

How Long Does Your Dollar Spot Control Last?



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Sclerotinia dollar spot is the most important disease of Wisconsin golf courses during the growing season. The disease is so common and destructive that multiple fungicide applications are required to prevent severe losses of bentgrasses and annual bluegrass.

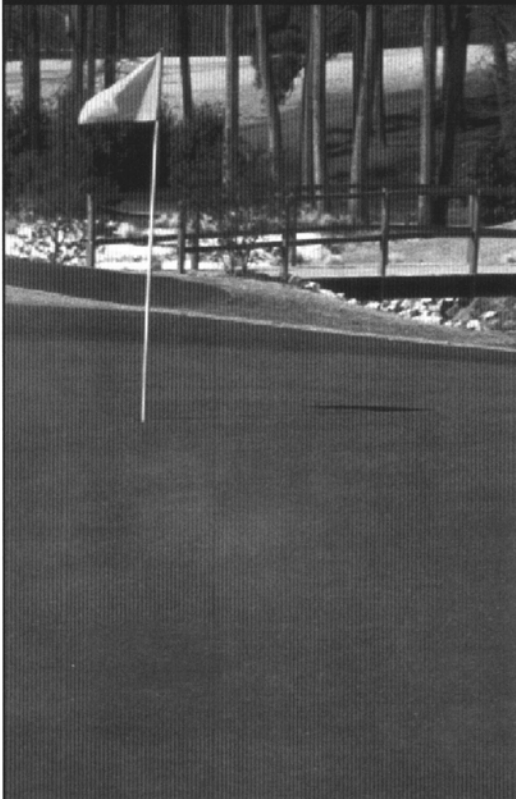
Fortunately, there are currently a dozen fungicides registered to control dollar spot in Wisconsin. Many of these products provide acceptable control when used on a ten or fourteen day spray schedule, but often times control does not last for much longer. On the other hand, some products provide twenty days or more control and have the potential to

reduce the frequency of fungicide applications and possibly the cost of dollar spot control per day.

In order to determine which fungicides have the longest duration of control, field plots in which fungicides are applied and then left untreated until disease develops must be established. This is unlike most fungicide efficacy studies conducted by universities and the industry who apply fungicides at set intervals, usually between seven and twenty-eight days. These studies are not designed to determine the duration which fungicides control a particular disease, only whether or not the fungicide is effective when following the specific schedule.

Because these studies do not compare the longevity of control afforded by individual fungicides, a field trial to assess fungicide the longevity of dollar spot control was performed at the O.J. Noer Turfgrass Research and Education Facility at Verona, WI, in the summer of 2004.

Field plots were established on a sand-based Penncross creeping bentgrass green maintained at a mowing height of 0.156 inch. Individual plots measured 3 X 5 feet and were arranged in a randomized complete block design with four replications. Treatments included in this study represented the high-label rate of all fungicides registered for use on dollar spot.



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Fungicides were applied at a nozzle pressure of 40 p.s.i. using a CO₂ pressurized boom sprayer equipped with two XR Teejet 8005 VS nozzles. Fungicides were agitated by hand and applied in the equivalent 2 gallons of water per 1000 ft² on June 16th and June 30th, 2004. At the time of initial fungicide application, there were approximately five dollar spots per plot. The number of dollar spots per plot was recorded on July 14th, July 25th, August 2nd, and August 17th. The data was subjected to an analysis of variance to determine statistical differences between treatments (see table).

There were significant differences in dollar spot control efficacy between the fungicides tested. Also, there were marked differences in the duration of dollar spot control afforded by individual fungicides.

2004 Ratings of Dollar Spots per Plot at the OJ Noer Facility, Verona, WI.

Treatments	Rate	Mean Patches Per Plot*			
		July 14	July 25	August 2	August 17
1 Untreated Control		5.5	14.3	23.5	26.0
2 Chipco 26GT	4.00 FL OZ/M	0.3	9.8	26.8	29.5
3 Emerald	0.18 OZ/M	0.0	0.0	0.3	0.8
4 Banner MAXX	2.00 FL OZ/M	0.3	1.0	4.8	7.0
5 Spotrete	5.00 OZ/M	6.8	14.8	24.0	25.5
6 3336F	4.00 FL OZ/M	0.3	1.8	5.5	9.5
7 Curalan EG	1.00 OZ/M	0.0	5.0	16.5	23.5
8 Revere 4000	3.00 FL OZ/M	3.5	14.5	23.5	24.3
9 Fore Rainshield	8.00 OZ/M	6.5	16.8	24.5	36.3
10 Daconil Ultrex	5.00 OZ/M	4.0	13.5	22.8	28.0
11 Rubigan AS	1.50 FL OZ/M	3.0	8.3	11.0	12.5
12 Eagle	1.20 OZ/M	0.3	0.0	0.3	0.3
13 Bayleton	1.00 OZ/M	0.8	2.5	5.3	4.5
LSD (P=.05)		3.27	6.88	11.52	12.97

* If the difference of two individual treatment means is greater than the LSD, the two treatments are statistically different (P=.05).

Five of the fungicide treatments, namely Spotrete (thiram), Revere 4000 (PCNB), Fore Rainshield (mancozeb), Daconil Ultrex (chlorothalonil), and Rubigan AS (fenarimol) were not statistically dif-

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ferent from control plots throughout the experiment. Since we have not previously noticed any sign of resistance to these fungicides in our plots, lack of efficacy is probably due to the chemical properties of the fungicide, and not fungicide resistance. Because of this, these fungicides would be poor choices to be used singularly for extended or curative dollar spot control program.

The remaining fungicides tested controlled dollar spot to an acceptable level (one dollar spot or less per plot) at least 14 days following the last fungicide application. After 25 days from the last fungicide application, Chipco 26GT (iprodisone) was not statistically different from untreated plots. Also, Bayleton (tridimefon), Curalan EG (vinclozolin), and 3336F (thiophanate-methyl), had statistically less disease than the untreated control, but no longer pro-

vided acceptable control. On day 33 after treatment, Banner Maxx no longer provided acceptable control, but was still significantly better than untreated plots. Two fungicide treatments provided excellent control with less than one dollar spot per plot 48 days after the last treatment. These treatments were Emerald (boscalid) and Eagle (myclobutanil). Emerald is a newly registered fungicide that is labeled for dollar spot and bentgrass dead spot whereas Eagle is a sterol biosynthesis inhibiting fungicide (a.k.a. DMI or SI) that is labeled to control over a dozen turfgrass diseases.

It is evident from this study that there are significant differences in the efficacy of particular fungicides in controlling dollar spot. Additionally, it is evident that variability exists with respect to the longevity of control afforded by

fungicides labeled for use on dollar spot. Longevity is just one factor when determining which fungicide to use. Other factors that are important when choosing the best fungicide for your needs include the fungicide's cost, spectrum of control, chemical family, mode of action, safety, and formulation.

This information is not intended to advocate the repeated use of one fungicide. Multiple consecutive applications of fungicides with the same mode of action greatly increase the risk of fungicide resistance development by target and non-target pathogens. It should be stressed that the data presented in this article is preliminary and is based on only one year's field data. This experiment and other similar studies will be repeated in the summer of 2005 to confirm the accuracy of these results. ♣

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