INFLUENCE OF VARYING LEVELS OF COVER CROP RESIDUES ON THRIPS INFESTATIONS IN COTTON AND PEANUT Phillip Roberts and Steve L. Brown The University of Georgia Tifton GA

Abstract

Small plot field trials were established during 2002 and 2003 to evaluate the influence of varying levels of rye straw applied to the soil surface on early season thrips infestations. Cotton and peanut were planted in separate trials using conventional tillage practices and no at-plant systemic insecticide for thrips control. Prior to crop emergence rye straw was hand spread on the soil surface at various levels to simulate a reduced tillage system. Treatments included no rye straw, one small bale (approximately 30 lbs.) of rye straw per 240 square feet, one-half bale, and one-fourth bale respectively. The highest level of rye straw provided near 100 percent coverage of the soil surface. Data collection in cotton included thrips counts and plant heights. Significantly fewer immature thrips were observed 2 weeks after planting in treatments where rye straw was present on the soil surface compared with no rye straw in both years. Significantly fewer immature thrips were also observed at three weeks after planting, although not significantly different during 2003, when rye straw was on the soil surface. Adult thrips populations were only significantly different on one date, but a general trend for lower populations was observed when rye straw was present on the soil surface. Cotton plant height was significantly reduced in the bare ground treatment at four weeks after planting compared with treatments which had rye straw on the soil surface. Data collection in peanut included a thrips damage rating and tomato spotted wilt virus (TSWV) damage rating. During 2002, a subjective thrips damage rating on a scale from 1-10 indicated that as the amount of straw increased, thrips injury on peanut significantly decreased. TSWV severity, thrips are a vector of TSWV in peanut, was also significantly reduced in treatments with the two highest levels of rye straw applied to the soil surface during 2002 compared with the bare ground treatment. During 2003, three peanut trials were established and only TSWV severity was rated. TSWV levels were much lower and significant differences similar to those observed in 2002 were only observed at one location. In summary, thrips populations and injury in seedling cotton and peanut were reduced when rye straw was present on the soil surface. There is some indication that as the level of rye straw increased, thrips population and plant injury decreased accordingly. The mechanism for this preference for seedlings on bare ground in unknown. Perhaps host plant or seedling recognition is confounded by the presence of the rye straw on the soil surface.