Phytophthora Root Rot

Overview

Phytophthora root rot is a common but devastating issue for both woody and herbaceous plants. Several species of *Phytophthora* can cause root rot, including *P. cactorum, P. cambivora, P. cinnamomic, P. citrophthora, P. drechsleri, P. lateralis, P. megasperma, P. nicotianae, P. niederhauserii, P. occultans, P. pini, P. plurivora, P. pseudocryptogea, and P. tentaculate.* These species belong to a class of fungus-like organisms commonly referred to as water molds. They spread through water by splashing, surface runoff and recirculated irrigation. Most *Phytophthora* species are present in soils where they infect and eventually kill the roots of the host plant. The root damage shows up above-ground as stunting, wilting, and eventual necrosis and plant death.

Integrated Pest Management Strategies

- For field production, ensure good drainage in planting sites
- For container production, use soilless media that has been stored on a cement slab
- Scout plants frequently, removing any suspicious or symptomatic plants.
- Avoid overwatering
- Plant into new pots or sterilize used pots before reusing
- Avoid excessive nitrogen levels
- Rotate crops; follow a susceptible crop with an unsusceptible crop in the same location
- Grow resistant species and cultivars when possible

Figure 1. Ilex glabra infected with Phytophthora root rot. Photo: Elizabeth Bush, Virginia Polytechnic Institute and State University, Bugwood.org

Chemical Strategies

For high-value or susceptible crops, preventative fungicide applications are a key tool for successfully managing Phytophthora root rot and minimizing its economic impact. For best results, treatments should be applied as a soil drench before symptoms appear. In addition to the options in the table below, consider the addition of a phosphorous acid generating product to build a complete rotation. Keep in mind that different species of *Phytophthora* vary in their susceptibility to active ingredients and will depend in part on your local history of chemical use.

Product	Active Ingredient	Compare To	FRAC Group	Drench Rate	REI
Stergo™ MX	Mefenoxam	Subdue® MAXX	4	0.3-2.0 fl oz/100 gal	No REI for soil drench
Stergo™ GR	Mefenoxam	Subdue® GR	4	1.6-12.5 oz/cubic yd	No REI for soil incorporation
Celoxid™ SC	Cyazofamid	Segway® SC	21	3.0-6.0 fl oz/100 gal	12 hours