Root and stem rots

**Pythium**

**Pathogen:** *Pythium* spp. (*P. aphanidermatum*, *P. debaryanum*, *P. ultimum*, etc.).

**Hosts include:** *Berberis, Calendula, Chrysanthemum, Delphinium, Dianthus, Gaillardia, Gypsophila, Lathyrus, Lavandula, Lilium, Lupinus, Pelargonium, Phlox, Salvia, Sempervivum* and *Viola*.

**Symptoms:** Wilting, stunting, uneven plant growth, crown rot and plant death. Roots are discolored. The cortex may slough off, leaving the vascular cylinder.

**Spread:** *Pythium* spp. are soil-borne pathogens, so movement of infested soil or plant material can spread disease. This Small discolored lesions caused by *Pythium* sp. on the roots of a hosta.
Pythium – *continued*

pathogen produces several types of spores, each with a slightly different function. Sporangia can either germinate and infect plants directly or produce many zoospores. Sporangia may be produced on both above- and below-ground plant parts. Zoospores are motile spores, which allow the fungus to spread in saturated soils or standing water. Each zoospore can cause a new infection. Oospores are thick-walled spores, which allow the fungus to survive on equipment or in soils for long periods of time. Disease can be quickly spread through recirculated irrigation water.

![Infected roots are discolored. Note that the root cortex has sloughed off some of the roots.](image)