Control of Peach Replant Disorder

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When an old peach orchard is remove and a new peach orchard planted on the same ground, the replanted trees suffer from replant disorder, unless the soil is fumigated with methyl bromide before planting. Trees suffering from replant disorder have reduced growth, chlorotic leaves, delayed maturity and lower yields. Yield losses occur for several years, and economic losses are never recovered . The pathogen or pathogens which cause this disorder are not known. In some instances the pathogens are better understood, for example, on sites with sandy soil, ring nematode increases the tree's susceptibility to bacterial canker. However, at the Parlier site, where this work was conducted, the cause of the problem is not known.

Currently, methyl bromide is used to control peach replant disorder. Since methyl bromide has worked so well to control this problem, and since it is wide spectrum, the identity of the pathogen has not been needed to get effective control. After 2005, methyl bromide will not be available for use by growers, and a substitute is needed. In this research, control of peach replant disorder with methyl iodide was found to be comparable to that with methyl bromide.

In two separate trials, plots in peach replant soils at Parlier were fumigated with either methyl bromide, methyl iodide at rates of 392-448 kg hectare^{-1}, or, for control plots, were not fumigated. Tree growth was evaluated by measuring trunk diameter and weight of branches removed by pruning. Trunk diameter of trees, and weight of branches pruned from trees grown in fumigated plots was greater than trees in control plots both trials, Methyl iodide fumigated plots did not differ from methyl bromide fumigated plots in trunk growth, weight of branch prunings, or reductions in population densities of the nematode *Paratylenchus.* Methyl iodide and methyl bromide appeared to be equally effective in controlling replant disorder.