RESPONSE OF COTTON VARIETIES TO COMBINATIONS OF TELONE AND A NEMATICIDE SEED TREATMENT

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<u>Abstract</u>

Root-knot nematodes (Meloidogyne incognita) are problematic throughout cotton producing regions of the United States, causing an estimated loss of 547,728 bales in 2004. In the the Southern High Plains of Texas, M. incognita has been found on approximately 40% of the acreage and is responsible for 26% reduction in lint yield. Nematode management strategies such as crop rotation, host-plant resistance, and use of nematicides have shown success in suppressing populations. Cotton breeding programs are on the forefront on developing tolerant or resistant cultivars; however, only a limited number of high yielding resistant or tolerant cultivars are available. Recently, there has been an increased interest in using the fumigant, Telone II (1,3-dichloropropene). A field study was conducted in 2013 to evaluate the effects of four PhytoGen varieties in combination with Telone II (3 gpa) and AVICTA Complete Pak (ACP). Treatments were arranged in a split-split plot design with six replications. Telone served as the whole plot, whereas, variety and nematicide seed treatment as the sub-plot and sub-sub-plot, respectively. Light galling occurred early in the growing season; however, differences were only observed between Telone II and nontreated plots. Nematode reproduction at the end of the season was similar for Telone II and seed treatments; however, PhytoGen 4433-WRF and PhytoGen 367WRF supported lower J2 + egg production. Overall, lint yield averaged 1536 lb ac⁻¹ and 1282 lb ac⁻¹ for plots treated with Telone II and no Telone II, respectively. Gross returns from Telone II treated plots were higher than non-treated plots. Loan value was not different among treatments and averaged approximately \$0.53 ac⁻¹. Plots treated with the insecticide Cruiser or ACP did not affect nematode reproduction or yield. Most fiber quality parameters differed among varieties, whereas, only micronaire and length increased when using Telone II. Results of this study indicate that using Telone II in combination with partially resistant varieties is an effective way of managing root-knot nematodes.