RESPONSE OF COTTON VARIETIES TO THE IN-FURROW NEMATICIDE VELUM TOTAL FOR MANAGEMENT OF RENIFORM NEMATODES

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Abstract

Root-knot (*Meloidogyne incognita*) and reniform (*Rotylenchulus reniformis*) nematodes are economically important pests of cotton in the United States resulting in losses in excess of $370 million annually. Symptoms include stunting, poor vigor, chlorosis and wilting. Nematode management is achieved by rotation with a non-host, planting partially resistant or tolerant cultivars, and/or the use of chemical nematicides. Currently, several cultivars containing single gene or duel gene resistance to *M. incognita* are available. In contrast, only weak to moderate levels of resistance have been identified for *R. reniformis* and none are commercially available. In previous studies, yields for PhytoGen (PHY) 417WRF, a dual gene *M. incoginta* resistant cultivar, were approximately 15 to 50% greater than PhytoGen (PHY) 499WRF, a susceptible cultivar, in fields infested with *R. reniformis* with differences between the two increasing with higher reniform nematode pressure. The registration of the nematicide Velum Total has provided producers with additional management options; however, information on the response of cotton cultivars that vary in their reaction to *R. reniformis* to Velum Total is lacking. Trials were conducted at seven locations with varying reniform nematode pressures over the 2017 growing season. Lint yields differed by location ranging from 414 to over 1,900 lbs per acre. PHY 417WRF had the lowest yield when nematodes were not present but outperformed PHY 499WRF in fields with high nematode pressure. Yields for Stoneville (ST) 4946GLB2, a single gene *M. incoginta* resistant cultivar, were equal to or greater than those of PHY 417WRF in fields infested with *R. reniformis*. These data suggest that PHY 417WRF is partially resistant to *R. reniformis*, whereas, ST 4946GLB2 appears to possess some level of tolerance to the nematode. A response to Velum Total of 237 lb ac^{-1} was observed at one of the seven locations. This was due to optimal moisture conditions at planting. Additional studies evaluating the performance of these cultivars in combination with Velum Total will be conducted in 2018.