

The Effects of Preharvest Factors on Postharvest Decay

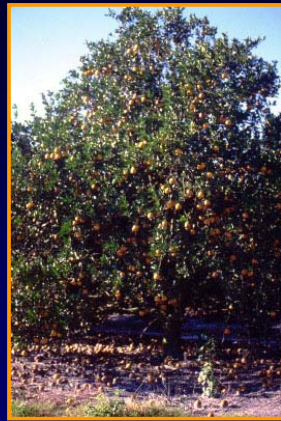
Pamela Roberts
 Southwest Florida Research and Education Center
 Immokalee FL 34120
 pdr@ufl.edu

Phytophthora Brown Rot

- Symptoms are a decay of fruit that is light brown, leathery, and not sunken.
- White mycelium may cover lesion
- Susceptible varieties are 'Hamlin' oranges, Valencias, Navels, and all other cultivars



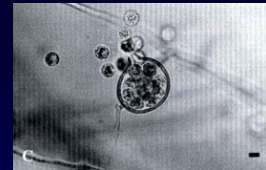
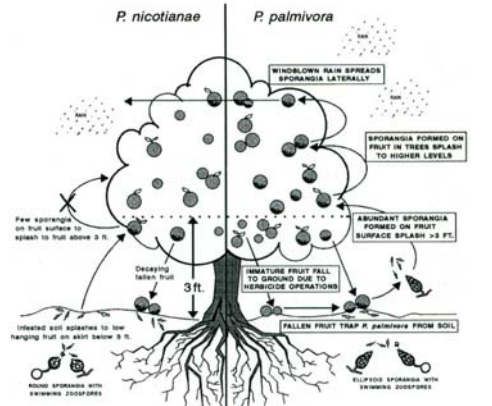
Severe fruit drop on citrus tree with fruit infected by Phytophthora brown rot



Phytophthora Brown Rot

- Caused by *Phytophthora palmivora* or *Phytophthora nicotianae*
- Epidemics by *P. palmivora* are more severe
- Inoculum is produced on immature fruit that drops to grove floor and splashed upwards into tree
- More inoculum is produced and splashed from infected fruit on the tree
- Optimum conditions are prolonged wetness and temperatures from 73-89 F

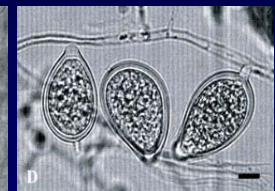
Brown Rot Disease Cycle



Sporangia releasing zoospores



Phytophthora nicotianae



Phytophthora palmivora

Phytophthora Brown Rot

- Scouting
- History of grove
- Weather conditions conducive to disease
- Species of *Phytophthora* present
- Presence of infected fruit

Phytophthora Brown Rot

- Control is by preventative applications of systemic or contact fungicide
- Apply Aliette, Phostrol, or Prophyte in mid- to late August for 90 day control
- Apply copper if epidemic has started for 30-45 day activity
- Allow fruit to drop from tree before harvest
- Skirt trees to reduce contact of fruit and foliage with soil
- Limit bare soil under tree

Anthracnose



- Caused by *Colletotrichum gloeosporioides*
- Fruit infected in field
- Early season fruit exposed to ethylene exposure during degreening
- Weakened rind such as due to injury

Anthracnose



Control

- Produced on dead twigs
- Fungus remains quiescent on fruit
- Ethylene triggers fungal growth
- Reduce amount of dead wood
- Handle fruit carefully
- Chemical treat fruit and hold at cold temperatures

Diplodia Stem-End Rot



- Caused by the fungus *Diplodia natalensis*
- Fruit infected from water-borne spores produced in deadwood of trees
- Warm, rainy summer months are optimal
- Colonized dead tissue on the surface of the button where remains till harvest

Diplodia Stem-End Rot



- After harvest, fungus invades stem-end when button abscises
- Ethylene de-greening stimulates abscissions
- Temperature and RH in degreening room favors fungal growth
- Tissue decays and fungus moves through fruit to other end

Management of Diplodia Stem-End Rot

- Cultural practices that produce thrifty trees with minimal deadwood
- Proper ethylene concentrations maintained
- Reduce amount of time needed for degreening by picking fruit with more color
- Chemical fungicides treatment postharvest

Phomopsis Stem-End Rot



- Caused by the fungus *Phomopsis citri*
- Inoculum and infection is similar to Diplodia stem-end rot
- Internal fruit infection of 'melanose'
- Fully colored fruit

Phomopsis Stem-End Rot

- Cultural practices that produce thrifty trees with minimal deadwood
- Control of melanose will reduce but not eliminate
- Chemical fungicides treatment post-harvest

Sour Rot



- Fungus *Geotrichum candidum*
- Common in soils; windborne or splashed in soil particles to fruit
- Fungus penetrates through injuries
- Fruit are susceptible as they mature
- Temperatures near 80 F
- Wet season

Sour Rot

Geotrichum Candidum



Control:

Sour rot can be reduced by:

Harvesting the fruit carefully to minimize injuries

Preventing contact between the fruit and the soil.

Disinfecting equipment, rooms, and fruit containers

Thank you