

## **SUSCEPTIBILITY OF AVOCADOS TO DEMATOPHORA ROOT ROT**

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Dematophora root rot, resulting from infection by the *Dematophora* stage of *Rosellinia necatrix* (Hart.) Berl.<sup>1</sup> has been reported as occurring in 15 counties of California, including San Bernardino, Orange and Riverside in southern California<sup>2</sup>. This soil fungus, however, appears restricted in distribution in these counties and has not been found occurring naturally on the avocado.

The fungus causes a serious root disease of a number of plants, particularly fruit trees and vines. Some of the hosts include apple and pear, which are highly susceptible; quince, fig, peach, black walnut, butternut, apricot, almond, several varieties of cherry, and several species of crabapple.

Because of the continuing use of new land for avocados, greenhouse tests were planned to determine if this plant is susceptible to attack by *Dematophora*. Twenty-five seedlings each of Topa Topa and Mexicola varieties, representing the Mexican rootstocks, and of Anaheim and Dickinson varieties, representing the Guatemalan rootstocks, were started by planting the seeds in flats of chloropicrin-fumigated soil. As soon as seeds had germinated, the seedlings were potted in four-inch pots. After they had become established, they were moved into six-inch pots at which time 20 plants of each variety were inoculated.

The inoculum was prepared by growing the fungus on moistened wheat which had been sterilized by autoclaving. The inoculum was placed in the soil of the six-inch pots as the plants were moved into them. The balls of soil surrounding the roots of the plants were disturbed as little as possible while moving to avoid root injury. The plants were maintained in a greenhouse for the duration of the experiment.

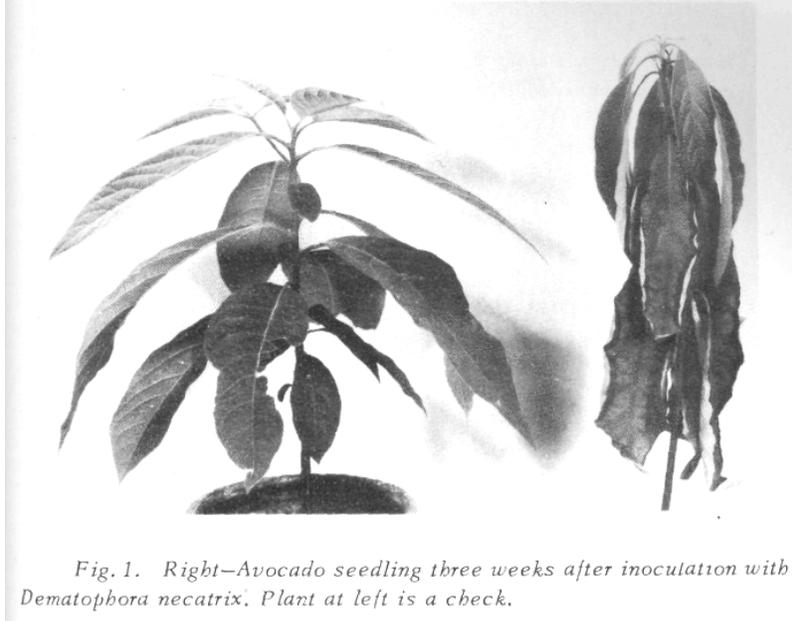


Fig. 1. Right—Avocado seedling three weeks after inoculation with *Dematophora necatrix*. Plant at left is a check.

Within three weeks of inoculation, the infected plants began wilting as shown in Fig. 1. Within five weeks, all inoculated plants were dead. Upon examination, the roots and cotyledons were found to be permeated by the hyphae of the fungus. Small, indefinite white plaques, similar to those of *Armillaria mellea* but not nearly as well developed were found in the bark and cortex of the infected roots and throughout the fleshy cotyledons. Typically, the fungus grew out into the soil around the infected roots when the soil moisture content was high (Fig. 2).



Fig. 2. Below-ground portion of avocado seedling infected with *Dematophora necatrix*.

In view of the extreme susceptibility of the rootstocks tested and because of the lack of

an effective eradicant fungicide, land with a known history of *Dematophora* should be avoided when planning new avocado orchards.

### **LITERATURE CITED**

1. Hansen, H. N., Harold E. Thomas, and H. Earl Thomas. 1937. *The connection between Dematophora necatrix and Rosellinia necatrix*. *Hilgardia* 10: 561-565.
2. Thomas, H. Earl, Stephen Wilhelm, and Neil Allan MacLean. 1953 *Two root rots of fruit trees*. *Plant Diseases*. U. S. Dept. Agr. Year book of Agriculture, pp. 702-705.