

ON FARM DEMONSTRATIONS OF CONSERVATION TILLAGE IN GEORGIA

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Abstract

Approximately 10 % of the cotton acreage in Georgia is currently grown using some form of conservation tillage. The objective of this paper is to describe some on-farm demonstrations currently being conducted in Georgia to study and promote conservation-tillage. The most common system used is "strip-tillage" where a narrow seed bed is prepared with specialized equipment. The use of cover crops such as crimson clover, hairy vetch or rye is encouraged. Rye is the most common cover crop used. The main reason for using conservation-tillage in Georgia is soil conservation, although current economic situations are driving growers to adopt these systems to save input costs such as fuel and save time due to labor situations. A number of on-farm demonstrations using conservation-tillage are currently being conducted in Coffee County, GA, located approximately 50 miles east of Tifton. These studies are being supported by USDA-NRCS and the Georgia Conservation Tillage Alliance in addition to the University of Georgia. Starting in the fall of 1995, a detailed on-farm study was established to determine the best cover crop species and planting date, as well as the amount of biomass and N produced in a conservation-tillage cotton system. Ten different cover crops including 6 clovers, 2 vetches, lupine and rye were sampled in Spring 1996. Both top growth and root growth (down to 6 inches) were sampled, weighed and analyzed for N content. Rye produced the most total biomass (over 3 ton/a) compared to the legumes (about 1.5 ton/a) but the legumes produced the most N (up to 160 lb/a). Due to unusually cold winter temperatures the lupines winterkilled and the growth of Cahaba white vetch was also affected. Summer crops of cotton, corn, pearl millet, sorghum, soybeans and sudex were grown in 1996 following the legumes. The cover crops had no adverse affects on the summer crops and the legumes did apparently provide some N. In Fall 1996, an early-maturing clover and vetch and a nematode-resistant clover and vetch were planted along with rye and followed by cotton in 1997. Biomass and N production by the cover crops, nematode levels, and cotton yields with different rates of sidedress N are currently being examined. Future on-farm demonstrations will focus on comparing economics of conservation-tillage systems compared to conventional-tillage and long-term affects on soil organic matter and , quality.