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**Causal Agent Occurrence.** The *Gaeumannomyces graminis* may survive as a saprophyte in the dead plant debris and thatch within the turf canopy in the form of dormant mycelium or in live grass tissues. Growth and spread of the causal fungus occurs in the underground roots and rhizomes during cool, moist weather in the spring, and also the fall.

**Favorable Disease Conditions.** Actual aboveground turf symptoms of the takeall patch disease appear during hot, dry weather of the summer, even though the actual pathogen infection may have occurred during the previous spring. Because the pathogen severely attacks the root system causing it to become nonfunctional, the initial symptoms appear in the form of aboveground wilt of the leaves. The casual organism is considered to be favored by neutral to alkaline soil conditions, although this author has observed it occurring at root zone pHs below 5.5. Adequate levels of phosphorus (P) and potassium (K) must also be maintained.

**Takeall Patch Control.** There are no cultivars of *Agrostis* species that are resistant to takeall patch. Thus, the principal alternative is use of an effective fungicide during the first 2 to 6 years until the newly constructed root zone becomes ecologically balanced, including the development of antagonistic microorganisms. I have observed effective control of this disease in a number of European countries, plus in Japan and the United States by the use of propiconazole. Takeall patch control with propiconazole is best achieved during in the spring and fall when the causal fungus is active. Follow-up irrigation with 6 mm of water should be done immediately after fungicide application to ensure maximum effectiveness. Also, application is best made in late afternoon or early morning, as some grass leaf-tip burn may occur at temperatures above 32°C. (90°F). After control of the causal fungus is achieved, recovery of severely damage patches to full turf density may require 2 years.

## PUBLICATIONS AVAILABLE:

### 1993 Rutgers Turfgrass Proceedings.

Plant Science Department, The Rutgers Center for Turfgrass Science, Rutgers Cooperative Extension, Cook College, Rutgers University. 196 pages (1994).

This proceedings divided into two sections. The first section contains 13 papers of lectures presented at the 1993 New Jersey Turfgrass Expo as volume 25. The second section contains 7 technical papers of original research findings and reviews covering a broad range of subjects being investigated by turfgrass researchers at Rutgers University. Included are performance evaluations of cultivars and selections of Kentucky bluegrass (*Poa pratensis*), perennial ryegrass (*Lolium perenne*), bentgrass (*Agrostis* spp.), fine fescues (*Festuca rubra* and *F. longifolia*), and tall fescue (*Festuca arundinacea*) under the hot, humid summer conditions in New Jersey. Also included are assessments of leaf spot susceptibility of Kentucky bluegrass cultivars and the occurrence of endophytic fungi in the fine fescue cultivars and selections. This research report on the assessment of a range of cool-season perennial turfgrass cultivars is a must for anyone involved in specifying or selecting specific cultivars of cool-season turfgrasses for seeding or sodding turfed areas.

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## WHERE WE'VE COME FROM:

"Sweeping greens is necessary every morning where sheep and rabbits feed on them, but they should be swept as lightly as possible so as not to injure the grass." E. Mepham, Golf Greens and Green-Keeping. (1906).