

## Creeping bentgrass foliar disease control by fungicides immediately watered-in after application in Chicago, 2023

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Plant Disease Management Reports briefly describe the ongoing results of field trials. This report covers:

CREEPING BENTGRASS (*Agrostis stolonifera* ‘L-93’ and ‘Providence’)

Dollar Spot; *Clarireedia jacksonii*

**Keywords:** Creeping Bentgrass, Dollar spot, DMI fungicide, SDHI fungicide, Indemnify, Densicor, Pedigree, Tartan Stressgard, Root Length,

The study objective was to evaluate foliar disease control in a situation where a fungicide is applied and then immediately watered-in after application with irrigation. This practice is increasing and is done to address soil-borne pathogens. Two of the three treatments were representative of a preventative fungicide program for fairy ring in golf greens. A third treatment was the nematicide Indemnify which is labeled to address certain root-feeding nematodes in golf greens. Indemnify contains fluopyram, an SDHI fungicide. Treatments were evaluated in a mature nursery putting green originally seeded in 2000 with an equal parts blend of ‘L-93’ and ‘Providence’ creeping bentgrass at North Shore Country Club, Glenview, IL. The site also had approximately 5-10% *Poa annua* population. The putting green was mowed at 0.125 in. height daily with no fertilizer applied during the study period. Individual plot size was 4 ft × 6 ft and treatments were arranged in a randomized complete block design with four replications. Treatments were applied four times every 28 days from 30 May until 21 Aug using a CO<sub>2</sub> backpack boom sprayer with three XR TEEJET 8004VS nozzles at 40 psi in water equivalent to 2.0 gal per 1000 ft<sup>2</sup>. Following application, treatments were immediately watered-in to each plot by hand using a hose with a water breaker calibrated to deliver 0.25 in. The dollar spot was evaluated visually each week and recorded as percent plot area affected from 30 May until 25 Sep. Maximum root length was determined by using a 0.5 in. diameter soil core to systemically take four subsamples spaced 1 ft from the center point of each plot on 31 Jul, 28 Aug, and 11 Sep. Each core subsample evaluated the maximum potential rooting of 12.0 in. which was to the base of the green. The area under the disease progress curve (AUDPC) was calculated using the trapezoidal integration method (Madden et al., 2007). Data were subjected to analysis of variance using Fisher’s protected least significance different test at  $p \leq 0.05$ .

Weather conditions were dry all spring. Normal rainfall and subsequent dollar spot development began in Jul. During Jul and Aug, dollar spot levels remained low in untreated plots. In Sep, dollar spot development occurred and severity peaked in untreated plots on 25 Sep. During peak disease pressure on 25 Sep, both Indemnify at 0.39 fl oz (0%) and Tartan Stressgard at 2 fl oz followed by Densicor at 0.196 fl oz (5.8%) reduced dollar spot when compared to untreated (18.8%) (Table 1). The program with Indemnify provided complete control of dollar spot during all of Sep. In contrast, dollar spot was exacerbated by Pedigree on three dates in Sep when compared to untreated (Table 1). AUDPC analysis found Pedigree was no different than untreated. Residual control was rated in Dec, which was 11 weeks after final application on 21 Aug, and only Indemnify (1%) continued to provide dollar spot suppression versus untreated (19.3%) (Table 1). No effects were observed for root length measurements on any date.

This study found dollar spot was controlled by a 28-day broad-spectrum program that principally used DMI fungicides to target fairy ring. A second fairy ring program that only used Pedigree failed to control dollar spot. At times Pedigree produced a non-target effect of increased dollar spot, but flutolanil, its active ingredient, is a SDHI fungicide not labeled for this disease. In contrast, the Indemnify program provided near-complete control of dollar spot with long lasting residual activity. The active ingredient fluopyram is a SDHI fungicide known capable of dollar spot suppression. Golf course superintendents can reduce other fungicide inputs to target dollar spot when using the nematicide Indemnify.

**Table 1.** Creeping bentgrass foliar disease control by fungicides immediately watered-in after application.

Application strategy/ treatment rate per 1000 sq ft	FRAC fungicide group	Spray interval (days)	Dollar spot severity (%) <sup>W</sup>							Max. root length (in.) <sup>X</sup>		
			21 Aug <sup>Y</sup>	5 Sep	11 Sep	18 Sep	25 Sep	AUDPC <sup>Z</sup>	8 Dec	31 Jul	28 Aug	11 Sep
Tartan Stressgard 2 fl oz then Densicor 0.196 fl oz	DMI + QoI then DMI	28	1.0a	0a	0.8c	0.7c	5.8c	6.63b	12.5ab	4.3a	5.0a	4.7a
Pedigree 4 fl oz.....	SDHI	28	5.0a	3.0a	15.0a	13.7a	30.0a	65.2a	22.5a	4.6a	5.2a	5.1a
Indemnify 0.39 fl oz.....	SDHI	28	2.5a	0a	0c	0c	0c	2.5b	1b	4.6a	5.1a	4.7a
Untreated.....	n/a	--	4.7a	2.0a	7.0b	8.7b	18.8b	47.3a	19.3a	4.4a	4.5a	4.2a

<sup>W</sup> Percent plot area affected with dollar spot represents the mean of four replications.

<sup>X</sup> Maximum root length was calculated by measuring four subsamples per plot with each final value representing the mean of four plots/replications.

<sup>Y</sup> Means followed by the same letter in a column are not significantly different ( $P \leq 0.05$ ) according to Fisher's LSD test.

<sup>Z</sup> Area under the disease progress curve (AUDPC) summarizes 18 rating dates from 30 May to 25 Sep.