HOST RESPONSE OF GUARDIAN PEACH ROOTSTOCK TO DIFFERENT *MELOIDOGYNE* SPP. ISOLATES

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Root-knot nematodes (*Meloidogyne spp.*) are an important pest of peach in the U.S. and in other regions of the world. All four major *Meloidogyne* spp. have been reported to cause damage to stone fruits, but the Southern (*M. incognita*) and Javanese (*M. javanica)* root-knot nematodes are the predominant species on peach and plum. Root-knot nematodes generally cause stunted growth, loss of vigor, and early defoliation of one to two-year-old peach trees when recommended management practices are not followed.

Planting certified nematode-free rootstock, when available, is important as a management tactic to reduce problems with orchard establishment. Preplant chemical treatment currently provides the most effective control of root-knot nematode because it allows trees to get off to a healthy start by preventing the nematode from causing major root damage. The current preplant nematicide recommendation for managing *Meloidogyne* spp. in the Southeast includes the use of methyl bromide or 1,3-D. However, with the pending loss of methyl bromide, alternatives to conventional nematicide application are being investigated (i.e., rootstock resistance).

In the Southeast, Lovell peach rootstock is recommended over Nemaguard (root-knot nematode resistant) because trees have a higher survival rate on peach-tree-short-life (PTSL) sites, even though Lovell is susceptible to root-knot nematode. Finding a rootstock superior to Lovell that survives on PTSL sites and also is root-knot nematode resistant would be of great value to this peach industry. Such a rootstock, Guardian, was identified in 1991 as providing greater PTSL tree survival than Lovell (MBAO Meeting, 1995). Furthermore, recent reports indicate that Guardian rootstock is resistant to *M. incognita* (GA-peach isolate) and *M. javanica* (NC-tobacco isolate) (MBAO Meeting, 1996).

Additional greenhouse studies were initiated to evaluate how broad and effective Guardian's resistance is against different isolates of *Meloidogyne* spp. One isolate was *M. javanica* (CA-isolate), known to parasitize S-37 peach rootstock in California, whereas the other *Meloidogyne* sp (FL-isolate) was known to reproduce on Nemaguard in Florida. These nematode isolates were of interest because both S-37 and Nemaguard are in the pedigree of Guardian.

Criteria used in evaluating Guardian resistance to these root-knot nematode isolates include, i) numbers of egg masses per plant, ii) eggs per plant, iii) eggs per egg mass, iv) eggs per gram of root, and v) root galls per plant.

Our results indicate that Guardian is moderately susceptible to *M. javanica* (CA-isolate)

and susceptible *Meloidogyne* sp (FL-isolate). This is understandable since S-37 and Nemaguard are ancestors of Guardian.