



# Pythium Blight and Pythium Root Rot

O & T Guide TD-8

**Natalie P. Goldberg**  
Extension Plant Pathologist



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**Causal Agent and Hosts:** Pythium diseases on turfgrass are caused by several *Pythium* species, a common soil-inhabiting water mold. This pathogen attacks all turfgrasses, but disease is usually more severe on cool-season grasses. Disease can be especially severe in ryegrass used to overseed hybrid bermudagrass. Pythium blight, also known as cottony blight or grease spot, occurs when the pathogen attacks the foliage resulting in a rapid blight over large turf areas. When the roots and crowns are attacked, the disease is called Pythium root rot.

**Symptoms:** While the symptoms are somewhat variable, the diseases are typified by an overall decline in the turf area. This decline may be gradual or rapid, depending on the environmental conditions. Affected areas may appear as irregular patches or streaks associated with water drainage or mowing patterns. Small areas of declining turf may coalesce to cover large areas. Individual plants have dark, water-soaked lesions. The leaves turn yellow, then tan as they die. Pythium blight may also rapidly develop into round to irregular, dark, water-soaked, greasy or slimy, sunken patches of matted grass, up to 6 to 12 inches wide. This symptom is generally referred to as “grease spot.” In the early morning when dew is present, a whitish gray to purple, cottony growth

may appear on the surface of blighted grass. Pythium root rot occurs when the roots and crowns are attacked. Affected root systems thin and discolor (but do not turn black) as many of the feeder roots decay. The outer cylinder (cortex) of these roots exhibits a soft decay, and will slough off between fingertips when pulled. Pythium can also cause seedling damping-off.



Pythium blight. Photo: The University of Arizona.



Pythium blight. Photo: P. H. Dernoeden, University of Maryland.



“Grease spot” caused by *Pythium*. Photo: R. W. Smiley, Oregon State University.



“Cottony blight” caused by *Pythium*. Photo: B. B. Clarke, Rutgers University.

**Conditions for Disease:** The pathogen survives as oospores in infected plants, plant debris (thatch), and soil and is spread by movement of infected plant material by equipment, people, animals, and water. Swimming spores move short distances in water and contribute to the enlargement of diseased areas.

The disease can occur anytime during the growing season, but the most serious damage generally occurs during periods of hot, wet or very humid conditions. Large areas of turf can be destroyed in 24 to 48 hours after the onset of disease-favorable weather. Waterlogged soils and a moist thatch layer, along with high relative humidity (90% or greater) and daytime temperatures in the 80’s or 90’s with warm nights (above 68° F) provide ideal conditions for

warm weather *Pythium* blight. There are species of *Pythium* that do well in cool weather also. Turf areas seeded or overseeded during warm, moist conditions are especially vulnerable to attack. Susceptibility increases in dense turf and in turf growing in alkaline conditions. Excessive nitrogen, excessive thatch, poor drainage, and compacted soils also contribute to disease development.

**Management:** Cultural practices which help to reduce the occurrence and severity of the disease include:

- Improve soil aeration (reduce thatch).
- Improve water drainage.
- Reduce shading.
- Maintain appropriate fertility levels.
- Avoid heavy nitrogen applications.
- Follow proper irrigation practices.
- Avoid overwatering and watering at night.
- Avoid light, frequent watering.
- Avoid mowing or walking on wet turf.
- Avoid seeding or overseeding during favorable environmental conditions.
- Several fungicides are available to help control *Pythium*. For highly valuable turf and turf with a history of the disease, a preventive spray program using a systemic fungicide, applied prior to the onset of hot, humid weather, is recommended. *Pythium* has developed resistance to fungicides in some areas; therefore great care should be taken to avoid excessive use of any one fungicide chemistry.

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