CSREES National Water Quality Program

Title: Influence of Nitrogen Rates on Yield of Staked Tomato and Ground Cover Effect on Residual Nitrates

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State: FL **Region:** Southern **Year of Funding:**

Theme: Nutrient and Pesticide Management

Proper management of Nitrogen (N) fertilizer applied in crop production systems is important to maintain yields while protecting water quality. A field study was carried in north Florida, to determine the yield response of staked tomato to applied N levels and evaluate the effectiveness of ground cover in removing residual soil nitrates following crop harvest. N levels were 0, 90, 180, 270 and 360 lbs acre^{-1}. Ground cover were sorghum sudangrass, ryegrass and polyethylene mulch. Data collected included fruit yields and N content of plant tissue, lysimeter leachate and soil. Results showed that there were no significant ($p<0.05$) yield differences between the 90 and 360 lbs acre^{-1} N levels. Cover crops reduced soil nitrate N up to 15 ppm in the soil profile. N content of soil under the cover crops was lower compared to fallow and polyethylene treatments. Biomass yields of the cover crops varied from 3 tons acre^{-1} for the ryegrass up to 14 tons acre^{-1} for the sorghum sudangrass.