

## AVOCADO DISEASES IN MEXICO AND COSTA RICA

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In April 1951, a trip was made to several sections of Mexico, with Mr. Harlan Griswold and Mr. Elwood Trask, with the objects of investigating the root rot situation, determining whether or not the fungus *Phytophthora cinnamomi* occurs in Mexico, and making observations on other diseases of avocado in that country.

Root samples were taken from native avocado trees in the following locations: mountains west of Tepic, Nayarit; mountains near El Capomo, Nayarit; mountains between Huatusco and Coscometepec, Veracruz; mountains near Jalapa, Veracruz; and near Tezuitlan, Puebla. Large specimens of *Persea schiedeana* were observed along the road between Huatusco and Coscometepec, and root samples were also taken from this species. Samples were taken from trees in cultivation, or dooryard trees in: Rodiles and Gilly groves; near Atlixco, Puebla; near Jalapa, Veracruz; in Atlixco, Veracruz; and in and near Cuernavaca, Morelos. Culture equipment was taken on the trip so that root samples could be cultured soon after collection.

*Phytophthora cinnamomi* was found on roots from a healthy-appearing Mexican type seedling tree growing along the road from Coscometepec to Huatusco. Apparently *P. cinnamomi* is native to that region, as the tree was growing in such a location as to make it improbable that the fungus had been brought in from elsewhere.

No typical symptoms of root rot were observed on this trip, although only a limited survey was made in the short time available. Many trees near Cuernavaca were in poor condition, with dieback and small leaves, but this appeared to be the result of neglect and lack of water rather than disease.

The excellent "facilities at the Rockefeller Foundation Laboratory, Office of Special Studies, in Mexico City were kindly made available by Dr. J. G. Harrar and Dr. J. S. Niederhauser. This greatly facilitated the work; some of the root cultures were made there and cultures were examined under the microscopes at the laboratory.

Several other diseases and pests were noted in the course of the trip. Near Tezuitlan in the state of Puebla, a leaf spot was observed on Mexican-type seedling trees. Spots varied in diameter from 1 to 15 millimeters, were light brown in color, and irregular in shape. Perithecia of the fungus *Mycosphaerella* were present on the spots; the causal fungus is probably *M. persiae*, originally described from Puerto Rico. A similar leaf-spotting disease has been described in Florida by Stevens and Piper as *Cercospora* spot, with which a *Mycosphaerella* stage is sometimes associated. In the Rodiles grove, near Atlixco, Puebla, mistletoe (*Phoradendron* sp.) was found to have invaded weakened trees to a considerable extent. Leaf spots caused by lichens were also noted in several localities.

In September, 1951, avocado root samples sent to us from Costa Rica resulted in another record of the occurrence of *Phytophthora cinnamomi* in Central America. Roots were sent under quarantine permit by E. J. Fleener, of the Institute of Inter-American Affairs, San Jose, Costa Rica. *P. cinnamomi* was readily isolated from many of the small roots. According to Mr. Fleener the trees show typical symptoms of root rot, and considerable losses are occurring in the avocado-producing regions of Costa Rica.