

Proceedings of the

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Tillage Conference
for Sustainable Agriculture**

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Foreword

The agriculture production regions of the southern United States are highly diverse in their crop systems and soil resources. Cropping systems include sub-tropical fruit, vegetable, and sugar cane systems, thermic zone peanut, cotton, tobacco, and rice crops, as well as more the temperate climate corn, soybean and wheat crops. Soils include highly eroded Piedmont and Mississippi terraces, poorly drained Delta and Flatwoods, high shrink/swell clays, deep, rapidly permeable sands, and dense, easily compacted Coastal Plain upland soils. Few rules of production are applicable throughout the region, and production practices deemed appropriate elsewhere in the United States are often inappropriate in the South.

The climate of the southeast serves to make it an area of near year-round production. The long-growing seasons create problems for conservation tillage, but also offer it unique solutions. In the mild fall and winter periods, insect and disease pests survive and even thrive ready to take on next year's crops. However, insect predators also survive, and, with appropriate management to foster their survival, these natural allies can be dependable. Weeds, likewise survive and grow throughout the non-crop periods. New herbicides help with their control, but the warm climate that supports the weeds can also be used to produce a weed-chocking cover crop that provides the added benefit of uniform surface protection against erosion. Humid and warm conditions of the growing season rapidly break down organic matter and crop residues making long-term buildup of humus nearly impossible. However, that rapid decomposition releases nutrients to the actively growing crop and removes straw and crop residues that otherwise might have interfered with harvest of the cotton and peanut crops.

This series of Southern Conservation Tillage Conferences has been held for the past 22 years as scientists, extension specialists, conservationists, and farmers grapple with the challenges of these unique growing conditions, crops and soils. Conservation tillage has progressed more slowly in the South than in other regions. There are many reasons for this – attempts to bring inappropriate technologies and practices from more temperate regions, earlier failures in reduced tillage before effective herbicides became available, unwillingness of farmers to risk changes in management on crops with subsidies, and general lack of federal and state research and extension for southern cropping systems are among them. The Southern Conservation Tillage Conferences bring focus to these problems and help identify effective solutions appropriate to the region.

The 1999 Conference held at the Rural Development Center in Tifton, Georgia, begins with a session on management challenges and opportunities in conservation tillage. These invited and volunteer papers focus on new opportunities for conservation tillage on crops that have been traditionally slow to change to conservation tillage. As we learn how cotton insect pest, peanut diseases, and vegetable weed and nematode problems can be minimized using conservation tillage, we see hope that conservation tillage will be adopted by farmers producing these crops.

The afternoon session turns to effective means of fostering adoption of conservation tillage by farmers. Farmer-to-farmer exchange of information continues to be the most effective means of spreading the experiences of successful farmers. That along with on-farm research and demonstration serve to adapt the general principals of conservation tillage to the specific soil, crop culture and climate of the area.

Farmers, along with logging operators hold and protect most of the open and natural spaces in the South. Having chosen to live in the more remote areas, they understand the relationships between healthy crop and timber operations and protection of wildlife and water and air quality. The continued pressure to increase farm production efficiency in the face of steady or falling commodity prices in order to make a reasonable family income has forced many to manage larger farms, buy larger equipment, and use more chemicals. However, many farmers see in this a decline in the basic productivity of their land and decline in the quality of their natural resources. Farmers who have switched all of their farming operations to conservation tillage principals enthusiastically report that they are once again seeing the wildlife populations increasing and using their fields for nesting and feeding. Many are also looking to wildlife management itself and an income generating part of their operations. The third session, a special evening session, of the Conference focuses on the use of conservation tillage principals fosters natural and managed wildlife populations.

We at the University of Georgia, the USDA ARS Research Units and NRCS in Georgia, along with the Georgia Conservation Tillage Alliance of farmers and the Georgia Department of Natural Resources appreciate this opportunity to host this annual conference and to facilitate adoption of conservation tillage practices.

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This proceedings is the 22nd consecutive written proceedings published in conjunction with the annual conference. The body of knowledge on specifically southern conservation tillage research and extension in these proceedings is probably unequaled. With this 22nd Proceedings, we are beginning an additional effort to bring more complete papers to the series of proceedings. While the first part of the Proceedings includes the research summaries, interpretative summaries, annual reports and unreviewed preliminary papers like most of those published in previous years, the second section contains peer-reviewed manuscripts. While previous years proceedings usually included some complete papers that were not published in journals or other form, their authors never received recognition for these important, high quality papers. With the reviewed section, we hope to begin a volunteer contribution section of original research papers that have not been and will not be published elsewhere. Each manuscript was reviewed by two external reviewers, and authors were asked to make corrections as identified by those reviewers. Minor corrections and editorial changes were made by the editor directly. In a few cases papers not deemed complete or acceptable were moved to the non-reviewed portion of the Proceedings where their findings and results will still be available to the public and to abstracting services.

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