

Comparison of Chlorothalonil, Propiconazole, and Iprodione Products for Control of Dollar Spot and Brown Patch Diseases

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Objectives:

1. To determine if different fungicide products containing chlorothalonil, propiconazole, or iprodione provide differences in control of dollar spot and brown patch diseases of bentgrass maintained as a golf course fairway.

Start Date: 2008

Project Duration: two years

Total Funding: \$6,000

Chlorothalonil, propiconazole, and iprodione are among the most popular and effective fungicides for controlling foliar diseases of turfgrasses. Patent protection for the original chlorothalonil, propiconazole, and iprodione products has expired, and several 'post-patent' products are now available to golf course superintendents for use in disease control programs. Questions remain about the handling, mixing, and efficacy of individual products.

Three fungicide trials were conducted on bentgrass maintained as a golf course fairway at two different locations in Pennsylvania (a golf course in the southeastern portion of the state and a research facility in central Pennsylvania). Treatments included three chlorothalonil products (Daconil Ultrex, Echo Ultimate, and Chlorothalonil DF), four different propiconazole products (Banner MAXX, Propiconazole 14.3, Propensity 1.3ME, and Spectator Ultra 1.3), and three iprodione products (Chipco 26GT, Ipro 2SE, and Raven). All products were applied at the same rate and timing for each active ingredient.

Results for two growing seasons showed differences in disease severity among active ingredients in two of the three trials, and a few differences among products with the same active ingredient in all three trials. At the southeastern Pennsylvania site, few differences in dollar spot incidence (number of spots per plot) were observed among chlorothalonil, propiconazole, and iprodione active ingredients. No differences in dollar spot incidence were detected among the chlorothalonil products or the propiconazole products in either year of the study.

Two of the three iprodione products (Chipco 26GT and Ipro 2SE) showed similar dollar spot incidence during both years of the study. One iprodione product,



Two tests were conducted at the central Pennsylvania site: one on creeping bentgrass with a history of severe dollar spot infestations, and the other on colonial bentgrass with a history of moderate dollar spot and brown patch infestations.

Raven, showed greater disease incidence compared to Chipco 26GT and Ipro 2SE on two of the seven rating dates in 2008. However, a new (2009) formulation of Raven performed similarly to the other iprodione products in 2009.

Two tests were conducted at the central Pennsylvania site: one on creeping bentgrass with a history of severe dollar spot infestations, and the other on colonial bentgrass with a history of moderate dollar spot and brown patch infestations. In both years of the study, differences in dollar spot severity were observed among chlorothalonil, propiconazole, and iprodione active ingredients, with iprodione generally showing less dollar spot than chlorothalonil and propiconazole.

No differences in dollar spot severity (visual ratings of disease severity on a scale of 0 to 10) were observed among the chlorothalonil products in 2008. However, in one of the tests during 2009, the Chlorothalonil DF treatment showed a higher level of dollar spot severity compared to the other chlorothalonil products.

No differences in dollar spot severity were detected among the propiconazole products in either year of the study. Two of the three iprodione products (Chipco 26GT and Ipro 2SE) performed similarly with respect to dollar spot severity in 2008. Raven showed higher severity ratings on three of the nine rating dates. In 2009, the new formulation of Raven was

not significantly different from Chipco 26GT and Ipro 2SE with respect to dollar spot severity.

In the colonial bentgrass trial, all fungicide treatments were applied prior to brown patch symptom development. By mid-summer 2008 and 2009, differences in brown patch severity were observed among chlorothalonil, propiconazole, and iprodione fungicides; with chlorothalonil and iprodione generally showing less disease than propiconazole. No differences in brown patch severity were observed among the chlorothalonil products or the iprodione products on any rating date.

Summary Points

- Iprodione products generally showed better dollar spot control than chlorothalonil and propiconazole products at the central Pennsylvania location. However, in the southeastern Pennsylvania trial, the three different active ingredients were very similar in controlling dollar spot.
- Generally, chlorothalonil and iprodione products provided better brown patch control than propiconazole products.
- With one exception (one trial during 2009), chlorothalonil products included in this study performed similarly in controlling dollar spot and brown patch.
- No differences among propiconazole-containing products were observed with respect to dollar spot control in any of the dollar spot trials. Differences in brown patch control were detected among certain products on one rating date in both years; however, on the majority of rating dates, no differences were detected among propiconazole products.
- Of the three iprodione products, Chipco 26GT and Ipro 2SE provided the most consistent dollar spot control. Raven showed less dollar spot control in 2008 when compared with Chipco 26GT and Ipro 2SE; but a new formulation of Raven performed similarly to the other iprodione products in 2009.