

Turfgrass Disease Profiles

Pythium Blight

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Pythium blight outbreaks are especially damaging to creeping bentgrass, annual bluegrass, rough bluegrass, and perennial ryegrass. The Pythium fungus can infect Kentucky bluegrass and tall fescue, but disease development is limited and turf is rarely damaged. Among turfgrass diseases, Pythium blight receives considerable attention because it spreads very quickly, affects leaves and crowns, and kills plants, resulting in extensive loss of the turf stand.



Figure 1

Pythium blight occurs during the most uncomfortable days of summer, when dew periods are long (greater than 14 hours) and evening temperatures average 68°F or higher. Outbreaks often are first observed in low areas or swales, where more soil moisture is maintained and dew begins to form early in the evening and remains through the morning. Late afternoon rain during these hot, humid periods further favor disease development and may be responsible for rapid spread of the pathogen. Turf with lush growth and excessive nitrogen fertility is especially vulnerable to infection.



Figure 2

The hot, humid weather should signal an alert for Pythium blight outbreaks. Initial symptoms include small, circular patches of collapsed, water-soaked leaves and stems on close-mown turf (Figure 1). If observed early in the morning, infected plants may have cottony white mycelium. Infected turf dies and becomes matted (Figure 2). If disease favorable conditions persist and no efforts are made to interfere with disease progress, large areas of turf may be killed within a matter of days. (Figure 3).



Figure 3

- Gray Snow Mold
- Pink Snow Mold
- Leaf Spot/Melting Out
- Red Thread
- Dollar Spot
- Brown Patch
- Gray Leaf Spot
- Anthracoese
- Pythium Blight**
- Leaf Rust
- Powdery Mildew
- Slime Mold
- Fairy Ring
- Take All Patch
- Summer Patch
- Necrotic Ring Spot
- Rhizoctonia Large Patch
- Yellow Patch

The Pythium fungus overwinters in soil and plant debris. Its spread is associated with water movement. When run-off drains through symptomatic turf, the surface water can transport spores. Also, the fungus is readily spread by equipment after affected areas are mowed while wet.

Disease Control

Cultural Control Options

Varieties of creeping bentgrass and perennial ryegrass appear to be equally susceptible to Pythium blight infection. Other species are somewhat less susceptible but varietal differences within species have not been identified, and they may not be suitable replacements for susceptible species.

Modifying the environment may help reduce the severity of Pythium blight. Water management and proper drainage to avoid waterlogged root zones during summer are especially important. Selective pruning of trees and shrubs and using fans will help circulate air and dry turfgrass surfaces, effectively limiting the duration of the dew period. Avoiding conditions that approach excessive nitrogen fertility during midsummer will reduce vulnerability to Pythium outbreaks.

Because of the pathogen's survival and spread characteristics, Pythium outbreaks normally occur in the same "problem" areas each year as extreme weather conditions prevail. Delay mowing in those areas until surfaces are dry. Precautionary spot treatment with fungicides in those areas is advisable (see below).

Fungicides for Disease Control

Because of the speed of disease establishment and spread, and the consequences of Pythium infection (turf death), fungicides represent essential tools for Pythium blight control. Golf course superintendents who have experienced the effects of Pythium blight epidemics have learned to apply fungicide with the arrival of extreme summer weather. Depending on the history of the disease on certain golf courses, they may spray fairways as well as greens and tees, or may

spot-spray areas that seem particularly vulnerable to Pythium blight. If hot, humid weather persists, then repeated applications may be warranted.

Accurate identification and confirmation of Pythium blight is important because the most effective fungicides may not be effective against other diseases (Table 1). Therefore, distinguishing between Pythium blight and other diseases that may occur during the heat of summer (brown patch, gray leaf spot, summer patch, and dollar spot) is especially important.

Table 1. Fungicides for Pythium blight control and an assessment of the relative efficacy

Fungicide	Product Name	Relative Efficacy
mefenoxam	Subdue Maxx®	+++
propamocarb	Banol®	+++
azoxystrobin	Heritage®	+
fluoxastrobin	Disarm®	+
pyraclostrobin	Insignia®	+

+++ = Very effective when applied preventatively.

+ = These are not stand-alone products for Pythium blight control.

However, when applied preventatively as a tank mix with mefenoxam or propamocarb, they can significantly improve levels of control and turf quality.

Home Lawn Help

Pythium blight is a serious threat to perennial ryegrass lawns. Areas with restricted air movement are most vulnerable to infection. Control practices for residential lawns are based on avoiding excessive nitrogen fertility in midsummer, avoiding early evening irrigation, and improving air circulation to hasten drying of leaf surfaces. If extensive Pythium blight turf damage occurs annually, over-seeding or reseeded affected areas with Kentucky bluegrass or tall fescue is recommended. Fungicides should be considered as a last option. A professional lawn care service should be contracted for best results regarding product selection and timing of the application(s).

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All photos by Richard Latin.

