

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

Peter Landschoot and Michael Fidanza
Pennsylvania State University

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. 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 or four different products applied at the same rate and timing for each active ingredient (chlorothalonil, propiconazole, and iprodione).

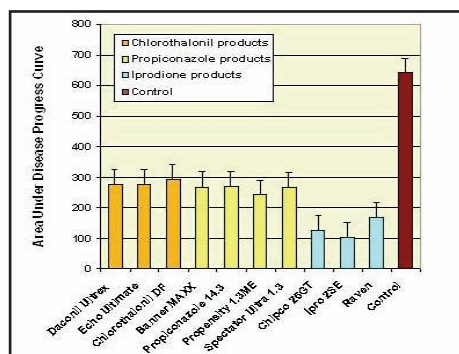
Results show differences in disease control among active ingredients in two of the three trials and a few differences among products with the same active ingredient in all three trials. At the southeastern Pennsylvania site, all fungicide treatments provided good to excellent control of dollar spot. No differences in dollar spot incidence were observed between chlorothalonil and propiconazole fungicides, or among the three chlorothalonil products (Daconil Ultrex, Echo Ultimate, and Chlorothalonil DF), or the four propiconazole products (Banner MAXX, Propiconazole 14.3, Propensity 1.3ME, and Spectator Ultra 1.3).

Two of the three iprodione products (Chipco 26GT and Ipro 2SE) performed similarly to the chlorothalonil and propiconazole products with respect to dollar spot control (no differences occurring on any rating date). Only one iprodione product, Raven, showed reduced efficacy compared to Chipco 26GT and Ipro 2SE on two of the seven rating dates.

Area under the disease progress curve (AUDPC) is a calculated value used to assess disease epidemics for an entire test period. The only fungicide treatment with a higher AUDPC value (than all oth-

ers) was the Raven treatment.

Two tests were conducted at the central Pennsylvania site. Differences in dollar spot severity were observed among chlorothalonil, propiconazole, and iprodione treatments, with iprodione generally showing better control than chlorothalonil and propiconazole over the test period. No differences in control were observed among the three chlorothalonil products (Daconil Ultrex, Echo Ultimate, and



Comparative area under the disease progress curve (AUDPC) to control dollar spot for various fungicides

Chlorothalonil DF) or the four propiconazole products (Banner MAXX, Propiconazole 14.3, Propensity 1.3ME, and Spectator Ultra 1.3).

As in the southeastern Pennsylvania trial, two of the three iprodione products (Chipco 26GT and Ipro 2SE) performed similarly with respect to dollar spot control. However, Raven showed reduced dollar spot control compared to Chipco 26GT and Ipro 2SE on three of the nine rating dates. Area under the disease progress curve values indicated the best dollar spot control was achieved with the iprodione products, followed by propiconazole and chlorothalonil products.

In the colonial bentgrass trial, all fungicide treatments were applied in June prior to brown patch symptom development. By mid-summer, differences in brown patch severity were observed among chlorothalonil, propiconazole, and iprodione fungicides, with chlorothalonil and iprodione generally showing better

control than propiconazole. No differences in brown patch control were observed among the three chlorothalonil products (Daconil Ultrex, Echo Ultimate, and Chlorothalonil DF) or three iprodione products (Chipco 26GT, Ipro 2SE, and Raven) on any rating date or among AUDPC values. Area under the disease progress curve values indicate the best brown patch control was achieved with the chlorothalonil and iprodione treatments, followed by propiconazole treatments in 2008.

Summary Points

- With respect to dollar spot control, iprodione products generally showed better 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.
- All chlorothalonil products included in this study (Daconil Ultrex, Echo Ultimate, and Chlorothalonil DF) performed similarly in both dollar spot trials and the brown patch trial.
- No differences among propiconazole-containing products (Banner MAXX, Propiconazole 14.3, Propensity 1.3ME, and Spectator Ultra 1.3) were observed with respect to dollar spot control in either dollar spot trial. However, AUDPC values indicated better brown patch efficacy for Propensity 1.3ME compared with Spectator Ultra 1.3 when evaluated over the entire 2008 test period.
- Of the three iprodione products (Chipco 26GT, Ipro 2SE, and Raven) Chipco 26GT and Ipro 2SE provided the most consistent dollar spot control. Raven showed less dollar spot control compared with Chipco 26GT and Ipro 2SE on several rating dates and in AUDPC values in both trials.