EVALUATION OF GUARDIAN™ ROOTSTOCK AS A METHYL BROMIDE ALTERNATIVE FOR MANAGING PEACH TREE SHORT LIFE.

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Two economically important nematode pests often encountered in peach orchards include the ring (Criconemella xenoplax) and root-knot (Meloidogyne spp.) nematodes. Root-knot nematodes are associated with stunting of 1-2 year-old trees, leaf chlorosis, early defoliation, and even tree death. The ring nematode has clearly been identified as the primary biotic factor essential for peach tree short life (PTSL) to occur. Peach tree short life is usually associated with poor management practices and the continuous presence of C. xenoplax. In the Southeast, site selection is very important. If C. xenoplax is detected in planned orchard sites, specific recommendations are available to the growers. Currently in Georgia these include 1) selecting another site or 2) preplant fumigation and using Lovell rootstock.

Methyl bromide is one of two preplant nematicides recommended for managing nematodes on peach in the Southeast. Lovell rootstock is recommended over Nemaguard because trees have a higher survival rate on PTSL sites, even though Lovell is susceptible to root-knot nematode.

Finding a superior rootstock to Lovell that survives on PTSL sites and also is root-knot nematode resistant would be of great value to the peach industry throughout the Southeast. Such a rootstock would provide an alternative to methyl bromide fumigation and be an important component to a peach integrated crop management program.

In 1991, a peach seedling rootstock was identified in an unbudded trial as providing greater($P \leq 0.05$) tree survival than Lovell. The rootstock, BY520-9 (= Guardian™), was superior because tree survival was greater than Lovell on two independent PTSL field sites after eight years of evaluation. A follow-up field experiment was initiated on grower's land to evaluate the performance of Guardian™ rootstock (budded with Redhaven peach) in nonfumigated and preplant methyl bromide-fumigated soil in 1994. In May 1995, results indicate that tree survival in Guardian-nonfumigated soil (97% tree survival) is comparable to Lovell-fumigated (97% survival), Nemaguard-fumigated (94% survival), and Guardian-fumigated (100% survival) soils. Additionally, a greater ($P \leq 0.05$) number of Guardian-nonfumigated trees survived as compared to Lovell-

nonfumigated (67% survival) and Nemaguard-nonfumigated (36% survival) on this severe PTSL site. The population density of C. xenoplax is greater ($P \leq 0.05$) in the nonfumigated soil vs. the fumigated soil for all rootstock treatments. No significant differences in ring nematode counts are present among any of the nonfumigated rootstock treatments.

Guardian™ rootstock is showing promise as an alternative to preplant fumigation with methyl bromide for control of C. xenoplax on PTSL sites. This field experiment is still in progress and needs several more years data before one can definitely conclude that Guardian™ is as good or better than preplant fumigation with methyl bromide.