

Project No. 93-W6 - Genetic Improvement of Rootstocks

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- Objectives:**
1. Use greenhouse screening procedures for 40 candidate rootstocks to detect sources of root lesion nematode resistance.
 2. Challenge 15 candidate rootstocks with ring nematode to identify differences in host suitability.
 3. Establish a field site to determine graft compatibility of root lesion nematode resistant candidate rootstocks with standard scion cultivars.
 4. Hybridize root lesion nematode resistant germplasm with known sources of root knot resistance during the 1992 bloom.

Results:

Since 1988, over 200 Prunus germplasm accessions have been screened against the root lesion nematode in standardized greenhouse tests lasting 150 days. Resistance to this soil borne pest has not been identified in any accession of peach, either vegetatively propagated or those propagated by seed. However, resistance has been identified in several plum and apricot accessions. The list of resistant items includes the plum accessions observed to be resistant to the root lesion nematode include "Tsuno-ume" and "Natsu-goromo".

During the spring of 1993, a field test was established to examine the horticultural qualities of the root lesion nematode resistant germplasm when used as rootstocks in a nematode infested field environment. "Bruce", "Deep Purple", "Red Glow", and "Tsuno-ume" were planted in replicated tests along with "Marianno 2624" and "Nemared". Each plant site has been inoculated with approximately 700 root lesion nematodes.

We did not request the importation of BY 520-9 rootstock during 1993. This new seed-propagated peach rootstock, developed jointly between the Agricultural Research Service in Byron, GA and Clemson University, has performed significantly better than "Lovell" in "Peach Tree Short Life" sites in the SE United States. We will import this accession when larger supplies of seed become available.

Using controlled hybridizations between root lesion nematode resistant and susceptible plants, we have determined that the resistance to root lesion nematode is not directly inherited in the first generation after initial cross.