

The pathogen *Phytophthora* (Oomycete) is a significant threat to greenhouse floriculture production in New England. Infected plants will display root and crown rot, seedling damping off, and foliar blight. *Phytophthora* means “plant destroyer” and the destructiveness of this pathogen is observed annually. High quantities of spores (sporangia) are produced on infected plants, which spread rapidly in the greenhouse.

Phytophthora is a water mold and is especially adept at spreading in water with swimming zoospores. This feature allows the pathogen to infect large quantities of plants in a relatively short time frame. Using cultural controls to reduce media wetness, improving drainage, and applying preventive fungicide applications can help to reduce losses from this pathogen.

There are many ornamental crops that are susceptible to *Phytophthora*. These include African violet, *Cineraria*, *Hedera*, *Gerbera*, lavender, petunia, and vinca. Symptoms of root rot are initially observed above ground and include wilting and chlorosis. If an infected plant is removed from the pot, dark



Hedera with symptoms of foliar blight

brown roots with cortical cells that slough off under light pressure can be observed. Brown watersoaked lesions at the crown develop, and these can extend up the stems as the disease progresses. The plant will then collapse. The

pathogen can also spread with splashing water causing a foliar blight. This is frequently observed with tropical ornamentals that receive frequent irrigation and are grown under conditions of high humidity. Leaf blight symptoms appear as dark brown watersoaked lesions that spread rapidly under warm and humid conditions. The pathogen then produces sporangia, which spread with splashing water. Epidemics can occur when a limited number of infected plants are irrigated repeatedly next to adjacent susceptible plants.



Streptocarpus with foliar blight and crown rot

Control of *Phytophthora* root rot includes limiting irrigation so that media dries rapidly. Plants should be irrigated sparingly and arranged to promote rapid drying of foliage. Plants grown on flood floors are at risk as zoospores can move among pots in infested water that drains from pots holding infected plants. Certain crops such as gerbera daisy and tropicals have routinely



Phytophthora wilt, garden mum. Photo: L.Pundt

been affected on flood floors and flood benches. Remove and discard infected plants as even a single diseased plant can put neighboring plants at risk.

Fungicides and biocontrols should be applied preventively to susceptible crops. There are many effective fungicides (Table

1) labeled for *Phytophthora* control. Apply preventively and follow the recommended application interval on the label for maximum results. The biocontrols listed can also be used when disease pressure is low or absent. Biocontrols will not cure *Phytophthora*-infected plants.



Single branch of rosemary infected by *Phytophthora*. The pathogen had spread to neighboring plantlets causing early stages of root and crown rot.

Fungicides effective against *Phytophthora*

	Product	Active ingredient	FRAC code
Class A	Segovis	oxathiapiprolin	49
	Subdue MAXX	mefenoxam	4
	Adorn	fluopicolide	43
	Fenstop	fenamidone	11
	Micora	mandipropamid	40
	Orvego	ametoctradin/ dimethomorph	45/40
	Stature SC	dimethomorph	40
Class B	Alude	phosphorous acid salts	33
	Heritage	azoxystrobin	11
	Segway	cyazofamid	21
Biocontrol	Aliette	aluminum tris	33
	Serenade	<i>Bacillus subtilis</i>	-
	Actinovate	<i>Bacillus subtilis</i>	-
	Cease	<i>Streptomyces lydicus</i>	-

*Read the label for full list of tolerant plant species and crop safety information.

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