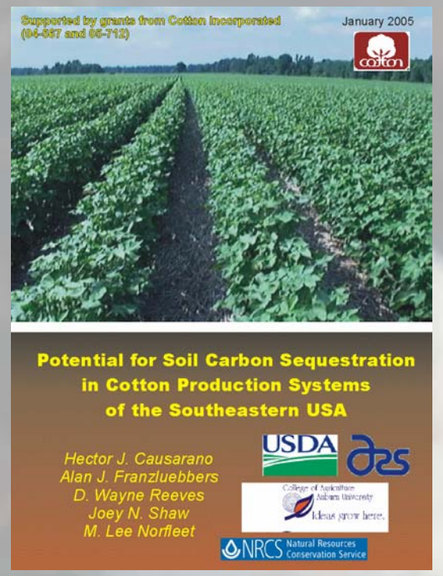
Soil Organic Carbon Sequestration in Cotton Production Systems



Summary of a technical report commissioned by Cotton Incorporated to:

(1) review scientific literature

(2) recommend best management practices

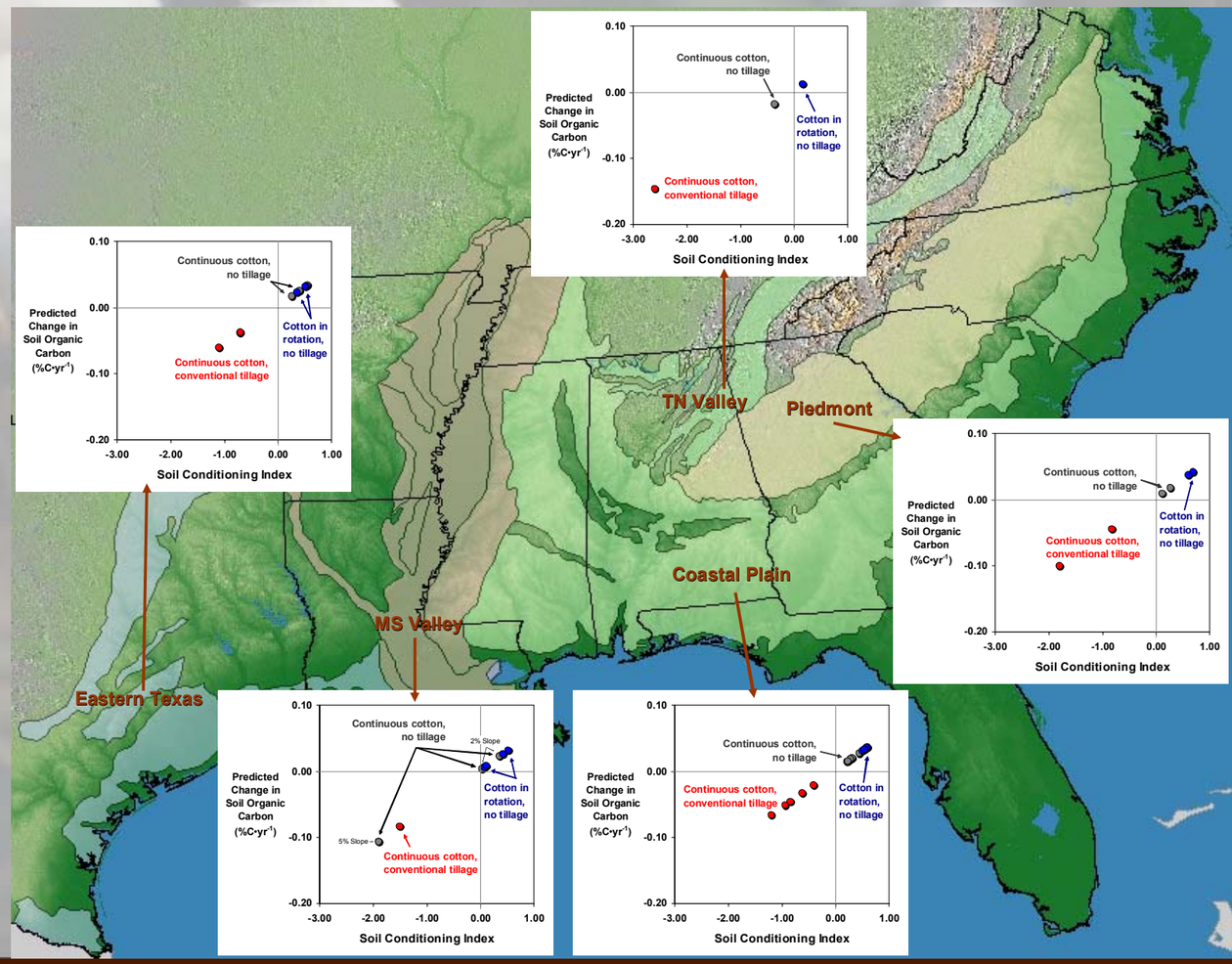
(3) outline potential monetary compensation scenarios related to soil organic (SOC) in cotton production systems of the southeastern USA

Predicting Soil Organic Carbon Changes with the Soil Conditioning Index

The soil conditioning index (SCI) is a tool currently used by the USDA-NRCS to predict changes in soil organic C (SOC), as affected by cropping system, tillage management, and soil texture. The SCI has been incorporated into the Revised Universal Soil Loss Equation (RUSLE2) to assist district staff members of NRCS working with local producers to plan and design crop and residue management practices for overcoming issues of low SOC, poor tilth, and other soil quality-related problems. When SCI is negative, SOC is predicted to decline. When SCI is positive, SOC is predicted to increase. The SCI is being used by NRCS to calculate payments to landowners enrolled in the Conservation Security Program.

Summary and Conclusions

- All conventional-tillage scenarios in all regions would cause a loss of SOC.
- Growing cotton in monoculture with no tillage could lead to a small loss, no change, or a small increase in SOC, depending upon region, slope, and soil texture.
- Greater likelihood of an increase in SOC would occur if cotton were managed with no tillage and combined with cover cropping or rotated with high residue-producing crops.
- Cotton producers in eligible watersheds of the Conservation Security Program could expect to receive an average of \$3.36 acre^{-1}, with payments up to \$8 acre^{-1}.



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