EFFECTS OF COTTON STALK MANAGEMENT AND COVER CROP USE ON SOIL PROPERTIES AND CLRDV INCIDENCE

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Abstract

Cotton leafroll dwarf virus (CLRDV) was reported in cotton (*Gossypium hirsutum*) in Alabama in 2017. This study recorded CLRDV presence in cotton following three cotton stalk destruction methods with and without a cover crop, as well as the effect on soil properties. Stalk destruction methods were major tillage, mowing, and mowing-pulling. A mixture of cereal rye (*Secale cereale*) and crimson clover (*Trifolium incarnatum*) was used for the cover crop treatment. Two cotton varieties were included, DP 2055 B3XF and PHY 400 W3FE. Trial locations were in the Alabama Agricultural Experiment Station System at the E. V. Smith Research Center (EVSREC), Shorter, AL; Wiregrass Research and Extension Center (WGREC), Headland, AL; and Gulf Coast Research and Extension Center (GCREC), Fairhope, AL. Data collection included soil moisture and soil penetrometer values, cover crop biomass, various cotton growth measurements, pre-bloom aphid presence, CLRDV infection, and cotton lint yield. Soil moisture values were relatively consistent across stalk management treatments. Soil penetrometer values showed elevated soil strength values across all stalk destruction methods when no cover crop was present. CLRDV infection results showed 33% incidence at EVSREC, 19% at WGREC, and 2.7% at GCREC. Re-sampling after harvest indicated 72% incidence at EVSREC, 76% at WGREC, and 32% at GCREC. Neither cotton stalk management methods nor cover crop use seemed to significantly impact CLRDV. More research is needed to determine how cotton stalk management affects soil properties and the incidence of CLRDV.