# RESEARCH REPORT

## SUMMER PATCH OF ANNUAL BLUEGRASS CAUSED BY PHIALOPHORA GRAMINICOLA

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Back in 1983 and to a lesser degree in 1984 many golf courses in the mid-west experienced severe late summer turf loss on their annual bluegrass fairways. This even occurred on golf courses where the superintendents were utilizing good fungicide programs for the control of diseases such as anthracnose, collar spot and brown patch. The initial symptoms were a chlorotic yellowing of the turf in patches from 3 inches to 3 feet in diameter with most patches being approximately 6 inches to a foot in diameter. The disease was believed to be caused by the unusually hot summer and especially the warm nights. Examination of the roots in these patches revealed dark colored mycelial strands of a fungus running parallel along the roots. These runner hyphae, as they are known, are very characteristic of Gaeumannomyces like organisms.

This root fungus was isolated into pure culture by picking stands of runner hyphae off the roots under a disecting scope. Several techniques were tried to induce the fungus to produce a sexual stage so a positive identification could be made. All attempts failed so it was decided to try and identify the fungus on the basis of its asexual characteristics. After a thorough literature search of articles dealing with the identification of Gaeumannomyces-like organisms, the fungus was temporarily identified as Phialophora graminicola. Samples of the fungus were sent to other turf pathology laboratories and cultures of P. graminicola were obtained from them for comparison. These results confirmed our initial findings that the organism responsible for the patch disease in annual bluegrass during warm weather is Phialophora graminicola. This same fungus has been shown to cause a similar patch disease in Kentucky bluegrass (it is believed to be the same disease we formerly called Fusarium blight), This disease is called summer patch in Kentucky bluegrass. We see no reason to change the name for this disease caused by P.graminicola in annual bluegrass, therefore, this disease will now be referred to as summer patch.

Inoculation studies were also conducted on annual bluegrass during this period of time to be sure P.graminicola was the pathogen responsible for the patch disease. The plants were inoculated with P.graminicola and placed at two temperatures (22°C and 32°C). The plants at 22°C showed only a slight stunting compared to the untreated check plants, whereas plants maintained at 32°C showed much more severe yellowing and stunting which led to the death of approximately 70% of the plants. This symptom progression was very similar to what occurred in the field.

Field studies were established in the summers of 1983 and 1984 on annual bluegrass fairways on the Walnut Hills Country Club in East Lansing, Michigan and on the Orchard Lake Country Club in Orchard Lake, Michigan. In the 1983 fungicide trial, single applications of Tersan 1991 (8 oz/1000ft2 drench) and Bayleton (4 oz/1000 ft2 drench) gave good control of the disease, while Banner (2fl. oz/1000 ft2 drench) gave some control and Chipco 26019 (4 oz/1000 ft2 drench) was ineffective. The mild summer of 1984 resulted in reduced disease levels, and therefore, the disease did not reoccur in our plots. Further studies are planned for this summer in an attempt: 1) to find other effective fungicides; 2) to further define application rates and timing; and 3) to confirm the findings of the fungicide trial of 1983.

We wish to thank the Minnesota Golf Course Superintendents' Association of America for providing financial support for this project from their research funds. We also wish to thank them for their aid in obtaining funds from the U.S.G.A. and the G.C.S.A.A.

We will update you on the progress of this research project next year.

## HELP WANTED

Golf Course Manager, Chaska Par 30
Seven month position. Responsible for maintenance and operation of golf facility and programming. For application or additional information, contact Tom Redman, Director of Parks and Recreation, City of Chaska, 612/448-5633.