ANALYZING THE BENEFIT OF ROOT-KNOT NEMATODE RESISTANT COTTON VARIETIES WITHIN A VARIETY TRIAL

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Abstract

Root-knot nematodes (*Meloidogyne incognita*) are detrimental to cotton production in Screven County, Georgia and throughout the Southeast. This study compared yield, root-galling and plot nematode assay results of two root-knot nematode (RKN) resistant cotton varieties and 10 susceptible varieties commonly planted in Screven County, Georgia. At the end of the 2019 growing season, soil samples were taken in the test plot field which determined a "moderate" root-knot nematode population ranging from 19 to 127 J2/100cc soil. On May 11, 2020, the test field was planted with the 12 varieties and each was replicated three times across the field. As the growing season progressed several varieties showed symptoms of nutrient deficiency and stunted growth, consistent with damage from root-knot nematodes. At harvest 5-10 plant root systems per plot were rated for root galls. Average end-of-season ratings varied between 0.9% to 32.2%. Resistant variety PHY400W3FE had the lowest root-gall rating. Susceptible variety DP 1646 B2XF had the highest root-gall rating. Resistant Variety PX 5C45 W3FE, which has two resistant genes, had the lowest soil nematode counts in the nematode assay results. Most importantly for growers, the two resistant varieties, PHY 400 W3FE and PX5C45 W3FE, yielded 125.2 and 50.6 pounds of lint per acre above all other varieties in this trial where pressure was described as "moderate".