

Managing Pythium Blight in Overseeded Turf¹

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From September through November in Florida, the growth of bermudagrass tends to slow down and many superintendents and sports turf professionals consider overseeding their greens or sports turf. Understandably, many of them are concerned about establishment of the overseeded turfgrass. One reason is pythium blight. This fast moving disease can destroy an established grass stand within 24 hours after the first symptoms become visible, especially in a warm, humid environment. Typical initial symptoms include irregularly purplish to dark shaped areas, with a dark water-soaked appearance on the leaf blades. These leaves will become soft and slimy, mat together and eventually turn necrotic (brown), and die (Figure 1). Early in the morning or when the humidity is high, the leaves may be covered with white, cobwebby mycelium of the pathogen, *Pythium aphanidermatum* (Figure 2).

Superintendents and sports turf professionals often ask how to manage this disease in the overseed with fungicides. Some superintendents have even suggested applying fungicides to the bermudagrass before overseeding. Others have asked how effective would a curative application vs. a preventative application be in suppressing this disease. We tried to answer these questions. In the first experiment,



Figure 1. Initial symptoms of pythium blight on overseeded turf include whitish (A) to brown (B) irregular shaped areas. Credits: Lawrence E. Datnoff

eight treatments plus a control were arranged in a randomized complete block design with four

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Figure 2. Close-up of *Poa trivialis* leaves covered with white cobwebby mycelium of *Pythium aphanidermatum*. Credits: Lawrence E. Datnoff

replications. Fungicides (Banol, Subdue MAXX, Heritage 50WG and Signature) were applied either before seeding, after seeding or at emergence (Table 1). (Emergence is defined as stand establishment 14 days after seed germination in this study. This allows for establishment of a full canopy of grass for inducing a Pythium blight epidemic). In the second experiment, Heritage 50WG and Subdue MAXX were applied after seeding and emergence, and when approximately 1 to 3% visible symptoms of Pythium blight were apparent (Table 2). Fungicide treatments were arranged in a randomized complete block design with four replications. Fungicide sprays were applied at 30 psi using a CO₂ backpack sprayer equipped with a single flat fan nozzle tip on a hand-held boom. All treatments were delivered in 3 gal. water/1000 sq. ft. *Poa trivialis*, cv. Dark Horse, was used in both experiments. *Pythium aphanidermatum* was grown in a cornmeal-sand medium for about 10 to 14 days and incorporated into the plots. Inverted plastic boxes were placed directly within each plot to increase the temperature and relative humidity, and potentially enhance infection. The plots were rated for Pythium blight development throughout a four-day period.

Pythium blight development was relatively uniform and high throughout both experiments since the controls reached disease severities of 80%. In the first experiment to evaluate when to apply the fungicides, all fungicides significantly reduced Pythium blight development in comparison to the control (Table 1). Applying Subdue MAXX to the soil and bermudagrass before overseeding did reduce Pythium blight development in comparison to the

control, 37.5% vs 80.2 %. However, at this level of disease development, a superintendent or sports turf manager would have to re-seed these infected areas. Applying fungicides either at seeding, emergence or the combination of the two were the most effective treatments for significantly reducing Pythium blight development. In the second experiment to evaluate preventative vs. curative application of fungicides, again, all treatments significantly reduced Pythium blight development in comparison to the control (Table 2). Curative treatments applied to infected overseed reduced Pythium blight development between 54.4 and 60.2 % compared to the control. However, as mentioned earlier, a superintendent or sports turf manager would have to re-seed these infected areas. The fungicides were best applied on a preventative basis. Pythium blight has a short incubation period (the time period between infection and visible symptoms). Fungicides need to be applied preventively for optimum disease control and they need to be applied directly to the seed or foliage. If superintendents and sports turf managers follow these simple guidelines for fungicide disease management as well as appropriate cultural control methods (including appropriate levels of nitrogen fertilizer), they should have no trouble in establishing and maintaining an overseed. Remember, always read and follow the fungicide label recommendations.

Table 1. Effect of fungicides applied before overseeding and after overseeding *Poa trivialis* into a bermudagrass green on Pythium blight development at the UF/IFAS Ft. Lauderdale Research and Education Center.

Treatment and rate per 1000 sq ft	Disease Severity ¹ (%)
Control	80.2 a ²
Subdue MAXX 1 fl oz before overseeding	37.5 b
Banol 2 fl oz @ seeding + emergence ³	8.8 cd
Signature 8 oz @ seeding	8.8 cd
Signature 8 oz @ emergence	3.2 cd
Heritage 50WG 0.2 oz @ emergence	1.5 cd
Subdue MAXX 1 fl oz @ seeding + emergence	0.8 d
Signature 4 oz @ seeding + emergence	0.5 d
Signature 4 oz @ emergence	0.5 d

¹Disease Severity = percent area of overseed with symptoms of Pythium blight, where 0 = no infection and 100 = total area infected. ²Means followed by the same letter are not significantly different based on Fishers Protected LSD (P=0.05). ³Emergence is defined as stand establishment 14 days after seed germination in this study. The data reported herein do not imply endorsement of the products listed nor criticism of similar products not mentioned.

Table 2. Table 2. Effect of fungicides applied preventatively and curatively on pythium blight development on *Poa trivialis* overseeded into a bermudagrass green at the UF/IFAS Ft. Lauderdale Research and Education Center.

Treatment and rate per 1000 sq ft	Disease Severity ¹ (%)
Control	80.2 a ²
Heritage 50WG 0.2 oz after visible disease ³	25.8 bcd
Subdue MAXX 1 fl oz after visible disease	20.0 bcd
Heritage 50WG 0.2 oz @ emergence ⁴	1.5 cd
Subdue MAXX 1 fl oz @ seeding and emergence	0.8 d

¹Disease Severity = percent area of overseed with symptoms of Pythium blight, where 0 = no infection and 100 = total area infected. ²Means followed by the same letter are not significantly different based on Fishers Protected LSD (P=0.05). ³Fungicides were applied when approximately 1 to 3% visible watersoaking symptoms of Pythium blight on leave blades were apparent. ⁴Emergence is defined as stand establishment 14 days after seed germination in this study. The data reported herein do not imply endorsement of the products listed nor criticism of similar products not mentioned.