

Phomopsis Stem-End Rot¹

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CAUSAL ORGANISM AND DISEASE CYCLE

Phomopsis stem-end rot is caused by the fungus *Phomopsis citri*, and is a decay that becomes more prevalent after the degreening season, when it occurs approximately 10-20 days after harvest. Spores of the fungus are produced on recently formed deadwood in specialized structures called pycnidia. Initial infection of this deadwood occurs from airborne spores that are produced on debris found in the soil. The fruit infection phase of the life cycle, however, occurs mostly from the localized dispersal of waterborne spores from the deadwood. These spores are transported by rainfall to the immature fruit during the late spring and summer months. On early season immature fruit, infections of the fruit surface cause small pustules to be produced, and the disease is known as melanose. The fungus also colonizes dead tissue on the surface of the button where it remains quiescent until after harvest, at which time it can cause stem-end rot. The fungus invades the stem-end of the fruit when the button senesces, and entry is afforded by natural openings at abscission. Sporulation rarely occurs on infected fruit, therefore,

contamination of handling and packing equipment by the fungus is not a major problem like that with green mold. Also, Phomopsis stem-end rot does not spread from infected to healthy fruit in packed containers.



Phomopsis stem-end rot.

SYMPTOMATOLOGY

In initial stages of infection, stem-end rot caused by *Phomopsis* is indistinguishable from that caused by *Diplodia* without isolation and culture of the causal organism. However, with Phomopsis stem-end rot, the infected tissue shrinks, the affected area becomes tan to dark brown, and a clear line of demarcation is formed at the junction between diseased and healthy rind. Lesions with fingerlike projections, which are characteristic of *Diplodia* stem-end rot, are normally not observed. *Phomopsis*

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seldom grows so rapidly through the core of the fruit that decay is exhibited at both ends, but rather it grows through the core and rind until the entire fruit is encompassed. Surface mycelium may develop on the fruit under moist storage conditions.

CONTROL

Good cultural practices that produce thrifty trees with minimal amounts of deadwood, or removal of deadwood by pruning can aid in the control of Phomopsis stem-end rot. Harvesting by pulling rather than clipping will reduce the decay because some of the buttons that contain the inoculum will be removed. Fungicide sprays applied at postbloom for melanose control will reduce inoculum of the pathogen, but they will not provide sufficient control of stem-end rot without additional fungicide treatments at postharvest (see Circular 359-A, Postharvest Decay Control Recommendations for Florida Citrus Fruit). Storage of fruit at a temperature of 40°F or less will suppress development of Phomopsis stem-end rot.