

FIELD PERFORMANCE OF ROOT-KNOT RESISTANT VARIETIES IN THE TEXAS HIGH PLAINS**Richard J. Roper****Jason E. Woodward****Texas A&M AgriLife Extension Service and Texas Tech University****Lubbock, TX****Terry A. Wheeler****Texas A&M AgriLife Research****Lubbock, TX****Abstract**

The southern root-knot nematode (*Meloidogyne incognita*) is widely distributed throughout the High Plains of Texas. Recently, numerous partially resistant cotton varieties have been released. Use of such products will allow for sustainable production, assuming that yield potential of these newer varieties is comparable to commercially available susceptible varieties. The objective of this research was to determine the performance of cotton varieties in fields infested with *M. incognita* throughout the High Plains of Texas. A total of five small plot trials were established in fields naturally infested with *M. incognita*. Irrigation varied by location as did nematode pressure. Although, variable, differences in nematode damage were observed among varieties at one location. The number of galls per plant ranged from 4.4 to 14.2 for PHY 417WRF and DG 2355B2RF, respectively. Gall ratings for all other varieties were intermediate. Despite moderate nematode pressure, yields at this location were exceptional, averaging 1684 lbs/A. Yields were greatest for ST 4946GLB2, followed by FM 2484B2F, ST4747GLB2, FM 2011GT and DP 1044B2RF. A second trial was established to evaluate the response of different varieties to the fumigant Telone II. At this location, Telone II improved yields 67 lb/A compared to the non-treated control, with the majority of the varieties evaluated responding to the nematicide. Improvements were greatest for NG 1511B2RF, DP 1044B2RF, DP 1454NRB2RF, and PHY 427WRF. When combined across Telone II treatments, yields were greatest for the nematode resistant varieties ST 4946GLB2 and FM 2011GT. Similar yields were observed for the susceptible varieties ST 4747GLB2 and PHY 499WRF. No differences in yield were observed among varieties at three trials near Lamesa; however, yields did vary by irrigation rate. Nematode reproduction differed by variety and irrigation level. Increases in populations of *M. incognita* may impact productivity of susceptible varieties in subsequent years. Unseasonably cool temperatures and/or delayed planting resulted in a shorter growing season favoring earlier maturing varieties. Additional studies evaluating root-knot nematode resistant varieties are needed to better understand how the use of resistance will affect nematode populations in subsequent seasons and whether these new varieties can be competitive in regards to yield and quality in this region.