

Some do's and don'ts to prevent the spread of avocado root rot

Since THERE IS NO QUESTION that avocado root rot is the most serious disease of avocados, and since THERE IS NO QUESTION that at least 6 ,000 to 7,000 acres of avocados in California are known to be infected, are suspected of infection, or have been removed over the past several years because of infection, and

Since THERE IS NO QUESTION that the losses in production and trees in infected orchards amounts to in excess of one million dollars annually, and

Since THERE IS NO QUESTION that once introduced in an orchard, the causal fungus *Phytophthora cinnamomi* is very difficult, if not nearly impossible, to completely eradicate,

THERE SHOULD BE NO QUESTION that it is to the advantage of every grower to see that **every** precaution is taken to prevent the introduction or spread of avocado root rot to your orchard, within your orchard, or to any avocado orchard.

The accelerated program in avocado root rot research, made possible through the Production Research Committee of the California Avocado Advisory Board, is making definite progress on several fronts. Some of the new introductions from Mexico and Central America are showing resistance to the fungus in preliminary tests; a greater understanding in the weak link in the life cycle of the fungus is being gained; and greenhouse trials show new chemicals which may control the spread of the fungus. The facts are, however, that even if a rootstock tolerant to the fungus or an effective fungicide to control its ravages were found tomorrow, it would still mean a costly program of tree replacement or treatment to the grower of an infected orchard.

The old saying is appropriate: an ounce of prevention is worth a pound, or, in the case of root rot, several tons of cure!

What can be done to prevent the introduction or spread of avocado root rot into your orchard? Here are some suggestions. How many can you check as accomplished?

If your orchard had no root rot:

Reduce all traffic in your orchard to an absolute minimum. Gates or cables across drives or access roads will help. Signs serve as warning and reminders.

Forbid horseback riding in your orchard.

Exclude animals by fencing, if practical.

Insist that all equipment and vehicles be clean and disinfected before entering your orchard. Mud on tires, fenders, ladders, boxes, etc., can carry root rot fungus spores. Mud should be washed off. The equipment should then be allowed to dry thoroughly and be dipped or treated with a disinfectant. Effective disinfectants include: a 70% solution of methanol, ethanol, or rubbing alcohol; a 10% chlorox solution; a 5% solution of commercial formalin or forlin or formaldehyde; or amphyl. Trying to disinfect mud is next to impossible. A thorough washing at a location that won't contaminate your or other orchards is most important.

Insist that the shoes of any person entering your orchard be clean of mud and disinfected. The fungus has been recovered from mud scraped from shoes worn in infected soil. Again, clean shoes are the key, followed by the added precaution of a disinfectant. Effective disinfectants are listed above. The use of powdered copper sulfate in a step-in box has some effectiveness and also serves as a reminder of the need for sanitation.

Construct watertight drains to divert surface runoff from diseased areas or orchards away from healthy ones.

Control gophers and other rodents. Their runs make good waterways for carrying the fungus.

Install tile drains to intercept underground water movement if such water is entering your orchard. This is especially important if the orchard up-slope from yours is diseased.

Know the soils of your orchard. The more restricted the drainage, the more chance of root rot. Use special care in the irrigation of any areas with poor internal drainage to prevent waterlogging. The root rot fungus thrives in waterlogged soils.

Avoid planting diseased or weak ornamentals and fruit trees. Several plants besides the avocado are attacked by the root rot fungus. If planted in your yard or near your orchard, the fungus could start root rot in your avocados. Included are camellia, azalea, peach, plum, pine, pomegranates, heather, birch, and several others.

Insist on disease-free nursery trees. Most avocado nurserymen take every precaution to avoid contamination of their trees by the root rot fungus. Heat treatment of seeds, fumigation or steam treatment of nursery container soil, and

good sanitation practices are followed.

If your orchard has an area of root rot:

Determine the extent of infection by cultures and isolate any areas of your orchard that are infected with the fungus. If only a few trees up to four are involved, fence the area, dry it out, remove the trees, and fumigate the soil with a suitable fungicide. For larger areas of infection, chemical or dry barriers will retard the spread of the fungus. Ask the farm advisor for information on fumigants, dosages, and techniques.

Always use equipment in the healthy portion of an orchard before using it in a diseased portion. Wash and allow equipment to dry thoroughly, then disinfect, after use in a diseased area.

Clean and disinfect small tools, shovels, hoes, rakes, soil tubes, augers, etc. particularly when moving from a diseased to a healthy area of your orchard.

Don't apologize for being a crank on precautionary and control measures. Keep your orchard a showplace to be seen from the outside only!