U.S. REGENERATIVE COTTON FUND

SOIL HEALTH INSTITUTE

Profitability of Long-term Soil Health across the Cotton Belt



Improving soil health can increase drought resilience and nutrient availability, reduce erosion, and help fight crop disease. When considering adopting soil health practices, farmers want to understand the economic impact on their operations. That's why the Soil Health Institute conducts partial budget analysis of farms and their practices, comparing the costs and savings of soil health management systems.

We analyzed partial budgets of 41 cotton farmers in nine regions across eight states – each with at least five years of experience adopting soil health management systems. While gains in cotton profitability varied widely across the Cotton Belt as well as for operations within the same state, **all farmers reported an increase in net cotton income**.

The bottom-line benefits they saw include:

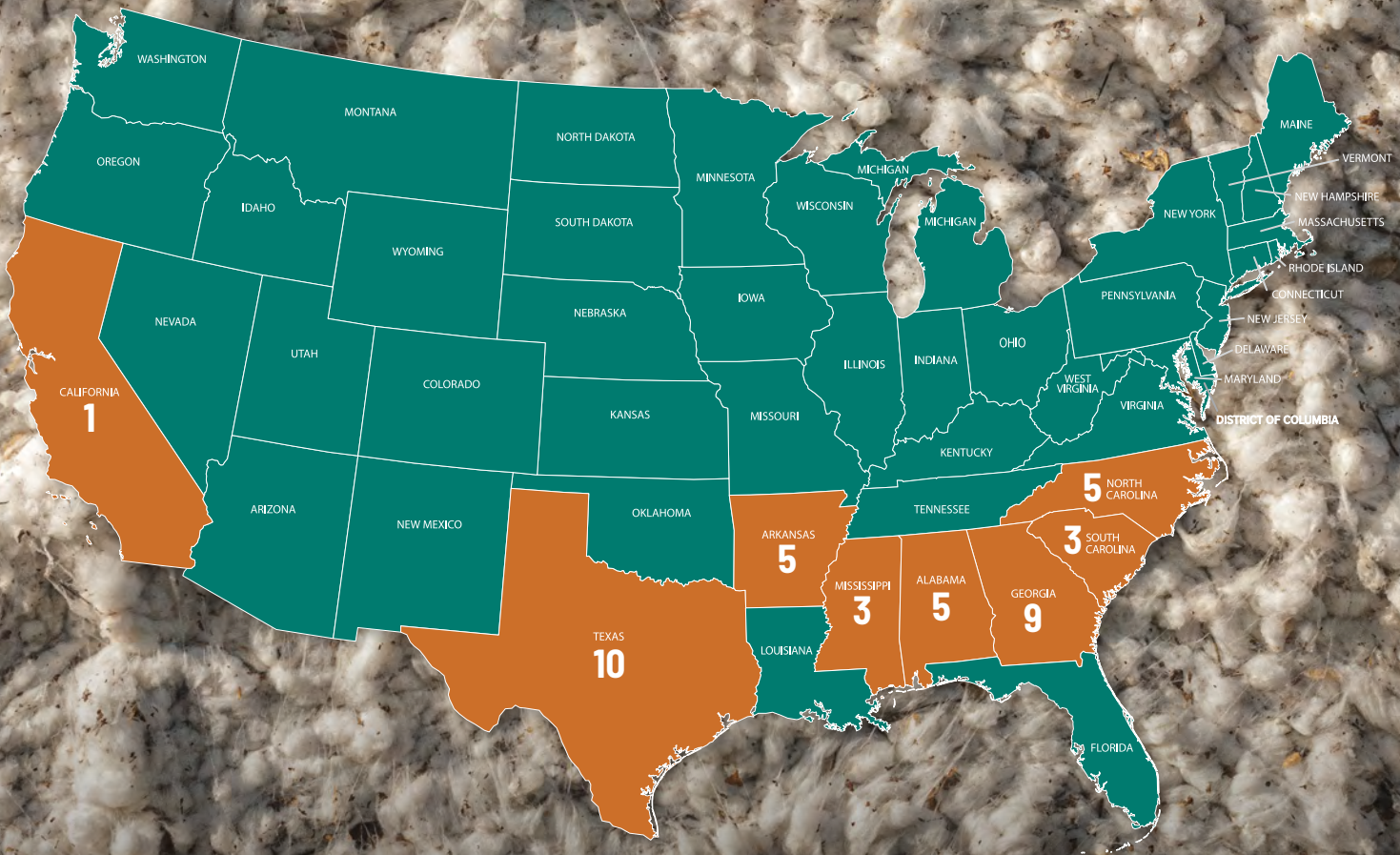
- Cotton income rose an average of $118/acre, with increases ranging from $7 to $369/acre.
- No farms lost yield, and 51% of farms increased yield.
- For farms with a yield change, the average increase was 19%.

Before we break down the cost and revenue changes due to managing for soil health, let's take a look at the farms in the study.

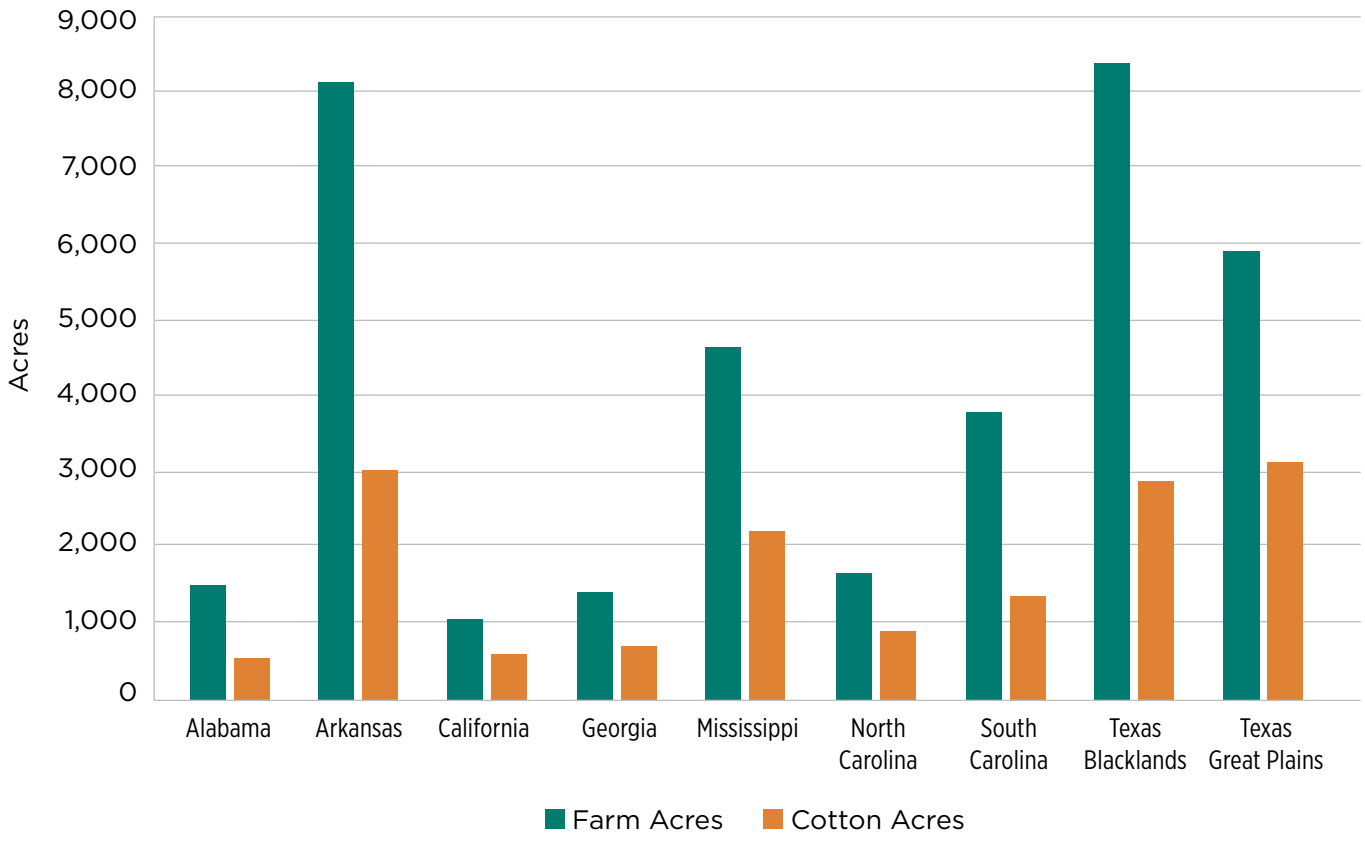
ABOUT THE

Farms

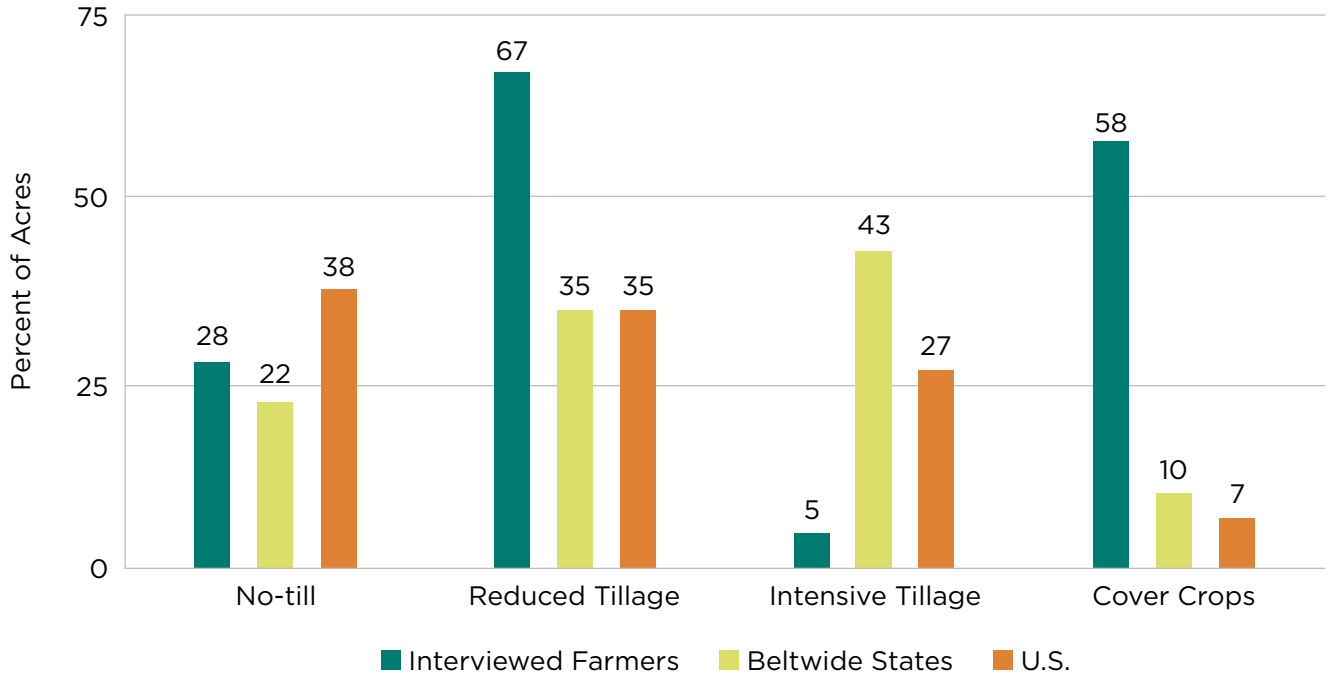
The 41 farms ranged in size from 200 to 11,500 acres, growing corn, soybean, grain sorghum, wheat, peanut, rice and other crops in addition to cotton. Average cotton area ranged from 511 acres in Alabama up to 3,119 acres in the Texas Great Plains. The interviewed farmers primarily used no-till or reduced tillage, while 5% used intensive tillage, More than half planted cover crops.



Average farm and cotton acreage for participating farms



Management practices



BOTTOM-LINE BENEFITS

for cotton production

All farms in the study increased net income, and all but one reduced expenses through managing for soil health. Reduced per-acre expenses for cotton came from savings on fertilizer and amendments; pesticides; fuel/electricity, labor/services, and equipment. Additional revenue came from increased yield. On average, net income across the regions rose by $117.75 per acre for cotton.

Partial budget analysis of adopting a soil health management system, $/acre

	Benefits	Costs
Expense Category	**Reduced Expense**	**Additional Expense**
Seed	2.73	18.46
Fertilizer & Amendments	22.01	7.05
Pesticides	24.74	8.96
Round Module Covers	0.00	0.89
Fuel & Electricity	10.51	2.42
Labor & Services	20.85	9.21
Equipment Ownership	38.88	15.46
Total Expense Change	**119.72**	**62.45**

	Additional Revenue	Reduced Revenue
Yield, lb./acre	86.40	0.00
Price Received,[1] $/lb.	0.70	0.70
Revenue Change	**60.48**	**0.00**

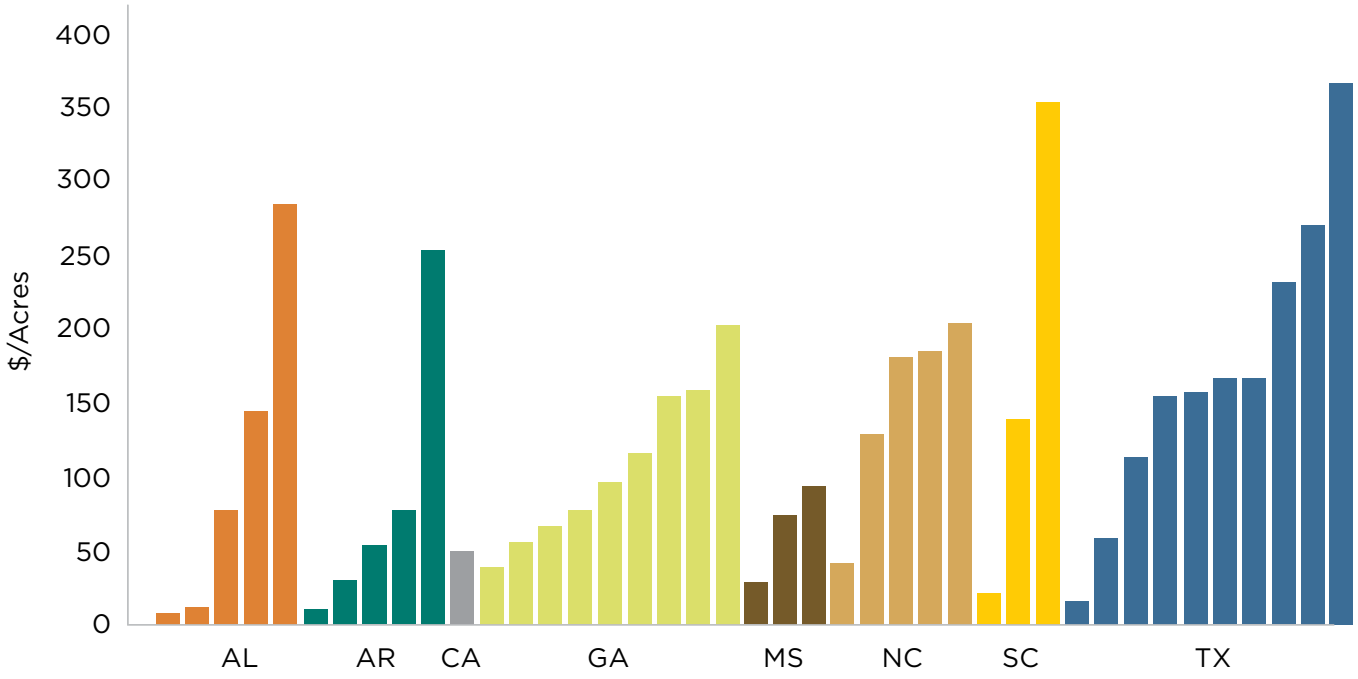
	Total Benefits	Total Costs
Total Change	**180.20**	**62.45**
Change in Net Income	**117.75**	

[1] Commodity prices applied to yields based on long-term average prices.

Looking at individual farms grouped by state reveals that net farm income increases varied widely within states as well as across the Cotton Belt. For analysis by state, please visit soilhealthinstitute.org/profitability.



Change in net farm income by state for 41 farms



For a detailed description of our partial budget methodology, please visit https://soilhealthinstitute.org/economics

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Join the soil health movement

Long-term adoption of soil health practices is improving profitability for cotton farmers across the Cotton Belt. These findings underscore the importance of supporting growers who are interested in transitioning to these practices.

To learn more about soil health practice adoption, please visit

https://soilhealthinstitute.org/resources/







Additional benefits

Farmers in the study also reported benefits including increased crop resilience, better access to their fields, improved water quality, enhanced public perception of agricultural production, and improvements to their soil structure.

The Soil Health Institute's Agricultural Economist, Dr. Archie Flanders, conducted this research and analysis. We thank the farmers who participated, as well as Soil Health Educators Jessica Kelton, Emily Ball, and Madeline Tomé for their input on the experimental design and for conducting the interviews. The supporters of the U.S. Regenerative Cotton Fund and funding from a USDA Advancing Markets for Producers grant (NR233A750004G040) made this work possible. Any opinions, findings, conclusions, or recommendations expressed in this publication are those of the author(s) and do not necessarily reflect the views of the U.S. Department of Agriculture. In addition, any reference to specific brands or types of products or services does not constitute or imply an endorsement by the U.S. Department of Agriculture for those products or services. USDA is an equal opportunity provider, employer, and lender.

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