

PHYTOPHTHORA ROOT AND CROWN ROT

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Phytophthora root and crown rot may cause isolated, severe tree losses in years of heavy rainfall in the Southeast. Various species of *Phytophthora*, water mold fungi, cause the disease, but *P. cinnamomi* Rands is most common in peach. Infected trees appear wilted and yellow. Leaves drop prematurely (Figure 1) and trees often die. Infected peach trees may develop severe root rot and/or extensive cankers on the lower trunk, sometimes girdling the tree. Gum exudation is normally observed on the trunks and sometimes on the lower limbs. This should not be confused with the symptoms of borer damage. Affected bark is brown-black and water-soaked. Removal of the outer bark from the affected trunk reveals dark brown to reddish brown tissue often with a banded margin that extends from the root system up into the trunk (Figure 2). *Phytophthora* root rot is always most severe in poorly drained sites or in seasons of heavy late winter and spring rain.



Figure 1. Tree affected by *Phytophthora* crown and root rot. Note defoliation.



Figure 2. Cutting away the bark of a *Phytophthora*-affected tree reveals that although the upper trunk and scaffolds are still green, the lower trunk has been girdled and killed. This is typical of *Phytophthora* crown rot.

The symptoms of wet feet (drowning) are very similar to those caused by *Phytophthora* root rot. The two problems are not always easily separated in the field, as conditions that favor one problem also favor the other. Gray discoloration of the woody cylinder of deep roots suggests injury or tree death from anaerobic conditions in the root zone.

Phytophthora root rot is readily separated from peach tree short life (PTSL) by the presence of diseased tissue below-ground, whereas in PTSL the tree remains viable below-ground. Root and crown rot are separated from *Armillaria* root and crown rot by the absence of a white mycelial mat between the bark and the woody cylinder.

The best control for *Phytophthora* root rot in peach is the assurance of good soil drainage. Evaluate potential orchard sites very carefully. Control water drainage problems before planting; after planting, it becomes very difficult. Avoid planting chronically wet or poorly drained areas. Install drain tile before planting where enough slope is present to drain the site. Plant trees on raised beds where drain tile cannot be used or is too costly.

Fungicides are effective against *Phytophthora*, but of limited value because they must be applied prior to disease occurrence. There is no benefit to fungicide application after the disease is noticed. Usually, there is no way to predict the occurrence of *Phytophthora* root rot.

There are no *Phytophthora*-resistant rootstocks recommended for peach. Almond-peach hybrids and others hold promise for the future if wet-feet tolerance can be combined with tolerance to PTSL and *Armillaria* root rot.

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