

Title: Effects of Common Row Spacing and Controlled Traffic within a Corn-Cotton Rotation on soil properties and crop growth in Alabama

Investigators:

Joe Touchton, Professor & Department Head, Agronomy & Soils Department,
Auburn University

Collaborators:

Randy L. Raper, Agricultural Engineer, USDA-ARS National Soil Dynamics Lab
Kip Balkcom, Agronomist, USDA-ARS National Soil Dynamics Lab
Jason Bergtold, Agricultural Economist, USDA-ARS National Soil Dynamics Lab
Francisco J. Arriaga, Soil Scientist, USDA-ARS National Soil Dynamics Lab
Ted Kornecki, Agricultural Engineer, USDA-ARS National Soil Dynamics Lab
Andy Price, Weed Scientist, USDA-ARS National Soil Dynamics Lab

SUMMARY:

This experiment was designed to evaluate the benefits that would result from using a common row spacing on a corn-cotton rotation instead of the common practice of producing corn on a 30 in. spacing and cotton on the regionally variable row spacing of 36, 38, or 40 in. spacing. The experiment was begun at the E.V. Smith Research Center where a common row spacing of 36 in. was used for both corn and cotton. Additional treatments that were evaluated included in-row subsoiling either before corn or cotton or both. Both crops were present in the small-plot experiment. A larger demonstration experiment with plots of approximate ½ acre was also conducted. However, due to size limitations, only one crop at a time was grown. In 2007, corn was grown in the large demonstration experiment. Similar to most of Alabama, the E.V. Smith Research Center suffered from a drought during most of the summer of 2007. Corn yields were devastated with no yields resulting from the experiments. However, cotton yields were still obtained, although lower than normal. As expected, during the first year of the experiment with no previous compaction events, no effect of row spacing was found on the cotton yields which were on average 1140 lbs of seed cotton/ac. The only difference that was found was an approximate 100 lbs of seed cotton/ac increase for plots that did not receive any form of in-row subsoiling. During this extremely dry year, the normal benefits associated with in-row subsoiling were not found.