

CONSERVATION TILLAGE IN IRRIGATED COASTAL PLAIN DOUBLE-CROP ROTATIONS

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INTERPRETIVE SUMMARY

Various levels of conservation tillage (leaving some portion of the previous plant residue on the soil surface) are being studied and utilized for producing crops in the southeastern United States. Soil moisture is a critical factor in the sandy coastal plain soils. Supplemental irrigation is often needed to maintain consistent productivity. Research was extremely limited on studying the effects of various conservation tillage practices on crops grown under irrigation. We evaluated double cropping sequences of a small grain grown for grain and a row crop of cotton, peanut, or soybeans following small grain. Irrigation application technology was utilized as much as possible. Adequate soil moisture and establishing a good crop stand are keys to good productivity. In our studies, a good crop stand was generally obtained, because

good soil moisture could be maintained by irrigation. All crops yielded more in moldboard plow tillage and least in no-till tillage. In many cases, yield of cotton, soybean, or peanut under strip tillage approached that of moldboard plow tillage. Growing cotton, peanut, or soybean for eleven years of strip tillage did not result in long-term yield reduction or pest management problems. Pest management was determined by scouting, which proved effective in all rotations. Weeds, insects, and diseases were no worse in conservation tillage than in moldboard plow tillage. This was the result of continual scouting. Under irrigation, long-term conservation tillage appears feasible.

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