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PYTHIUM BLIGHT OF TURFGRASS

Pythium blight, also known as cottony blight and grease spot, is a very destructive turfgrass disease in hot, humid summer weather conditions. Most cool season turfgrasses including Kentucky bluegrass, tall fescue, and perennial ryegrass can be attacked by this disease. Pythium blight can spread rapidly and can kill large areas of established turf in 1 to 2 days in hot, very humid summers.

SYMPTOMS AND DIAGNOSTICS

The initial symptom of the disease in a lawn or golf course appears small, circular spots of collapsed grasses with dark green water-soaked blades (Figure 1). Spots are about 1-2 inches in diameter at the beginning, but the size of patches can reach 1 foot in diameter when they enlarge and coalesce further (Figure 2). In early morning when dew is present, abundant white or gray, fluffy aerial mycelium can be noticed on the surface of blighted turfgrass, which is a diagnostic sign of Pythium blight (Figures 1 and 2). One rarely sees mycelium from dollar spot or brown patch, two common fungal diseases of turfgrass. The white mold or webbings on diseased grass may disappear when the condition becomes more dry during the day.

DISEASE DEVELOPMENT

Pythium blight of turfgrass is caused by various *Pythium* species. The pathogen can survive in diseased grass tissues as vegetative mycelia, but it is considered short-lived. *Pythium* species also produce long term resting spores called oospores that survive in the thatch and soil for many years. The pathogen can be dispersed through irrigation, equipment, shoes, and grass clippings.

Figure 1. Small patches of collapsed grasses with white mold at the edge (arrow)

Figure 2. Large patches of dead grasses with white mold at the edge (arrow)

Favorable conditions for infection leading to an outbreak of the disease are daytime temperatures above 82°F, night temperatures above 68°F, waterlogged soil, a moist thatch layer, periods of high relative humidity (>90%), and long dew period (>14 hours). So, severe epidemics of the disease occur in hot, humid, rainy or cloudy summer weather conditions. The disease is often first observed in low areas in the lawn where soil moisture remains high, which is favorable for dew formation during the night. Periods of heat and drought during the summer may also increase stress on cool season turfgrasses and enhance their susceptibility to the disease. High levels of nitrogen fertilization enhance the severity of the disease by creating a lush turf canopy.

MANAGEMENT

Resistance: Among cool season grasses, Kentucky bluegrass is less susceptible than perennial ryegrass and tall fescue. If there is a history of extensive lawn damages caused by Pythium blight and it occurs annually, over-seeding or re-seeding with Kentucky bluegrass is recommended.

Culture: Good water management is critical to Pythium blight control. Water lawns early in the morning to allow grass blades to dry during the day and reduce the duration of leaf wetness overnight. Water as infrequently and as deeply as possible to stimulate root growth, resulting in healthy, drought tolerant, and pest resistant turf. Avoid overwatering new plantings. Avoid mowing wet grasses. Aerate lawns in early spring or late summer to reduce thatch and improve drainage. Avoid excessive rates of nitrogen. Use balanced slow-release fertilizers in the spring or/and fall. Clean mowing equipment before entering unaffected areas. When establishing a new lawn site or renovating an existing lawn, provide good surface drainage and fill depressions that collect water following a heavy rain.

Fungicides: During extended periods of warm (night temperatures that consistently exceed 65°F), humid weather conditions, a preventive fungicide program should be initiated on the lawn where there has been a history of the disease. When hot, humid weather persists, fungicide applications need to be repeated as recommended in the label. Fungicides registered for Pythium blight of turfgrass include azoxystrobin, propamocarb, and mefenoxam. Fungicides from different chemical groups should be alternated or mixed to reduce the risk of development of fungicide resistance. Alternating between systemic and contact fungicides may delay resistance development. There are several biological control materials labeled for Pythium blight control including *Bacillus subtilis* strain GB03), *B. amyloliquefaciens* strain D747, *Trichoderma harzianum, T. harzianum* Rifai strain T22 + strain G41, and plant extract of *Reynoutria sachalinensis*. Read product labels and follow the directions.

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