## OVERVIEW OF ROOT-KNOT NEMATODE MANAGEMENT OPTIONS IN WEST TEXAS COTTON

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## <u>Abstract</u>

The Southern root-knot nematode (*Meloidogyne incognita*) is an economically important pest of cotton in West Texas. Nematode management is achieved mostly by the use of resistant cultivars, seed treatment nematicides and the use of at-plant nematicides or pre-plant fumigants. In-season, foliar applications of oxamyl are also used in cotton. Cultivar performance may vary under different field conditions, and information on the response of commercially available cotton cultivars to additional inputs is limited. The objectives of this research were to 1) evaluate the performance of cotton cultivars under three irrigation levels in a root-knot nematode infested field; 2) assess the response of different cotton cultivars to an at-plant application of Velum® Total; and 3) determine the effects of the seed treatment nematicide Aeris® and rates of Velum® Total on yield and quality in a field severely infested with root-knot nematodes. Increased irrigation led to increased yields in nine of the twelve cultivars. Nematode reproduction was similar across irrigation levels, but varied among cultivars. In general, nematode galling and reproduction were lower for cultivars possessing partial resistance to M. incognita. Lint yield was increased by 9.1% over the non-treated control when Velum® Total was applied at a rate of 18 fl oz ac<sup>-1</sup>. In addition, differences in lint yield were observed among cultivars ranging from 1.801 to 2,495 lb ac<sup>-1</sup> for Deltapine 16R252 NRB2XF and Fibermax 2011 GT, respectively. Only cultivar effects were significant at locations deemed as having low and moderate nematode pressure in trials evaluating combinations of susceptible and resistant cultivars, Velum® Total rates and nematicide seed treatments. In these trials, application of Velum® Total increased lint yield by 3.0, 9.5 and 10.2% for the 10, 14 and 18 fl oz rate, respectively. Yields between the two seed treatments were not different averaging 1,396, 2,197 and 1,398 lb ac<sup>-1</sup> for trials 1, 2 and 3, respectively. Under high nematode pressure, cultivar effects were significant ranging from 1,267 to 1,625 lb ac<sup>-1</sup> for Fibermax 1900 GLT and Stoneville 4946 GLB2, respectively. Results from these studies suggest that cultivar selection is the most important decision that can be made when managing root-knot nematodes; however, Velum® Total is an effective management option under highpressure conditions. Additional studies evaluating these management tactics under varying field and environmental conditions are needed.