

## Root and stem rots

# Phytophthora

**Pathogen:** *Phytophthora* spp.

(*P. cactorum*, *P. drechsleri*, *P. nicotianae*, etc.)

**Hosts include:**

*Achillea*, *Clematis*,  
*Euphorbia*, *Fragaria*,  
*Heuchera*, *Leucanthemum*, *Lilium*, *Phlox*,  
*Platycodon*, *Sedum*,  
*Sempervivum*, *Scabiosa* and *Viola*.



Aerial *Phytophthora* infection caused water-soaked lesions and stem collapse of lily.

**Symptoms:** Stem and crown rot, root rot, stunting, wilting, yellowing. Infection of aboveground plant parts causes foliar dieback. Plants with low levels of infection may not have obvious symptoms.

**Spread:** *Phytophthora* is a soil-borne pathogen; spores can also be disseminated short distances through the air. Moving infested plant mate

## Phytophthora – *continued*

rial can spread the disease. *Phytophthora* has several different spore types, including chlamydospores, sporangia, zoospores and oospores. (Refer to *Pythium* root rot for a description of these spore types.)

**Management:** Management strategies for *Pythium* spp. also apply to *Phytophthora*. Symptomatic plants should be removed and destroyed. Fungicides are often used to prevent losses. It is important to get good coverage of the affected plant parts. Fungicides have limited scope and should not be expected to cure heavily infected plants. Systemic fungicides should be used in rotation with protectant fungicides to delay resistance development. Applications at the high end of the labeled rate are required for *Phytophthora* control.



Discolored roots caused by *Phytophthora* infection.