**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: http://www.crec.ifas.ufl.edu/extension/diaprepes/

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**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 subterranean 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

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**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 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.


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