



Pythium Blight and Root Rot on Turfgrass

Pythium sp.

Introduction: All commonly cultivated cool-season turfgrasses are susceptible to attack by *Pythium* spp. When foliage is attacked, a disease called cottony blight, grease spot, or Pythium blight results. This disease is most common during hot, very humid weather. The disease can spread rapidly, killing large areas of seedling or established turf in as little as a day during conditions of high temperatures 27°C to 32°C (80°F to 90°F), high soil moisture, and little air movement over the turf. The disease can also occur at lower temperatures during cool 13°C to 18°C (55°F to 65°F) wet weather. When root and crown tissue is attacked, Pythium root and crown rot results. This disease can occur during warm, hot, or cool weather. Wet, humid conditions favor the disease.

Symptoms: Pythium blight appears as small, usually irregularly-shaped spots 2 to 10 cm in diameter. The grass blades have a water-soaked appearance, and the diseased areas feel and look greasy or slimy. Upon drying, these killed areas of turf turn light brown or a straw-colored hue and may have a slight reddish tinge. Groups of affected patches may coalesce into larger, irregularly-shaped areas or into elongate streaks, which often extend in the direction of drainage flow or of mowing. Dead and dying grass blades may become matted together if conditions remain moist, especially in areas that are subjected to traffic.



Figure 1: Symptoms on a golf course green. (provided by Dr. Eric B. Nelson, Cornell University)

If a sudden drop in temperature or humidity causes disease progress to stop before whole leaf blades are killed, straw-colored spots of varying sizes may develop on the leaf blades. These spots may resemble those of "dollar spot," except that the dark brown lesion so often associated with the latter disease is not found with Pythium blight. The blades may twist and collapse at the lesion.

Microscopic examination may allow for detection of oospores within the plant tissue. These circular spores can vary in diameter from 12 to 38 µm but only those with oospores above 20 µm in diameter are considered to be serious pathogens of turfgrass.



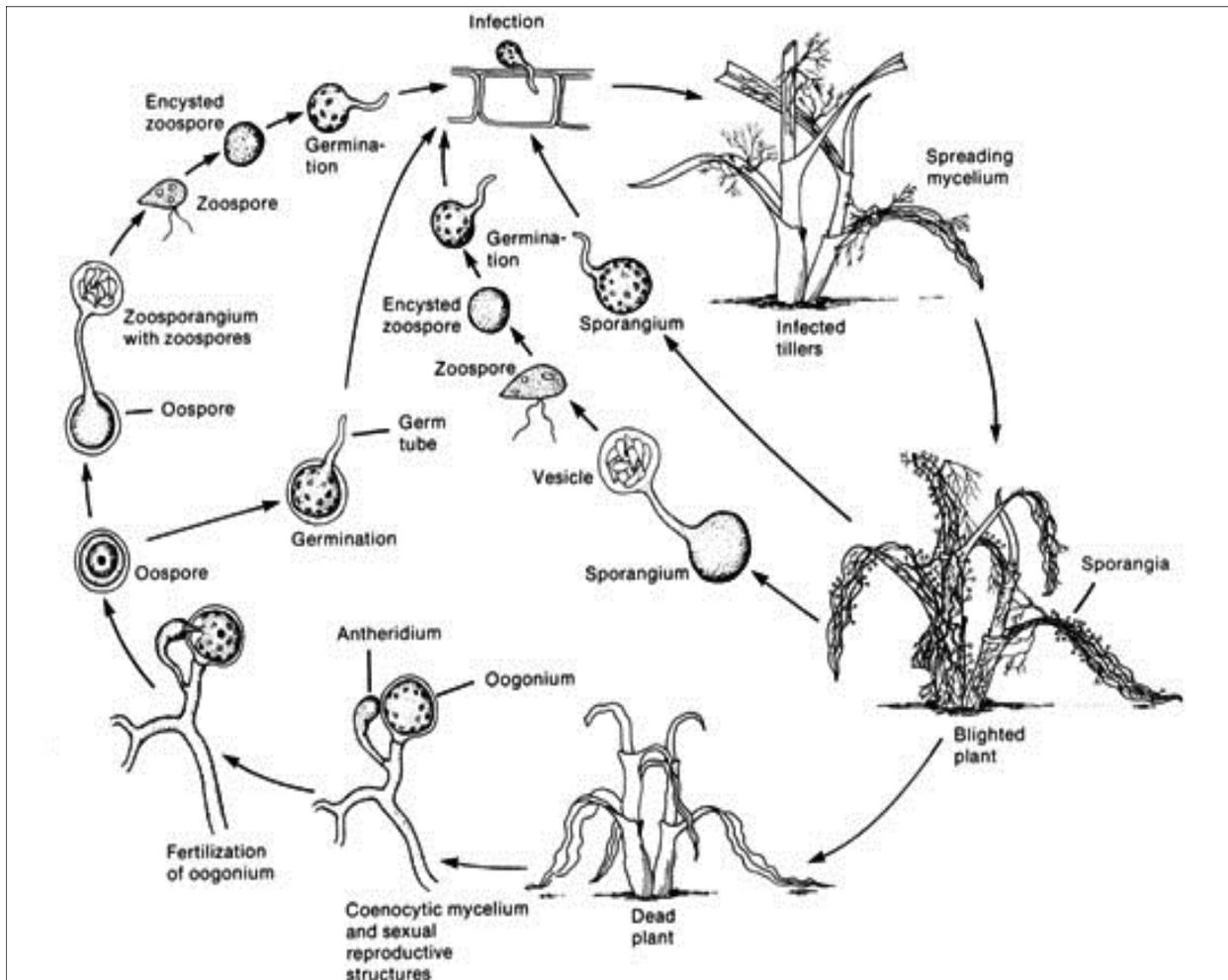
Figure 2: Pythium oospores found on the root tissue. (provided by Dr. Eric B. Nelson, Cornell University)

Disease Cycle: This pathogen survives over winter and during periods adverse to disease development as resistant oospores in the soil. It can be moved from one area to another by soil movement, by transporting diseased plants or plant parts, and by equipment, shoes, or surface water.

"Damping off," "seed decay," or "seedling blight" of turf grasses can also be caused by Pythium fungi. These fungi may also attack the plant roots and crowns, causing reduced growth, an off-color, and thinning of turf (Pythium root and crown rot).

Helping You Put Knowledge to Work

Diseased plants serve as infection centers from which the fungus spreads. Spread from these areas can be rapid in wet or humid, hot weather. High nitrogen fertility favors the disease on many grass varieties. Alkaline soil and calcium deficient soil also tend to favor the disease.



Management Strategies: Maintain grass growth with low to moderate rates of balanced fertilizers, and maintain soil pH in the neutral to slightly acid range. Avoid mowing when the grass is wet. Do not water in the late afternoon or early evening. If the disease occurs, fungicide use will probably be necessary to prevent spread under favorable conditions.

If Pythium blight occurs on home lawns in New York State, homeowners may apply Heritage or some products containing one of the following active ingredients: fosetyl-AI, metalaxyl-M, or chloroneb. Where Pythium root and crown rot is severe, Heritage, fosetyl-AI or metalaxyl-M may be used. The biological control agent *Trichoderma harzianum*, sold as Turfshield, may also be used to help prevent outbreaks. Be certain any formulation(s) of pesticide(s) you purchase are registered for the intended use.

Additional products may be available for commercial use. Commercial applicators should refer to the appropriate commercial pest management guidelines or contact their local Cooperative Extension Office for more information on currently registered products.

If grass must be seeded in warm weather in an area known to have had the disease, fungicides may be needed until the grass grows out of the seedling stage or until the weather becomes cooler or drier. If possible, postpone seeding until weather is less favorable for disease development.

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*This publication may contain pesticide recommendations. Changes in pesticide regulations occur constantly, some materials mentioned may no longer be available, and some uses may no longer be legal. All pesticides distributed, sold, and/or applied in New York State must be registered with the New York State Department of Environmental Conservation (DEC). Questions concerning the legality and/or registration status for pesticide use in New York State should be directed to the appropriate Cornell Cooperative Extension Specialist or your regional DEC office. **READ THE LABEL BEFORE APPLYING ANY PESTICIDE.***

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Source: <http://plantclinic.cornell.edu/FactSheets/pythium/pythium.htm>