

# Preventive and Curative Control of Algae on Putting Greens Using Products Other than Daconil

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## Objectives:

1. To determine the influence of various products on algae control of golf course putting greens.

Start Date: 2007

Project Duration: two years

Total Funding: \$6,000

Turfgrass quality on golf course putting greens receiving few hours of sunlight or exposed to prolonged periods of excessive moisture is often reduced for a number of reasons. Shaded environments generally are associated with poor air movement, excessive soil moisture, and extended periods of leaf wetness. Even greens located in excellent growing environments, but built with no or poor internal drainage, are susceptible to thinning during the stressful summer months. Stress-related injury to the turfgrass often leads to an increased susceptibility to other turfgrass disorders including algae and moss invasion, as well as infection from various turfgrass pathogens.

Algae infestation on closely mown putting greens continues to be difficult to manage. While applications of various fungicides such as chlorothalonil, maneb, and mancozeb have been shown to suppress algae, these products must be applied on relatively short intervals prior to the appearance of symptoms and their efficacy varies. Further complicating the use of fungicides is the exclusion of chlorothalonil from use in specific regions of New England. In areas where chlorothalonil use remains legal, new label restrictions on the total amount of product that can be applied and increased time between application intervals may drastically limit the ability to control algae over the course of an entire season.

Previous studies revealed a reduction in algae growth from phosphite-based fungicides and select wetting agents. Although the main purpose of these studies did not involve an investigation of algae, products suppressed algae between 83 and 100% when compared to the untreated control. Little information is available regarding the influence of phosphite products and wetting agents for controlling



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algae. The objective of this study will be to determine the ability of various phosphites and wetting agents to suppress algae; and 2) assess the interaction among effective algae control products and fungicides commonly used on golf course putting greens.

Studies were initiated at the University of Connecticut Plant Science Research and Education Facility located in Storrs, CT. When applied preventively, most phosphite treatments, as well as Daconil, reduced algae populations when compared to the untreated control. When single applications of phosphites and fungicides were applied as a curative treatment, algae development was not reduced or slowed and no differences were observed among treatments.

In addition to the impact of phosphites, the interaction among fungicides and wetting agents was assessed. The least amount of algae was observed within plots treated with Insignia + Magnus, Daconil + Revolution, and Daconil alone. Moderate suppression of algae was exhibited within plots treated with Insignia + Revolution, Protect + Dispatch, Trinity + Magnus, Daconil + Duplex, and Protect + Duplex. No other treatment provided a reduction of algae compared to the untreated control plots.

Although various treatments provided suppression of algae, it appeared that

applications of each product alone provided varying results than when the products were tank-mixed with different wetting agents. A final greenhouse study investigated the influence of nitrogen source on algae development. In this study, only pots received ammonium sulfate (21-0-0), calcium nitrate (15.5-0-0), and ammonium nitrate (34-0-0) significantly reduced algae when compared to the untreated control or other nitrogen sources.

Additional field and greenhouse studies are planned for 2009 to further investigate the preventive and curative suppression of algae, as well as any interactions with other commonly applied products. Laboratory studies will also be developed to assess the direct inhibition of algae from phosphorous acid and various commercially available phosphite products.

## Summary Points

- Algae growth is a chronic problem on thinning golf course putting greens during the summer months.
- Current data suggest that most phosphite products can reduce algae when applied preventively, but curative control may be more difficult.
- The influence of fungicides on algae suppression may be influenced by other tank-mixed partners such as wetting agents.