

PRUNUS ROOTSTOCK BREEDING FOR NEMATODE RESISTANCE

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Three genera of nematodes are generally recognized as causing economic damage in stone fruit orchards. These include the root knot nematodes (*Meloidogyne* spp.), root lesion nematodes (*Pratylenchus* spp.) and ring nematode (*Criconebella xenoplax*). These nematodes can occur alone, or in mixed populations in the upper soil profile. Symptoms of nematode attack include early defoliation, reduced fruit yield, stunted tree growth and early tree death. Plant parasitic nematodes are a primary reason for pre-plant methyl bromide fumigation of new orchard soils or for spot fumigation of replant sites. In instances where parasitic nematode infestations are the sole problem in the selected orchard site, nematode resistant rootstocks may be a viable alternative to pre-plant methyl bromide fumigation.

At the USDA/ARS Horticultural Crops Research Laboratory in Fresno, CA, we have screened over 200 diverse *Prunus* accessions to identify root lesion nematode (*Pratylenchus vulnus*) resistant germplasm. Resistance to root lesion nematode has been identified in a few genetically diverse *Prunus* accessions. Whether or not these root lesion nematode resistant accessions will be acceptable as rootstocks remains to be clearly demonstrated. Rootstock acceptability is based on many factors including rootstock performance in the nursery. The ability to root and growth characteristics of the rooted cuttings may influence a nursery person's choice of whether or not to propagate new rootstock accessions. Rootstock vigor, either lacking or excessive, tree anchorage, water use efficiency and fruit production potential are all critical characteristics which a fruit producer might want knowledge of prior to investing in a newly recommended rootstock. Furthermore, graft compatibility between the rootstock and the fruit bearing portion of the tree must be demonstrated for all new candidate rootstocks.