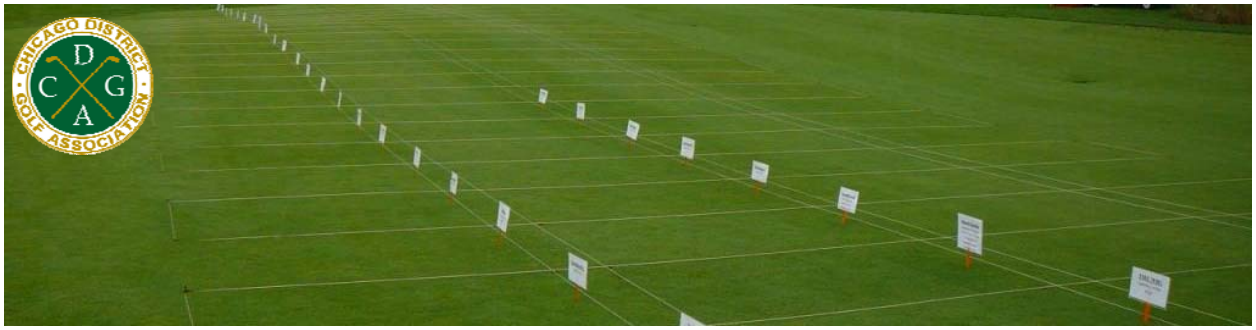

Fungicides for Dollar Spot and Brown Patch on a Chicago Bentgrass Fairway

Researchers: Chicago District Golf Assoc. - Derek Settle, Tim Sibicky, Nick DeVries

Goal: Suppress dollar spot and brown patch and evaluate plant health effects.

Location: Sunshine Course's 3 fairway in play – Lemont, Illinois

Background: Creeping bentgrass (*Agrostis stolonifera*) is commonly used in golf course fairways in the upper Midwest. At low mowing heights bentgrass out-performs Kentucky bluegrass on fairway surfaces and is not susceptible to summer patch, a difficult-to-control root disease of Poa spp. However, bentgrass is highly susceptible to two foliar diseases; dollar spot (*Sclerotinia homoeocarpa*) and brown patch (*Rhizoctoinia solani*). Both fungi can rapidly blight turf when peak golf play occurs from summer to early fall. In Chicago, moderate temperatures and humid conditions favor the development of dollar spot (May- October). Brown patch (June-September) is also troublesome during humid summers when nights are warm, 65 to 75 degrees, and minimum leaf wetness duration lasts 10 hours or more (e.g., summer 2010).

Brief Material and Methods: Fungicides (Table1) were evaluated on number 3 fairway of Sunshine Course in Lemont, IL. The fairway is 'L-93' creeping bentgrass. Plots were 4 ft x 6ft and arranged in a randomized complete block design with 4 replications. Thirteen treatments were applied with a CO_2 backpack sprayer with 8004 TeeJet nozzles at 40 psi in water equivalent to 2 gal/1000ft^2. The first application of all treatments was made on 27 May when initial dollar spot infection began and thereafter curative treatments were applied as needed. A new weather-based predictive model, "Dollar Spot Calculator", was also tested.

Results: Dollar spot, Brown patch, and Visual quality

- Dollar spot. As expected, treatments applied preventively or by model tended to have less dollar spot. All curatives were applied only once on 27 May and so were similar to untreated. Dollar spot development was delayed in 2010, possibly due to overly wet conditions on 3 fairway. Damage per plot was ≤ 5% through end of August. (Fig. 1)
- Brown patch. Brown patch disease pressure was especially high this summer at Sunshine Course, Lemont, IL in 2010. All treatments except DewCure or Emerald controlled brown patch. DewCure actually increased brown patch compared to

untreated. Curative treatments applied once on 27 May completely controlled brown patch (Insignia and Honor) as did a DuPont experimental and the Univ. of Wisconsin dollar spot calculator model. (Fig. 2)

Table 1. Treatments for disease control on 3 fairway at Sunshine Course, Lemont, IL in 2010.

Number	Treatments	Interval	Rate per 1,000 sq ft
1	Untreated	....	....
2	Emerald	curative	0.18 oz
3	Honor	curative	0.83 oz
4	Honor	curative	1.1 oz
5	Insignia	curative	0.7 oz
6	Daconil Ultrex	curative	3.2 oz
7	Dupont XLEM17	21 days	0.3 oz
8	Dupont XLEM17	21 days	0.5 oz
9	CDGA Bookend Rotation	varies	4.0 floz
A	Emerald (early June at 1st symptoms)	30+ days	0.18 oz
B	Banner Maxx	21 day	1 fl oz
C	Chipco GT	21 day	4.0 fl oz
D	Emerald	last	0.18 oz
10	Dew Cure	14 day	6.0 fl oz
11	Dew Cure + Chipco Signature	14 day	6.0 fl oz + 4.0 oz
12	Disease Model Emerald + Daconil 21d	as needed	0.18 oz + 3.2 oz
13	Emerald	28 day	1.0 fl oz

Table 2. A weather-based model to predict dollar spot development. The Univ. of Wisconsin model expects outbreak if minimum air temperatures are $\geq$ 57 degrees F and if the 5 previous days were $\geq$ 70% relative humidity. Weather data from Sunshine Course, Lemont, IL in 2010.

Month	Min. Air Temp. (°F)	Avg. Air Temp. (°F)	Relative Humidity (%)	Dollar Spot Calculator Value threshold = 0.30	Application Dates = 6
	degrees F	degrees F	percent	threshold = 0.30	
May	50.7	61.7	72.1	mean 0.45 (range 0.13-0.91)	27-May
Jun	60.4	71	77.7	mean 0.55 (range 0.31-0.87)	10-Jun, 21-Jun
Jul	63.7	75.9	75.0	mean 0.37 (range 0.17-0.58)	5-Jul, 26-Jul
Aug	63.7	74.6	76.9	mean 0.48 (range 0.29-0.77)	16-Aug

Figure 1. As expected, treatments applied preventively or by model tended to have less dollar spot. All curatives were applied only once on 27 May and so were similar to untreated. Dollar spot development was delayed in 2010, possibly due to overly wet conditions on 3 fairway. Damage per plot was ≤ 5% through end of August on Sunshine Course, Lemont, IL in 2010.

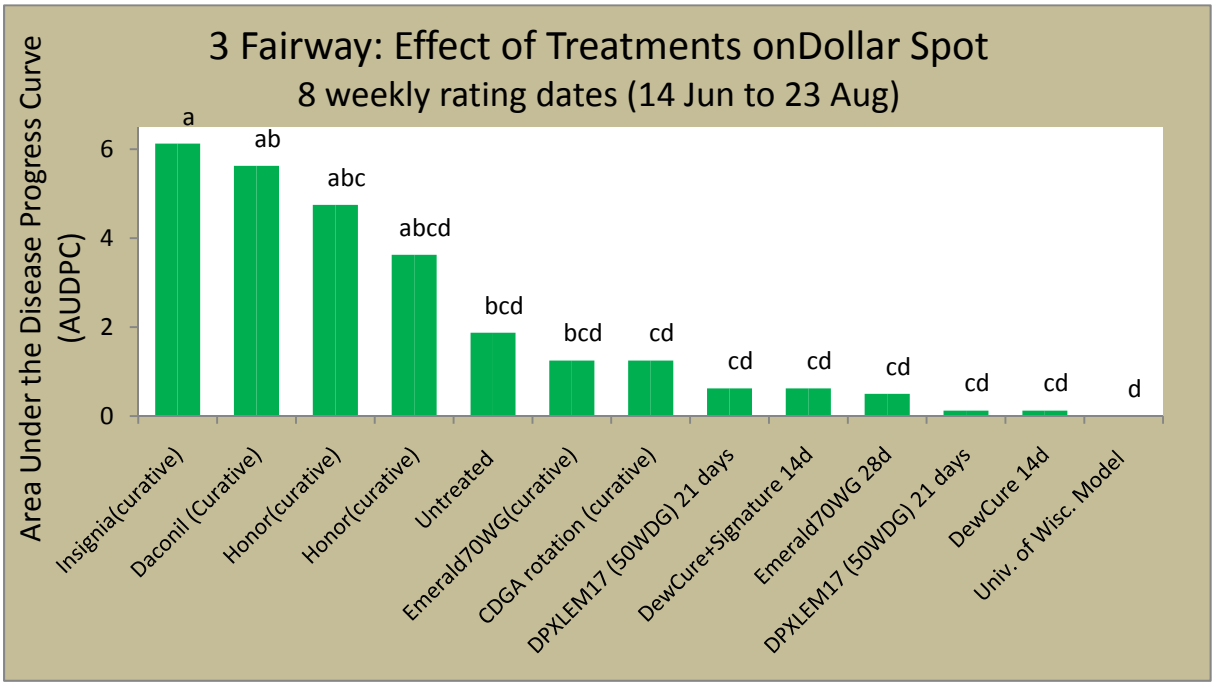

Figure 2. Brown patch disease pressure was especially high this summer at Sunshine Course, Lemont, IL in 2010. All treatments except DewCure or Emerald controlled brown patch. DewCure actually increased brown patch compared to untreated. Curative treatments applied once on 27 May completely controlled brown patch (Insignia and Honor) as did a DuPont experimental and the Univ. of Wisconsin dollar spot calculator model.