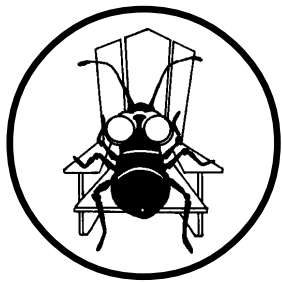


The Continuing Pythium Root Rot Problem in the Northeast



Pest Watch

Symptoms may appear as early as immediately after snow melt in the spring, but are most common in the mid-spring to early summer (Apr.-June) during periods of cool soil temperatures and prolonged periods of excessive soil moisture. High stress areas tend to show symptoms earlier than non-stressed areas.

12

Pythium root and crown rot on creeping bentgrass or annual bluegrass putting greens continues to be a serious problem throughout the Northeast United States. This disease continues to be most damaging on putting greens constructed from heavy native soils and not as significant a problem on sand-based greens. Symptoms may appear as early as immediately after snow melt in the spring, but are most common in the mid-spring to early summer (Apr.-June) during periods of cool soil temperatures and prolonged periods of excessive soil moisture. High stress areas tend to show symptoms earlier than non-stressed areas.

Symptoms may first appear as small diffuse yellow or reddish brown patches of turf approximately two to three inches in diameter, often closely resembling the early stages of pink snow mold (*Microdochium nivale*) damage. Plants may be slow to come out of dormancy and growth may be less vigorous than in uninfected plants. Under severe conditions, patches of infected turf may coalesce and large areas may appear yellow and in a general weakened condition. Commonly, affected turf responds poorly to the application of fertilizers. As the season progresses and plants become increasingly exposed to stress conditions, large areas of turf may wilt, turn yellow to brown and then die. Root systems of heavily-infected plants are greatly reduced in volume and vigor and may be extensively discolored. Roots may be devoid of root hairs. Crown areas may also appear water-soaked and greatly discolored. Oospores and sporangia may be frequently observed in root and crown tissues. However, much of the root and crown damage can occur as a result of *Pythium* growth inside the plant in the absence of oospore production but usually in the presence of sporangium production.

Pathogenic as well as nonpathogenic species of *Pythium* can be isolated readily from healthy as well as diseased turfgrass roots and crowns. Strains of *P. graminicola*, *P. vanterpoolii*, *P. torulosum*, *P. aphanidermatum*, and *P. aristosporum* are generally more damaging under cool (45-60° F) conditions and are the principal species implicated in epidemics in the Northeast (*Pythium graminicola* being the most important). Some strains of *Pythium aphanidermatum*, *P. graminicola*, *P. myriotylum*, *P. aristosporum*, *P. periplocum*, *P. vanterpoolii*, and *P. arrhenomanes* can damage turfgrass roots under warm (75-85° F) conditions. These are not as common in the Northeast as in other parts of the country.

Current Control Methods

Cultural

- Water, temperature, and plant stress are key determinants of disease development.
- Water management is most amenable to manipulation.
- Disease may be enhanced under excessive but not inadequate fertility situations.
- Organic amendments that stimulate high microbial activity will reduce disease severity.

Fungicidal

- In the Northeast, Bano1®, Signature® and Fore® have been most effective in controlling *Pythium* root rot.
- Koban® and Terrazole® may also be effective. These are probably the only fungicides effective in reducing soil inoculum of *Pythium*.
- Subdue® has been effective in some locations but has failed in others.
- Fall fungicide applications (mid-October–mid-November) are recommended on sites with a history of severe *Pythium* problems. This is usually followed up with another application in the spring. Resistance could potentially be a problem. Precautions should be taken to delay resistance development.

ERIC NELSON
CORNELL UNIVERSITY TURFGRASS TEAM

Turfgrass Problems Bugging You?



Need Help NOW?

Subscribe to the new publication from Cornell Turfgrass: *Turfgrass ShortCUTT*.
Call (607) 257-8481 for more details.

Get it when you need it:

• **Turfgrass ShortCUTT** •