

Pythium Blight

[*Pythium aphanidermatum*]



SYMPTOMS

Pythium blight first appears as small, sunken, circular patches up to 1 foot in diameter during hot, humid weather. Leaves within the patches are matted, orange or dark gray in color, and greasy in appearance. Gray, cottony mycelium may be seen in the infected areas when the leaves are wet or humidity is high. The disease spreads rapidly along drainage patterns and can be tracked by equipment. This disease can spread rapidly and cause severe damage to a turf stand very quickly when conditions are favorable for development.



Pythium blight mycelium in tall fescue

Characteristic	Description
Host Grass Species	bentgrass, bluegrasses, fescues, ryegrasses
Month(s) with symptoms	June to August
Stand Symptoms	patches (4 to 12 inches), irregular distribution across turf stand
Foliar Symptoms - Location/Shape	blighting of entire leaves
Foliar Symptoms - Color	tan, brown, black, gray, orange
Root/Crown Symptoms	none
Fungal Signs	mycelium or none

Note: Still not sure if this is the right disease? The [Turfgrass Disease Identification](#) program may be helpful. Or consult the experts at the [Turf Diagnostics Lab](#). Check the TurfFiles [glossary](#) for definitions of unfamiliar terms.

FACTORS AFFECTING DISEASE DEVELOPMENT

Pythium blight may develop when night temperatures exceed 65°F and leaves are continually wet for 12 to 14 hours for several consecutive nights. Daytime temperatures above 85°F also encourage *Pythium* blight development, possibly due to increased stress on the turf. Severe *Pythium* blight epidemics are commonly observed the morning after a late afternoon or early evening thunderstorm in the summer. Excessive soil moisture and succulent foliar growth also favor disease development.

Perennial ryegrass and annual bluegrass are most prone to *Pythium* blight and can sustain significant damage in 2 to 3 days when conditions are favorable. Creeping bentgrass and tall fescue are more resistant to the disease, but can be severely affected if conditions are conducive for prolonged periods.

CULTURAL CONTROL

Reduce prolonged leaf wetness by watering before sunrise and on a deep and infrequent basis. Avoid excessive rates of nitrogen to prevent lush, succulent foliar growth, which is very susceptible to *Pythium* blight. Cool-season turfgrasses should not be fertilized with more than 0.25 lb N per 1000 ft² when conditions favor *Pythium* blight activity. Avoid establishing turf in low-lying areas that will collect water. If necessary, install subsurface drainage to prevent wet soil conditions. Relieve compaction and maintain

soil drainage through hollow tine aeration, and topdress golf course putting greens regularly to minimize thatch accumulations.

Do not mow or irrigate when *Pythium* mycelium is present on the foliage to minimize spread of the pathogen. Collect and promptly dispose of clippings from infected areas and ensure that mowing equipment is washed before going to an uninfected area.

CHEMICAL CONTROL

Due to the potential for rapid development of this disease, high value areas and susceptible grasses should be protected with a preventive fungicide program. Applications should be initiated when night temperatures consistently exceed 65°F and repeated on 14 to 21 day intervals as directed on the fungicide label.

Fungicide	Efficacy ⁽¹⁾	Resistance Risk ⁽²⁾	Class ⁽³⁾	Products ⁽⁴⁾
propamocarb	++++	3	carbamate	Banol
propamocarb + fluopicolide**	++++	6	carbamate	Stellar
mefenoxam	++++	9	phenylamide	Subdue, Fenox, Mefenoxam, Quell
fosetyl-Al**	++++	3	phosphonate	Signature
cyazofamid	++++	9	Q ₁	Segway
phosphorous acid	+++	3	phosphonate	Alude, Magellan, Vital, Resyst
mancozeb**	++	3	dithiocarbamate	Fore, Dithane, Pentathlon, Protect
mancozeb + copper hydroxide**	++	3	dithiocarbamate	Junction
fluoxastrobin	++	9	Q ₀	Disarm
pyraclostrobin	++	9	Q ₀	Insignia
chloroneb	+	3	aromatic hydrocarbon	Teremec, Terraneb
ethazole**	+	3	aromatic hydrocarbon	Koban, Terrazole
azoxystrobin	+	9	Q ₀	Heritage
azoxystrobin + propiconazole	+	9	Q ₀ + DMI	Headway

** Not for application to residential lawns.

Footnotes:

(1) Efficacy Codes:

++++	excellent control when conditions are highly favorable for disease development
+++	good control when disease pressure is high, or excellent control when disease pressure is moderate
++	good control when disease pressure is moderate, excellent control when disease pressure is low
+	good control when disease pressure is low
0	does not provide adequate control under any conditions
?	cannot be rated due to insufficient data

(2) **Resistance Risk:**

- 1 Rotating and tank-mixing not necessary, but recommended to avoid potential side effects from continuous use of same chemical class.
 - 2 Rotate to different chemical class after 3-4 applications; tank-mixing not necessary.
 - 3 Rotate to different chemical class after 2-3 applications; tank-mixing not necessary.
 - 4 Rotate to different chemical class after 1-2 applications; tank-mixing not necessary.
 - 6 Rotate to different chemical class after 1-2 applications; tank-mixing with low or moderate risk product recommended.
 - 9 Rotate to different chemical class after EVERY application; tank-mix with low or moderate risk product for EVERY application.
- (3) Continual use of fungicides with similar control mechanisms (modes of action) can result in fungi that are resistant to some chemicals. Poor or ineffective disease control can be expected when this occurs. Managers can reduce the chances of this happening by mixing or alternating fungicides belonging to different chemical classes.
- (4) Recommendations of specific chemicals are based upon information on the manufacturer's label and performance in a limited number of trials. Because environmental conditions and methods of application may vary widely, performance of the chemical will not always conform to the safety and pest control standards indicated by experimental data. When more than one brand name exists for an agricultural chemical, the name of brand that first came onto the market is listed first. Otherwise, brand names are listed in alphabetical order. The order in which brand names are given is not an indication of a recommendation or criticism.

Recommendations for the use of agricultural chemicals are included in this publication as a convenience to the reader. The use of brand names and any mention or listing of commercial products or services does not imply endorsement by North Carolina State University or discrimination against similar products or services not mentioned. Other brand names may be labeled for use on turfgrasses. Individuals who use agricultural chemicals are responsible for ensuring that the intended use complies with current regulations and conforms to the product label. Be sure to obtain current information about usage regulations and examine a current product label before applying any chemical. For assistance, contact your county's Cooperative Extension agent.

Links contained in this document:

Glossary: <http://www.turffiles.ncsu.edu/Glossary.aspx>

Turfgrass Disease Identification Program: <http://www.turffiles.ncsu.edu/diseaseID/>

Turf Diagnostics Lab: <http://ncstateturfdiagnostics.com/TDL/Home.html>

© North Carolina State University. This information sheet was prepared by Lane P. Tredway, Gail G. Wilkerson, Bridget R. Lassiter, Jenifer J. Reynolds, and Gregory S. Buol. Departments of Plant Pathology and Crop Science, College of Agriculture & Life Sciences, North Carolina State University. Prepared March 23, 2009. Available on-line at www.turffiles.ncsu.edu. This publication was made possible through a grant provided by the Center for Turfgrass Environmental Research & Education (CENTERE) whose purpose is to support worthwhile projects that will benefit both the private sector and the public, and protect the environment.