UF UNIVERSITY of FLORIDA IFAS Extension

Phytophthora Management for Commercial Citrus Groves

Shoot dieback

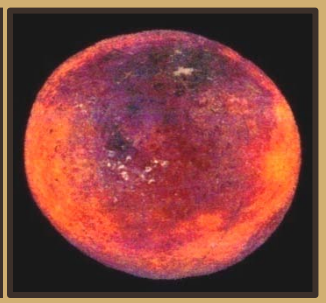
Damage to trunk

Yellow veins

Phytophthora Foot Rot

Scientific Name: *Phytophthora nicotianae*
Initial Symptoms: yellow foliage fall/winter and poor growth to shoot dieback
Terminal Symptoms: leaf drop; fruit drop; further dieback leading to tree death
Trunk Symptoms: bark cracking; gumming; lesions can girdle trunk; found near the crown to below soil line; some healing can occur
Management: prevent prolonged wetting of trunk; control fire ants; choose resistant rootstocks, fungicides (timing and products can be found in pest management guide)

Brown rotted fruit on grove floor



Brown rot on Hamlin orange

Brown rot on grapefruit

Fruit drop caused by brown rot

Brown Rot

Scientific Name: *Phytophthora palmivora* or *P. nicotianae* (if caused by *P. nicotianae*, confined to bottom third of canopy)
Symptoms: light brown leathery decay; white fungal growth on surface when humid; infected fruit have strong, sharp smell; can spread in packing container after fruit is harvested
Management: skirt trees; herbicide strip just inside drip line; fungicide applications in late July

Photo Credit: M.M. Dewdney, J.D. Yates, J.H. Graham

Follow pesticide recommendations in the annual Florida Citrus Pest Management Guide **http://www.crec.ifas.ufl.edu/extension/pest/index.htm**

UF UNIVERSITY of FLORIDA IFAS Extension

Phytophthora Management for Commercial Citrus Groves

Megan M. Dewdney and Jamie D. Yates[2]

Photo Credit: J.H. Graham, L.W. Duncan

PP269

Healthy Roots

Damaged Roots

Root damage impairs the water and nutrient uptake

Root damage can deplete stored carbohydrate

Phytophthora Root Rot

Scientific Name: *Phytophthora nicotianae* or *P. palmivora* in wet soil

Symptoms: soft, water soaked root cortex; cortex sloughs off (comes off to touch) to leave thread-like tips; little to no water or nutrient uptake leading to wilting; mature trees difficult to diagnose; reduced fruit size and/or number; leaf loss; twig dieback; reduced yield over several years

Management: resistant rootstocks like Swingle* or trifoliate oranges; plant clean nursery stock; plant bud union above soil; good grove drainage; *Diaprepes* and fire ant control; fungicides

*If *P. palmivora* and Diaprepes are present, Swingle is not resistant. Consult Diaprepes website.

***Follow pesticide recommendations in the annual Florida Citrus Pest Management Guide* http://www.crec.ifas.ufl.edu/extension/pest/index.htm**

Adult weevil is about 3/8 to 3/4 inch

Adult weevil feeds on young leaves causing a notching on the leaf margin

Root girdling by the *P. nicotianae-Diaprepes* complex on sour orange (Desoto County)

Leaf notching caused by *Diaprepes* root weevil

Diaprepes Root Weevil

Scientific Name: *Diaprepes abbreviatus*

Symptoms: adults cause leaf notching, but larvae feed on roots; feeding allows the *Phytophthora* spp. to cause greater root damage; can destroy tap root

Management: good grove drainage; weevil-free *Phytophthora* resistant rootstock; foliar sprays for adult and egg suppression; chemical barrier for larval control; biocontrol of subterranian stages with insect-killing nematodes; best Diaprepes management practices are site specific –key to determine best strategies for site can be found at: http://www.crec.ifas.ufl.edu/extension/diaprepes/key.htm

1. This document is PP269, one of a series of the Department of Plant Pathology, Florida Cooperative Extension Service, Institute of Food and Agricultural Sciences, University of Florida. First published: August 2009.

2. Megan M. Dewdney, assistant professor, Department of Plant Pathology, Jamie D. Yates, coordinator for canker and greening extension education, Citrus REC, Lake Alfred, Florida; Cooperative Extension Service, Institute of Food and Agricultural Sciences; University of Florida; Gainesville, FL 32611.