

## Variable Response of Open-Pollinated Seedling Progeny of Avocado to *Phytophthora* Root Rot

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Phytophthora root rot, caused by *Phytophthora cinnamomi* Rands, is the most important disease of avocado (*Persea americana* Miller). In an attempt to identify root rot-resistant rootstocks that could ultimately be used under conditions in southern Florida, we screened open-pollinated progeny of avocado from the National Germplasm Repository in Miami. From 1996 to 1998, a total of 2,355 seedlings from 51 accessions were examined in potting mix artificially infested with *P. cinnamomi*. Most seedlings developed severe root rot, but tolerance was observed in some families (*i.e.*, progeny of certain accessions). Although the most susceptible families developed mean disease ratings of up to 97% root necrosis, mean ratings for the most tolerant families were less than 60%. There was also a strong relationship between the racial background of the female parent and the tolerance of seedlings. Seedlings of the West Indian race and hybrids between it and the Guatemalan race were significantly more tolerant than those from other parents ( $P < 0.05$ ). Individuals in several families developed <50% root necrosis, the arbitrary standard of tolerance in this study. Twelve families accounted for 82% (188 of 229) of the tolerant seedlings, and only two of these did not have a West Indian or Guatemalan  $\times$  West Indian pedigree. Broad-sense heritability for PRR tolerance was 0.45. This is the first report on the inheritance of PRR tolerance in avocado and on the influence of genotype and racial pedigree under controlled conditions.

**KEY WORDS:** *Phytophthora cinnamomi*; *Persea americana* var. *americana*; *Persea americana* var. *guatemalensis*; avocado rootstocks; *Phytophthora* root rot.

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