

## Phytophthora root rot

*Phytophthora cinnamomi* (oomycete)

Phytophthora root rot may occur at poorly drained sites or in low areas of fields.

### Symptoms.

Early symptoms are yellowing or reddening of leaves and lack of new growth, followed by leaf drop. Below-ground symptoms vary from slight necrosis of young rootlets to extensive necrosis that turns crowns and main roots reddish brown. Bushes may die eventually.



Bush dying because of root rot.

**Disease cycle.** The pathogen lives in the soil and produces swimming spores that infect the roots. Hardy chlamydospores (the primary overwintering structures) are released into the soil as the affected roots break down. Abundant soil moisture and temperatures between 68 and 90°F (20 to 32°C) promote disease development.

**Management.** Either avoid planting in poorly drained sites or improve drainage; grow rooted cuttings or nursery plants on raised beds; avoid overirrigating when soil temperatures are high; use effective fungicides (will not cure severely diseased plants).



Premature leaf coloring and defoliation caused by root rot.



A healthy plant (left) and a diseased plant (right) with a reduced root system.