

2017-31-641

Title: Pythium Patch: Identification of the Causal Agent and Insights into the Biology of the Pathogen and the Epidemiology and Management of the Disease

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Objectives:

1. Identify and confirm the causal agent(s) of this new disease.
2. Elucidate the biology of the pathogen(s) involved and epidemiology of the disease.
3. Determine cultural and chemical management options for turfgrass managers to more effectively prevent the disease from causing extensive damage.

Start Date: 2017

Project Duration: One year

Total Funding: \$5,000

Summary Text:

First observed on a golf course in Connecticut in 2005, “Pythium patch” was a relatively unknown and minor disease in the Northeastern United States for nearly 10 years. During the summer of 2016, however, outbreaks of the disease were observed on 13 golf courses in 5 different states. Symptoms of the disease are unlike most traditional Pythium diseases. The disease is slow to progress, but most unique is its selective targeting of annual bluegrass within mixed populations of creeping bentgrass greens. Disease symptoms are similar to summer patch and therefore is often misdiagnosed. While control measures include traditional Pythium-based fungicides, management options are relatively unknown. Limited information on the causal agent(s) of Pythium patch are available.

There is currently no information on this disease in the scientific literature. Our lab received suspected Pythium patch samples from 20 golf courses in 6 different states in 2016. Of those samples, we were able to culture 14 isolates for further analysis. This represents the largest possible collection of isolates to identify the pathogen(s) responsible for causing Pythium patch. We are currently completing DNA isolations to identify the species involved and are preparing to perform Koch’s postulates. Based on the information obtained from these preliminary studies, we will be conducting various lab and field experiments to better understand the biology of the pathogen(s) and epidemiology of the disease. Future work will include management strategies for Pythium patch.

Without science-based information related to the causal agent and a better understanding of the pathogen’s biology and disease epidemiology, management options will be limited. A goal of this project is to investigate the factors that promote the spread of the disease on annual bluegrass. Through these studies, we will be able to provide information to golf course superintendents related to the best management practices in order to keep the turfgrass healthy and prevent a substantial economic loss.