Conservation Tillage and Poultry Litter Effects on Cotton and Corn. (S06-nyakatawa124922-Poster)

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Abstract:

Adoption of conservation tillage systems for reducing soil erosion, improving soil quality and increasing cotton (Gossypium hirsutum L.) yields has been slow in some counties of north Alabama. Poor emergence, reduced seedling growth, delayed maturity, and reduced yield are some of the problems which have been attributed to the slow adoption of conservation tillage systems. This study evaluated the effects of conservation tillage, winter rye (Secale cereale L.) cover cropping with poultry litter on growth parameters and yield of cotton and corn in north Alabama between 1996 and 2001. Cotton lint yield under no-till was 7 to 24%, greater than that under conventional till, respectively. Cover cropping increased cotton lint yields by 6 to 12% compared to cotton winter fallow cropping in 2000 and 2001. Poultry litter at 100 kg N/ha gave similar cotton lint yield to ammonium nitrate. Residual N from poultry litter applied to cotton in 1997 and 1998 produced up to 17.3 Mg/ha of corn biomass without additional fertilizer. Poultry litter applied to cotton also increased corn grain quality as indicated by up to 100% increase in grain N content compared to the 0N treatment. These treatments would be appropriate for use in the southeastern U.S.A. where soil erosion is a problem and the disposal of poultry litter poses an environmental problem.

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