

A-72

SOILBORNE DISEASES IN AVOCADO ORCHARDS IN ISRAEL - A BRIEF SURVEY

Miriam Zilberstaine

Dept. of Plant Protection, Ministry of Agriculture & Rural Development, Extension Service, Bet-Dagan 50250, Israel. E-mail: mirzil@shaham.moag.gov.il

Avocado orchards in Israel are characterized by the fact that only a few problems arise due to tree diseases. The main diseases are soilborne diseases. In the recent years, there is an increase of incidences of soilborne diseases, mostly at the center part of Israel.

Root Rot disease: caused by fungi, *Phytophthora cinnamomi* Rands. The fungi attack the active roots of the tree and causes tree degeneration, up to complete death of the tree. In Israel there was a limited exposure. There were few orchards that trees were removed. During the years that this disease has been investigated in Israel it was found that the fungi is not spreading, due to the phenomena of suppressive soils. However from time to time infected trees are found. Recommended treatment include: Prevention of fungi exposure in the orchard (vegetative material free of fungi), using resistant avocado rootstock, improved irrigation management (frequent irrigation intervals combined with lower water application), drainage improvement and chemical treatment.

Wilting disease: caused by fungi *Verticillium dahliae* Kleb. The fungi attack the root system and spread through the tree xylem, and causes limb wilting. Plants from the Solanaceae family (potatoes, tomatoes etc.), serve also as a host to this fungi. The fungi spores can survive for a long time in the soil. The disease caused damage to avocado orchards in Israel, 30 years ago, and the "Stewart" rootstock was selected as a resistant one. Recently, there is an increase in the appearance of the disease occurrence, especially at the coastal area. Is it due to the fact that new plantations are planting on soils that grew previously vegetables, like potatoes? Or, is it correlated with other environmental stresses?

White root-rot disease: is caused by the fungi *Dematophora necatrix* R Hartig. The fungi occur in Israel only in its non-sexual stage. The concern is that the stage of sexual stage (Rosellinia) will appear. Treatment of the disease is mainly through improved irrigation management and improved soil drainage.

Basal Stem Rot: caused by the fungi *Ganoderma spp.* The fungi attack mainly weak trees or dead wood. The disease is isolated mainly in replants of trees, that were planting without removing the old trunk of the previous tree. There is a huge increase in the appearance of the disease in old and young orchards.

In the past two years, avocado trees in Chefer Valley Region collapsed. The pathogen isolated from those trees was always *Cylindrocladium spp.* The fungi have spread also to other species fruit trees. At this stage we are studying the fungi and working on means of protection while keeping up with the sanitary measures.

The commercial avocado orchards in Israel are cultivated in a very high standards. But even though there is an increase of incidences of soilborne diseases, in the recent years, mostly at the center part of Israel. The question to discuss is - whether is it correlated with the increase of salt concentration in the irrigation water?