES** primarily involved tillage reductions such as strip-till, with several fields using no-till and cover cropping. Some growers who did not use cover crops at the time of sampling had previously planted them in earlier years. All fields sampled were dryland. Pasture management included both rotational and continuous grazing.

In addition to management, soil properties including texture influence the essential indicators. The table below shows average values for two typical soil textures in the Northern Blackland Prairies.

	CLAY LOAM SOIL (30% CLAY)			CLAY SOIL (60% CLAY)		
	BASILINE	SOIL HEALTH PRACTICES	REFERENCE	BASILINE	SOIL HEALTH PRACTICES	REFERENCE
Organic carbon concentration (%)	1.10	1.27	1.83	1.42	1.62	2.36
Aggregate stability (Index from 0 to 1)	0.35	0.41	0.59	0.25	0.30	0.48
Mineralization potential (mg C/kg soil/day)	7	8	20	8	9	21
Organic carbon stock (metric tons C/acre)	15	18	23	17	20	26

Values were calculated using hierarchical models to adjust for differences in soil texture, pH, mean annual temperature, and annual precipitation across sampled locations.

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Texas

Compared to minimally disturbed **REFERENCE** samples to row crop fields with **BASILINE** management, the results show that healthier soils in crop production systems in the region can be.

+67%	organic carbon concentration	+177%	carbon mineralization potential
+85%	aggregate stability	+51%	organic carbon stocks

In the fields sampled, fields with **SOIL HEALTH PRACTICES** had, on average:

67% higher organic carbon concentration

85% higher aggregate stability

51% higher organic carbon stocks

177% higher carbon mineralization (not statistically significant)

Through cover cropping, no-till, reduced tillage, and rotations that included high residue, growers were successful in improving soil health.

In the region, growers were able to achieve 50% or more of the soil health values of the **REFERENCE** sites.

65%	30 of 46 fields	organic carbon concentration	11%	5 of 46 fields	carbon mineralization potential
57%	26 of 46 fields	aggregate stability	83%	38 of 46 fields	organic carbon stocks

By reducing tillage and adding cover crops, growers are improving soil health in the Northern Blackland Prairies Region of Texas. However, with these practices currently used on only 2% of the land, many more farmers in this region could benefit from improving the health of their soils.

The Soil Health Institute thanks the [supporters of the U.S. Regenerative Cotton Fund](#) and USDA Partnerships for Climate-Smart Commodities (NR233A750004G040) for making this work possible.

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Regional Reports



About the region



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Regional Reports

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Regional Reports

Comparing the minimally disturbed **REFERENCE** samples to row crop fields with **BASELINE** practices shows just how much healthier soils in crop production systems in the region can be.

Compared to **BASELINE**,
samples from **REFERENCE**
fields had on average:

+67%

organic carbon concentration

+177%

carbon mineralization potential

+85%

aggregate stability

+51%

organic carbon stocks

What's working?

Compared to **BASELINE** fields, fields with **SOIL HEALTH PRACTICES** had, on average:

14% greater organic carbon concentration

19% greater aggregate stability

16% greater organic carbon stocks

13% greater carbon mineralization *(not statistically significant)*

These results show that cover cropping, no-till, reduced tillage, and rotations that included high biomass crops such as corn were successful in improving soil health.

REGIONALITY

BENCHMARKING SOIL HEALTH: REGIONAL REPORTS

Expected release in 2025

What counts as adoption?

Learning from focus groups with GA farmers

- “I mean you can consider it a cover crop because it is a crop that you've planted that's covering the ground through the wintertime. We're using it for a different purpose. We're using it to graze cattle or something of that nature.”
- “And if you harrow it, you're starting all over.”

Take away: Rigid definitions of adoption exclude people

Quotes from 2025 focus groups conducted by UGA and SHI

This research is a collaboration between the Social Sustainability of Agriculture and Food Systems Lab at the University of Georgia and the U. S. Regenerative Cotton Fund, an initiative of the Soil Health Institute. It is funded, in part, with a grant from the U.S. Department of Agriculture's National Institute of Food and Agriculture Sustainable Agricultural Systems – Coordinated Agricultural Projects Program, award no. 2024-68012-41750.



**UNIVERSITY OF
GEORGIA**

Moving toward alignment with principles – soil health management indices

- **gTIR : generalized tillage intensity rating**

How much is the soil disturbed?

Modified from existing NRCS standards

- **LRI: Living Roots Index**

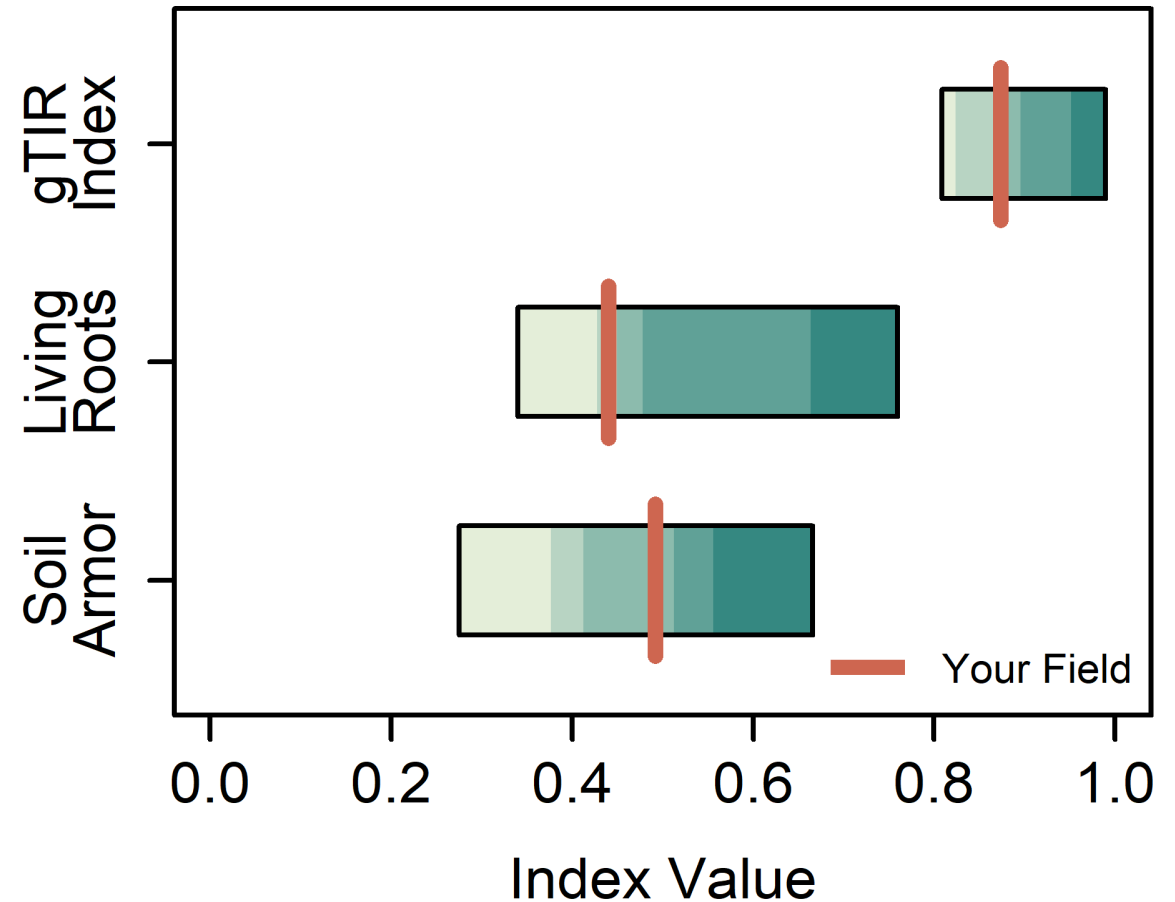
How often is there a living root in the soil?

Proportion of the year something is growing

- **SAI: Soil armor index**

How much is the soil protected by brown (dead) crop residue?

Developed/modified from existing residue tracking models



THANK YOU

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Better Cotton's 10-Year US Impact Report

