TRENDS IN U.S. COTTON SUSTAINABILITY: 2021 FIELD TO MARKET NATIONAL INDICATORS REPORT

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Abstract

As public and private sector efforts strive to increase awareness and promote action to reduce the environmental impact of crop production, understanding of how impacts have changed over time is critical to measuring the effectiveness of interventions and progress of the industry. A range of programs for resource conservation, improvement of soil health and land resiliency to extreme events, and the reduction of greenhouse gas emissions from agriculture have been working to engage groups of farmers and their communities. However, understanding whether such programs are effective in the long term requires a consistent method for assessing trends over time in key indicators. Using national-level data from USDA agronomic surveys, including the Census of Agriculture, Agricultural Resource Management Surveys, the National Agricultural Statistics Service, as well as literature and agricultural engineering resources, we assessed the trends since 1980 in the efficiency of land use, energy use and water use as well as the greenhouse gas emissions and soil erosion associated with the production of 11 crops in the United States, including cotton. Findings show that significant improvements across the five indicators was achieved in the period from 1980-2000 as widespread changes in tillage systems and seed technologies were adopted. However, in the period from 2000-2020, progress has been mixed, with greater variation among crops in whether soil erosion has continued to decline. The findings help to illuminate priority areas to target for improvements in these environmental outcomes.