

Yield Response of Root-Knot Susceptible and Resistant Peanut Cultivars as Impacted by Nematicide Inputs

A. K. HAGAN*, H. L. CAMPBELL, Department of Entomology and Plant Pathology, Auburn University, AL 36849; L. WELLS, Wiregrass Research and Extension Center, Headland, AL 36345

In 2017, 2018, and 2019 at the Wiregrass Research and Extension Center in Headland, AL, yield response of the peanut root-knot susceptible Georgia-06G along with the root-knot resistant Georgia-14N and TifN/V-High-O/L peanut cultivars as influenced by in-furrow applications of 18 fl oz/A Velum Total and 7 lb/A AgLogic 15G was assessed on an irrigated site with an established *Meloidogyne arenaria* Race 2 population. A no-nematicide control was included. A factorial design arranged in a split split-plot with year as the whole plot, cultivar as the split plot, and nematicide as the split split-plot treatment was used. While peanut followed peanut in 2017, a one year out cotton-peanut rotation was followed in 2018 and 2019. Leaf spot defoliation, stem rot incidence, pod and root damage, final root-knot nematode counts, along with stand counts and year-end plant vigor were also recorded. Stand density and plant vigor differed by year and cultivar with AgLogic reducing stand density across all cultivars in 2019 compared with Velum Total and the no-nematicide control. Of the three cultivars, TifN/V-High O/L often had superior vigor ratings than Georgia-06G and to a lesser extent Georgia-14N. Similar plant vigor, pod damage, root-knot and ring nematode counts, as well as pod yield were often noted across all nematicide treatments, including the no-nematicide control. While leaf spot pressure was low in all study years, defoliation was less on TifN/V-High O/L and Georgia-14N in one and two study years, respectively, than on Georgia-06G. Less defoliation was also noted with Velum Total than AgLogic or the no nematicide control. While stem rot incidence were lower in all three years for TifN/V- High O/L and Georgia-14N, Georgia-06G had greatest and least disease indices in 2017 and 2019, respectively. While TifN/V-High O/L and Georgia-14N had lower root-knot juvenile counts and negligible pod damage compared with Georgia-06G, the former cultivar produced significantly greater yield than the latter two cultivars, which had similarly lower yields. Year impacted root-knot and ring nematode populations but not yield. Overall, the peanut cultivar TifN/V-High O/L produced greater pod yields with less damage from diseases and root-knot nematode when compared with the current industry standard Georgia-06G, while no yield protection was provided by either nematicide.