Phytophthora Root and Crown Rot


*Phytophthora megasperma* was recovered from 9-year-old declining orchard walnut trees affected with root rot. Our pathogenicity tests under controlled conditions showed that *P. megasperma* is pathogenic to the Northern Black, Paradox and English walnut rootstocks. This is the first report of *P. megasperma* as a pathogen of walnut trees. In the summer of 1975, the commercial orchard from which *P. megasperma* was recovered had approximately 300 trees that showed decline and varying degrees of root rot out of a total of 4,700 trees. A change in irrigation practice to avoid prolonged soil saturation and standing water in the orchard, in addition to a modification of pruning which helped establish a balance between the damaged root systems and the tops of declining walnut trees has resulted in recovery of the disease during the last 14 months.

Relative resistance and seasonal differential susceptibility of the Northern Black, Paradox and English rootstock to *P. cinnamomi*, *P. odorata*, *P. megasperma* and *Phytophthora* sp were investigated in a series of experiments. Preliminary results indicate that: 1) The three rootstocks differ in their susceptibility to individual *Phytophthora* spp, but none of them is resistant to all four *Phytophthora* spp known to attack walnut trees in California. 2) All three rootstocks exhibit a differential seasonal susceptibility to the same *Phytophthora* sp. For example, English rootstock was approximately five to six times more susceptible in May than in January or October, Paradox was eight times more susceptible in July-August than in January or November and Northern Black was seven times more susceptible in July than in January or October to the same isolate of *P. cinnamomi*. 3) The seasonal differential susceptibility differs in various rootstocks according to the developmental stage of the rootstock and the *Phytophthora* sp. These new findings may have very important implications in developing effective control measures for *Phytophthora* root and crown rot and in development of walnut rootstocks resistant to *Phytophthora* spp.

Walnut Blight

Walnut Blight Control Studies

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A Bordeaux rate trial was conducted on Ashley walnuts with low rates of Bordeaux being applied by dilute application with hand guns to single tree replicates.

The equivalent rates per acre were as follows: 2.0 - 1.3 per acre, 4 - 2.5 per acre, 8.0 - 5.0 per acre, 12.0 - 7.5 per acre, and an untreated check.