

## UC Pest Management Guidelines

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### AVOCADO PHYTOPHTHORA CANKER and COLLAR ROT

Pathogen: *Phytophthora citricola*  
(Reviewed: 7/01, updated: 7/01)

#### IN THIS GUIDELINE:

[SYMPTOMS](#)

[COMMENTS ON THE DISEASE](#)

[COMMENTS ON CONTROL](#)

[PUBLICATION](#)

[GLOSSARY](#)



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#### SYMPTOMS

Trunk cankers caused by *Phytophthora citricola* are normally found on the trunk base of older trees, usually originating at or below ground level. However, cankers can be found higher on the tree if wounds have occurred. The canker appears as a dark region that often gives rise to a red, resinous exudation that turns into a white crystalline deposit when it dries. Cutting away the superficial canker reveals an orange-tan to brown pigmented lesion, instead of the normal white or cream-colored tissues. The lesion has a fruity odor when exposed. The lesion may progress all the way down to the woody layers, but it is rarely found in these tissues. Lesions can spread in the crown roots and proceed up into the bark of the trunk. Depending on the local conditions and rootstock, the tree may ward off the disease and the lesions may heal. The disease may exist on trees for years, inducing a gradual decline in the tree. In some cases, the disease can progress rapidly, killing trees-whether young or old-in a matter of months, by essentially destroying the phloem (bark), and in effect girdling the tree.

Affected trees show a gradual loss of vigor and decline of the top similar to the symptoms exhibited by trees affected with avocado (*Phytophthora*) root rot. Unlike root rot, however, canker and collar rot affects the major tree roots and the smaller feeder roots are usually still present. Occasionally, in advanced stages trees will die suddenly, with leaves turning brown within a short period of time. Confirmation of *P. citricola* is achieved by laboratory tissue isolations onto selective media for *Phytophthora*.

#### COMMENTS ON THE DISEASE

Previously uncommon, collar rot has become widespread in California, attacking many trees and is now second only to avocado root rot in severity. *Phytophthora citricola* has a wide host range and has been recorded on hosts such as walnut, cherry, cherimoya, and fir trees. As with all *Phytophthoras*, the disease is favored by excess soil moisture, which is essential for dissemination of spores. The pathogen gains entry into the

tree through wounds. Occasionally, trunk cankers caused by *P. cinnamomi* are found, but they are rare.

### COMMENTS ON CONTROL

All evidence to date indicates that *P. citricola* can easily be spread in or on contaminated nursery material, vehicles, irrigation, and of course by people. The same sanitation procedures should be adhered to as with root rot. Seedling rootstocks are much more sensitive than most of the clonal varieties to trunk cankers. In University of California field trials, Toro Canyon, Duke 7, Duke 9, and Barr Duke have shown moderate tolerance, as compared to other, more susceptible rootstocks such G1033, G6, and 755B. Some selections of 755A have shown a much higher level of tolerance to this disease. Thomas rootstock, which has tolerance to root rot, is showing increasing evidence of susceptibility to canker and collar rot. Without doubt, it is a good practice to consider planting more than one rootstock in a grove with a history of canker and collar rot or root rot.

In California, the two diseases caused by *Phytophthora* spp. (root rot and canker) are increasingly found together. Hence, integrated approaches to the control of both need to be followed in orchard disease management strategies. Do not keep the lower trunks wet for long periods, as this increases the chances of infection. Place drippers away from the trunks, and aim mini-sprinklers to avoid wetting the trunks. Also, avoid wounding the trunks, especially by pulling suckers so the bark below ground is injured.

If cankers are detected in an early stage before much of the trunk is invaded, they can sometimes be controlled by cutting out the infected tissue and by applying a trunk spray.

### TREATMENT

Pesticide (commercial name)	Amount to Use	P.H.I.+ (days)
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- A. ALUMINUM TRIS PHOSPHONATE  
(Aliette) WDG                      2.5 -5 lb                      12 hours  
COMMENTS: Apply as a trunk spray. Make the first application at the start of the growing season and repeat every 60 days. Repeat applications at 60 days are important; a single trunk spray is not sufficient to arrest the disease. Do not exceed 20 lb/acre/year.

+ Preharvest interval. Do not apply within this many days of harvest.

### PRECAUTIONS

### PUBLICATION



UC UC IPM Pest Management Guidelines: Avocado  
UC ANR Publication 3436

Diseases

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