

IRRIGATION OF HEAVY SOIL IN RELATION TO ROOT ROT

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"I think we can live with it."

This statement sums up the experience of Mr. Ross Hodson of La Habra with avocado root rot during the past two years. Mr. Hodson's planting of avocados is on a fairly heavy (fine textured) soil, and like many alert growers, he detected a cinnamon fungus infection three years ago. Since that time, he has been treating them, and has seen his trees improve to such a marked extent that the appearance of the trees is that the disease is checked. Although Mr. Hodson does not think he has cured the disease, he is well satisfied with the progress so far.

Mr. Hodson's experience is similar to that of other good growers of avocados on fine textured (heavy) soils. An important part of this treatment has been alterations in his irrigation system and irrigating methods. His first change was from furrow to sprinkler irrigation. "The trees at the upper end of the run were drowning before we could get the water to the lower end," he says. "Now with the sprinklers, we do not have to overwater any portion in order to get the moisture on where we want it. Of course, this is of primary importance in treating the root rot."

The second was to reduce the amount of water, rather drastically in the case of diseased areas, to as small an amount as 5 acre inches per year. Since the trees were in rather poor condition at the time and had few leaves, the water requirement was rather low. As the trees improve in vigor, of course, they will require more water. Hodson is trying to water the trees according to their needs. Such being the case, he will probably be using more water on the trees now with their apparent improved health. In his words, "We're trying to grow trees, not fruit. I know we've had some reduction in the fruit sizes, and will probably try to let up on the drying out, after this."

The third step was to irrigate alternate middles. By using this system, Hodson has been able to let the middles which are not being irrigated dry out to the point that spread of the disease is checked. The extent to which this will effect a cure is not known, but it is apparent that too much water favors development of the disease. Of course, mere periodic drying will probably be futile without very good moisture control at each irrigation. "The proof of the pudding is in the eating, and these trees were nearly dead," says Hodson. Hodson's case may be atypical to the extent that his water quality is better than Colorado River water. Under conditions such as exist in other sections of Southern California, leaf burn may occur under a high stress situation. This does illustrate, however, that if we can maintain a moisture regime that is unfavorable to the fungus, we can at least retard its spread.

Finally, Mr. Hodson has used alfalfa meal at the rate of 150 lbs. per tree. He put on his

second treatment this year.

Growers in Orange County are finding that soil tree moisture relations are an important part of their root rot disease control program. Some may find that they want to do as Hodson has done; sacrifice some yield for a couple of years to try to prolong the life of the trees. Others may feel that they will want to push the production as long as possible, and then take the trees out. Whatever the grower's decision, increasing numbers are finding that tensiometers are useful in learning more about what is going on underground. Soil tubes are probably too likely to spread disease to be used in orchards that are suspect. Perhaps if we learn enough about soil tree moisture relations, we can keep the disease in check and still raise good fruit.