

Phytophthora Related Diseases

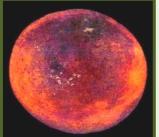
Photo Credit: M.M. Dewdney, J.D. Yates, J.H. Graham





Shoot dieback







Brown rotted fruit on grove floor

Brown rot on Hamlin orange

Brown rot on grapefruit

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

<u>Residential Management:</u> resistant rootstocks like Swingle or trifoliate oranges, plant bud union above soil; do not overwater; Diaprepes control



Fruit drop caused by brown rot

Brown Rot

Scientific Name: Phytophthora palmivora

Symptoms: light brown leathery decay; white fungal growth on surface when humid; infected fruit have strong, sharp smell; can spread in container once fruit is harvested

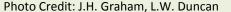
Residential Management: remove premature fallen fruit, raise tree skirts; no overhead irrigation; apply preventative sprays of phosphites or copper in late July (if a long rainy season, a second application in October)

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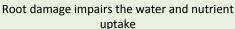
PP262



Healthy Roots

Damaged Roots







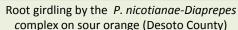
Root damage can deplete stored carbohydrate





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







Leaf notching caused by Diaprepes root weevil

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 Residential Management: resistant rootstocks like Swingle or trifoliate oranges; plant bud union above soil; do not overwater; Diaprepes control

Diaprepes Root Weevil

Scientific Name: *Diaprepes abbreviatus*

Symptoms: adults cause leaf notching, but larvae feed on roots; feeding

allows the Phytophthora spp. to cause root damage

Residential Management: when planting new trees, place landscaping cloth around tree base; adults have trouble getting into soil and it stops the

larvae from emerging

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