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Ventura County Survey Finds Little Avocado Root Rot

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All of Ventura County's 2,900 acres of avocados is in the southern half of the county, with the majority in the Santa Clara Valley-Oxnard Plain and the Las Posas Valley-Camarillo areas. Most of the avocados are growing in 17 different soil series, but over 25 soil series are involved. Fortunately, avocado root rot has been found in only 21 locations and has damaged a total of only 21 acres. Since many avocados are growing on restricted or poorly drained soils, it is fortunate that the root rot fungus, *Phytophthora cinnamomi*, has not been spread very widely in the county.

In 1955, a preliminary avocado root rot survey in Santa Barbara County showed a close correlation between certain soil series and their susceptibility to fungus development—this was further substantiated by a comprehensive survey completed in 1962. Subsequent surveys in other avocado districts, including Fallbrook and Escondido, have also shown that when the fungus is present, avocado trees growing in soils with poor internal drainage are most susceptible to root rot damage.

This cooperative survey between the University of California and the Soil Conservation Service is part of a statewide program to evaluate and classify avocado soils for their root rot potential.

Much of the avocado acreage in Ventura County is planted on the Yolo, Sorrento and Mocho soil series. These soils occur on gently sloping, recent alluvial fans and narrow flood plains. All three soils are deep, gravelly, and sandy loam to silt loam textured, with good internal drainage. Avocado trees are seldom damaged by root rot on these soils. The predominant series, Sorrento, has a dark grayish-brown surface and a texture varying from silt loam to gravelly-sandy loam.

The main difference between Yolo, Sorrento and Mocho series is the chemical reaction of the soil profile. Yolo has a neutral reaction; Sorrento is moderately basic with lime in the subsoil, while Mocho is calcareous throughout,

Relatively large avocado acreages are also found on the San Benito, Pleasanton, Soper, Huerhuero, Camarillo and Rincón series. Generally these soils have poor or restricted internal drainage, so it is fortunate that relatively few root rot infections have occurred.

The San Benito series is characterized by dark grayish-brown surface and a texture of clay-loam to clay. The subsoils are of similar color and texture, but are calcareous. They are developed on soft to moderately hard sandstone and shale.

Pleasanton soils include a rather wide range in color and soil characteristics. They are developed on old alluvium on terraces and valley plains. Texture ranges from loam to

stony-sandy loam. Color is grayish-brown or brown in the surface horizon to light-brown or yellowish-brown below three to five feet. The subsoil is somewhat more compact and is clay loam to stony clay loam in texture. The soil reaction is neutral to slightly acid.

The first avocado root rot infestation in Ventura County was found in 1948 near the present Ventura College. The soil in this grove was Mocho fine sandy loam with very good internal drainage. Through the years a few trees died, but root rot was never a real problem. In 1963 the trees were bulldozed out for apartments.

AVOCADO ROOT ROT HAZARD RELATED TO SOIL SERIES				
SLIGHT HAZARD	MODERATE HAZARD		SEVERE HAZARD	
Metz	Conejo	San Timoteo*	Camarillo*	Montezuma
Macho	Nacimiento	Sobrante	Hueneme*	Rincon
Sorrento	Pleasanton	Soper	Huerhuero	Sweeney
Vina	Salinas	Zamora	Ojai	Zaca
Yolo	San Benito*	Zanja*	Botella	

*Tentative soil series

Since 1948 many hundreds of culture tests for *P. cinnamomi* have been made in avocado groves throughout the county. Root rot was isolated in only 21 locations, and a total of only 21 acres has been damaged. Comparing Ventura County—second in avocado acreage in the State—with other counties such as San Diego, Santa Barbara and Los Angeles, this is a very low percentage of damage. Santa Barbara County, for example, has had approximately 16% of the total avocado acreage damaged by root rot.

Root rot can be spread in many ways, but diseased nursery stock has been mainly responsible for the wide distribution of the fungus throughout the other avocado-producing areas of southern California.

Of the soils where most of the root rot damage occurred, the only clay-textured soils were the Botella, Conejo and Montezuma series. The Ojai and Rincón soils have clay-loam to clay subsoils with restricted internal drainage. The Camarillo soils have poor drainage and are subject to a high water table and saline condition. The Sweeney soils are primary soils with clay textures developed in place on hard volcanic rocks.

This survey can aid in choosing sites for future plantings and is helpful where root rot has already become established. Persons planning new groves should contact their local Farm Advisor and Soil Conservation Service office to help determine which soils are best suited for avocado culture and the least favorable for root rot development. For those who already have an infestation in their groves, a knowledge of the soils that are involved and the extent or boundaries of the various soil series will help in deciding the measures to be taken to either control or retard the spread of the fungus.

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