

**ROOT-KNOT NEMATODE/ FUSARIUM
WILT RESISTANCE IN TRANSGENIC
COTTON CULTIVARS**

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Abstract

Several transgenic cotton genotypes and their nontransgenic parents were evaluated in a naturally infested field for resistance to the root-knot nematode (*Meloidogyne incognita*)/Fusarium wilt (*Fusarium oxysporum* f.sp. *vasinfectum*) disease complex in 1997 and 1998. The moderately resistant cultivar, Stoneville LA887, was included as the resistant control. Wilt ratings were based on stem discoloration, where 0 equaled no stem discoloration and 5 equaled the entire circumference of the stem was discolored. Root gall ratings were based on a scale of 0 to 5, where 0 equaled no galling and 5 equaled severe galling. Ratings were taken from ten plants per replication at the end of the growing season. Overall, root gall ratings were high and wilt ratings were moderate. These cultivars were further evaluated in two subsequent growth room tests using artificially infested soil. Stoneville LA887 was included as the resistant control and Stoneville 474 as the susceptible control. In the growth room studies, nematode reproduction was measured by counting the number of eggs per root system. There were significant differences in wilt and/or root-knot gall ratings between some parental cultivars and their transgenic progeny, particularly in Paymaster 1560BG, in both tests. Nematode reproduction on some of the parental cultivars and their transgenic progeny were also different in the growth room tests. These results indicate that some transgenic cultivars respond differently to the root-knot nematode/Fusarium wilt complex than their parental cultivar.