

Center for Agriculture, Food, and the Environment

UMass Extension Turf Program

[Turf Home](#)[About ▼](#)[Management Updates](#)[Publications & Resources ▼](#)[Services ▼](#)[Research ▼](#)[Education & Events ▼](#)[Make a Gift](#)

Pythium Diseases of Turf



Many species of *Pythium* cause diseases of roots, crowns, and/or foliage that result in a general decline of turfgrass stands. Disease may occur in small patches or involve large areas, especially on highly maintained golf course greens. Depending on environmental conditions and the species present, symptoms may appear any time from early spring to late autumn. Microscopic examination of infected tissue typically reveals oospores (survival structures) and/or sporangia (spore-bearing structures) and zoospores (motile spores).

Pythium species are natural inhabitants of the soil. It is not unusual for the organism to be present at low levels without causing disease. Conditions that suppress turf growth and encourage the proliferation of *Pythium* can disrupt this natural balance and lead to disease development. *Pythium* may cause disease in several different ways.

Damping-off: This disease occurs only on seedlings. When *Pythium* is growing rapidly and seedling growth is slow, the pathogen forms stem cankers at the soil line, causing seedlings to lodge. If moisture, temperature, and light conditions are not optimal for seedlings, seed decay and damping-off become more likely.

Crown and Root Rot: Several species of *Pythium* cause diseases of roots and crowns that result in a general decline of turfgrass stands. The disease may occur in small patches or involve large areas, especially on highly maintained golf course greens. Symptoms are nonspecific with the affected turf appearing thin, off-color, and stunted. Symptoms may appear from early spring to late autumn and typically occur after a period of wet weather. Large areas of turf may wilt, turn brown, and die. The crowns of individual plants may appear water soaked and discolored. The root system may be greatly reduced and discolored, and roots may have a "rat-tail" appearance due to the separation of the cortex from the vascular cylinder. Crown and root rot can occur under both low and high soil temperatures depending upon the species of *Pythium* present.

Pythium Root Dysfunction (PRD): This disease occurs only on golf greens under very specific conditions. See our [**PRD fact sheet**](#) for information.

Snow Blight: This uncommon foliar blight is favored by high nitrogen fertility, poor drainage, extended periods of cold weather, and saturated soil underlying snow cover. At least six *Pythium* species can cause snow blight. Symptoms may appear as small tan to orange spots or as a more uniform blight. Foliar mycelium may or may not be present and roots are mostly unaffected, but crowns can be extensively rotted, resulting in plant death. Snow blight is most serious on turf growing in unfrozen, saturated soil underneath snow cover.

Pythium Blight (Grease Spot, Cottony Blight): Although several *Pythium* species are capable of causing blight on turf, *P. aphanidermatum* is the most common and typically the most destructive. Pythium blight can occur in cooler weather if another species is present, but with *P. aphanidermatum* the disease usually appears suddenly in hot, humid weather. Symptoms may appear as water-soaked, dark, oily looking patches ("grease spot"). Spots may also be bronze or tan and are generally less than 6 inches in diameter, but these can expand rapidly and large areas may be affected. Blighting may also appear in streaks that follow the movement of water or machinery. When humidity is high, especially at night, the collapsed leaves may be covered with a fluffy, white mass of mycelium ("cottony blight"). Spots may coalesce to form large, irregularly shaped areas of dead turf, especially in areas of poor drainage. High nitrogen fertility promotes disease development. Foliar blight is most severe in periods of high humidity when day temperatures are above 82°F (28°C) and night temperatures are above 70°F (21°C). Disease is favored when the leaf wetness period exceeds 12 hours. Crown and root rot often accompany foliar blight.

Cultural Management

- Improve surface and subsurface drainage.
- Water thoroughly and infrequently. Reduce automatic overhead irrigation and syringe on an as needed basis.
- Avoid over watering and watering late in the day.

- Ensure adequate nutrition. Avoid overfertilizing and use slow-release N. Calcium deficiency can also increase susceptibility to *Pythium* blight.
- Mechanically remove thatch if it exceeds 0.5".
- Do not mow when the grass is wet or when foliar mycelium is present. Affected areas should only be mowed when dry, preferably with a lightweight walk-behind mower. Never mow on rainy days or when soil is excessively wet.
- Prune nearby trees and shrubs to improve air circulation and light penetration.
- Promote vigorous root growth by raising mowing height, reducing mowing frequency, and other management practices to reduce plant stress.
- Avoid aeration, vertical cutting, or topdressing of diseased putting greens.
- Plant less susceptible turfgrass species and cultivars. For more information, see The National Turfgrass Evaluation Program website (www.ntep.org)

Chemical Management

Fungicides targeting *Pythium* should be applied in recommended tank mixes and rotated among FRAC groups. Rotation is critical for the prevention of resistance development. Resistance to strobilurins (11), mefenoxam (4), and propamocarb (28) has been documented in *Pythium* populations. Repeated applications of fungicides with the same mode of action favor the development of fungicide resistance. Fungicide efficacy can be increased when applications are based upon weather forecasting models. Use fungicide treated seed to avoid damping-off.

For a listing of fungicides currently labeled to manage this disease, refer to the Disease Management chapter of UMass Extension's [***Professional Guide for IPM in Turf for Massachusetts***](#).

Author: M. Bess Dicklow, 2011; updated by Angela Madeiras, 2021

Last Updated: January 4, 2021

Publications & Resources

Printed Publications

Best Management Practices

Nutrient Management Information

Professional Turf IPM Guide

Fact Sheets

References

Useful Links

Pesticide License Information

Pesticide Resources

Connect with UMass Extension Turf Program:



**SUBSCRIBE TO
TURFTALK MAILING LIST »**

HOME LAWN & GARDEN INFORMATION »

Center for
Agriculture,
Food, and the
Environment



CAFE Units

Mass.
Agricultural
Experiment
Station

UMass
Extension

UMass
Research and
Education
Center Farms

UMass
Cranberry

Projects

Conservation
Assessment
Prioritization
System (CAPS)

Mass.
Envirothon

Mass. Herp
Atlas

Mass. Keystone

MassWoods

Extension Programs

4-H Youth
Development

Agriculture

Crops,
Dairy,
Livestock
and Equine

Fruit

Greenhouse
Crops and

Stockbridge Hall,
80 Campus Center Way
University of
Massachusetts Amherst
Amherst, MA 01003-9246
Phone: (413) 545-4800
Fax: (413) 545-6555
ag@cns.umass.edu

Civil Rights and Non-
Discrimination
Information

College of Natural
Sciences

Login for faculty and
staff

Station
Water
Resources
Research
Center

Interest Areas

Agriculture

Commercial
Horticulture

Energy

Environmental
Conservation

Food Science

Nutrition

Water

Youth
Development &
4-H

Services

Pesticide
Education

Plant
Diagnostics
Laboratory

Soil and Plant
Nutrient
Testing
Laboratory

Hot Water Seed
Treatment

North
American
Aquatic
Connectivity
Collaborative

RiverSmart

UMass Design
Center in
Springfield

Resources

Extension Sales
Portal

Agriculture &
Commercial
Horticulture
Resources

Community &
Economic
Vitality

Disaster
Preparedness

Food Safety

Home Lawn &
Garden

Integrated Pest
Management
(IPM)

Land
Conservation
Tools

Pollinators

Tick testing

Resources for
Faculty and

Floriculture
Landscape,
Nursery and
Urban
Forestry

Pesticide
Education

Turf

Vegetable

Clean Energy

Climate
Change

Food Science

Nutrition
Education

Value-Added
Food

Water Testing /
Environmental
Analysis
Laboratory

Staff



©2025 University of Massachusetts Amherst · [Site Policies](#) · [Accessibility](#)