



TURFGRASS MATTERS

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Alternative Chemicals for Dollar Spot Suppression On Golf Course Turf

By Dr. Peter Dernoeden

University of Maryland

Nationally, more dollars are spent on fungicides to control dollar spot (*Sclerotinia homoeocarpa*) than any other turf disease. Dollar spot historically was mostly a spring and early summer disease in Maryland. Today, dollar spot can be active from late April to early December and severe summer outbreaks are common in Maryland. The reason for this dramatic change in the incidence and severity of dollar spot is not clearly understood, but some reasons include: 1) lower mowing heights, more frequent mowing and the removal of clippings; 2) lower inputs of nitrogen; 3) more frequent night irrigation, which extends leaf wetness duration; 4) planting of very susceptible cultivars such as Crenshaw and SR 1020; and 5) lack of good thatch and soil compaction control programs for fairways and tees. A University of Maryland study also showed that a composted sewage sludge (i.e., ComPro), a product used on area fairways to improve soil properties, can greatly intensify dollar spot when applied routinely.

Fungicides are the primary means of providing effective dollar spot control. Fungicides are expensive and there are additional costs for handling and applying these materials. We do know of several cultural approaches that help to suppress, but not eliminate, the need for fungicides. The following cultural approaches that significantly reduce dollar spot pressure include: 1) mowing early in the morning to remove leaf surface exudates; 2) poling or dragging to disperse leaf surface exudates on mornings when turf is not mowed; 3) foliar or spoon-feeding with low rates of water soluble nitrogen (0.1 to 0.125 lb N/1000ft²) on 10 to 14 day intervals; 4) rolling (no more than

three times weekly); 5) avoiding light and frequent nighttime irrigation; 6) raising the mowing height and recycling clippings; 7) controlling thatch and soil compaction; and 8) avoiding planting of susceptible cultivars or planting them in blends with resistant cultivars. Furthermore, the plant growth regulators Trimit and Cutless, and the herbicide Prograss also suppress dollar spot significantly.

In a 2001 routine fungicide trial, we included Primer (wetting agent), Macrosorb and ammonium sulfate to assess their effects on dollar spot. The results of the trial are presented below, but several treatments and rating dates were deleted to conserve space. Turf was Crenshaw creeping bentgrass, which was mowed to fairway height. The plots were rated for percent of plot area blighted by *S. homoeocarpa* on a 0 to 100% scale. Blight ratings exceeding 0.5 and 1.0 % of plot area affected with dollar spot were considered commercially unacceptable for putting green and fairway turf, respectively. The application dates of all treatments are footnoted in the data table. Dollar spot first became active in late April. The disease, however, did not progress during the entire month of May. During May and early June, trace amounts of dollar spot were evident in most treated and untreated plots (data not shown). Dollar spot became more active about mid-June and remained moderately severe to severe in July and August.

It is important to note that all treatments were last applied on 2 July. During the low disease pressure period from 11 June to 15 July, all fungicide treatments provided acceptable control (all data not shown). Primer and Macrosorb reduced dollar spot on most

dates between 11 June and 23 July. Primer provided commercially acceptable dollar spot reduction from 11 June to 15 July and continued to reduce dollar spot significantly when compared to the untreated control as late as 13 August. Ammonium sulfate reduced dollar spot on 11 June, and 15 and 30 July when compared to the control, but dollar spot levels generally were unacceptable. Three chlorothalonil formulations (Echo 720F, Echo 90DF and Daconil Ultrex) were compared. All chlorothalonil formulations provided equivalent dollar spot control between 11 June and 23 July. On 20 July (18 days since last applied) the Echo 90DF lost its residual effectiveness and by 13 August there was more dollar spot in Echo 90DF-treated plots, when compared to plots treated with Echo 720F and Daconil Ultrex. Echo 720F and Daconil Ultrex provided an equivalent level of dollar spot control on all rating dates. Eagle and Manhandle (Eagle G) provided equivalent dollar spot control from 11 June to 15 July. By 27 July (25

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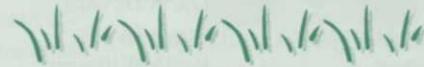
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days since last applied), Manhandle had lost its residual effectiveness, and by 30 July dollar spot levels in Manhandle-treated plots were equivalent to the untreated control. Eagle (0.5 oz, 14-day interval and 1.0 oz, 28-day interval) lost residual effectiveness on 6 and 13 August, respectively.

The dramatic reduction in dollar spot with Primer was unexpected. It is theorized that Primer helped to suppress dollar spot by reducing leaf wetness duration, but other factors may have been involved. Because of these promising results, Primer will be further evaluated in 2002. We are grateful to the Mid-Atlantic Association of Golf Course Superintendents, Aquatrols, and Nutramax Labs, Inc. for providing funding in support of this and other studies. In this study, Primer and other non-fungicide materials (including Trimmit, Macrosorb, urea, ammonium sulfate, Lesco's 12-0-0 Plus Iron and Micronutrients) will be applied alone or in tank-mixes with Primer. Daconil Ultrex will serve as a standard for comparison. Unlike the 2001 study, the Primer rate will be reduced from 3.0 to 2.0 fl. oz/1000ft² (as specified by the label for fairways) and the materials will be applied in 50 gallons of water per acre rather than the 109 gallons used in the 2001 fungicide trial. Hopefully, treatments will be identified that reduce dollar spot severity and thereby help reduce the rate and frequency of fungicide applications. Dollar spot suppression and control in Crenshaw creeping bentgrass with fungicides, Primer and Macrosorb, College Park, MD, 2001.

Support Turfgrass Field Days



July 24

University of Maryland
Paint Branch Turfgrass Research Facility
College Park, Maryland

For more information contact:

Dr. Peter Dernoeden

301-405-1337 pd9@umail.umd.edu

July 30-31

Virginia Tech University
Blacksburg, VA

For more information contact:

Dr. Dave Chalmers

540-231-9738 chalmers@vt.edu

Treatment and rate/1000 sq ft*	Spray	% of plot area blighted								
	Interval (days)	25 Jun	2 Jul	9 Jul	15 Jul	23 Jul	30 Jul	6 Aug	13 Aug	20 Aug
Primer 100 L 3.0 fl oz	14	0.5 cde**	0.7 de	0.5 de	0.4 c-f	1.6 bcd	2.0 cd	7.5 bc	22.3 b	33.3 a-d
Macrosorb 2-0-0 2.0 fl oz	14	0.8 bcd	1.4 bcd	1.3 bcd	1.0 bcd	3.3 bc	5.8 abc	13.3 ab	29.5 ab	31.3 a-d
Amm. Sulfate 21-0-0 2.0 oz	14	1.2 abc	3.6 ab	1.9 abc	1.4 b	4.5 ab	5.0 bc	16.0 ab	31.0 a	42.0 ab
Echo 720F 3.6 fl oz	14	0.0 f	0.0 f	0.0 g	0.0 f	0.1 e	0.4 ef	0.5 fg	2.9 e	8.5 g
Echo 90DF 3.0 oz	14	0.2 ef	0.1 ef	0.1 efg	0.1 f	0.5 de	1.3 de	3.0 cde	9.3 cd	20.5 b-f
Daconil Ultrex 82.5WDG 3.2 oz	14	0.1 ef	0.0 f	0.0 g	0.0 f	0.1 e	0.3 ef	0.7 efg	1.6 e	7.3 g
Eagle 40WP 0.5 oz	14	0.1 ef	0.0 f	0.0 g	0.0 f	0.1 e	0.2 ef	1.0 def	8.5 cd	20.5 a-e
Eagle 40WP 1.0 oz	28	0.0 f	0.0 f	0.0 g	0.0 f	0.0 e	0.1 f	0.2 fg	2.0 e	10.8 efg
Manhandle 6.47G 6.4 oz	14	0.3 def	0.3 ef	0.1 efg	0.3 ef	5.3 bc	8.8 abc	15.3 ab	35.8 a	48.3 a
Untreated	--	3.1 a	6.6 a	3.6 a	6.6 a	10.5 a	14.0 a	25.3 a	45.8 a	44.8 abc

*Treatment on the 14-day interval were applied 8 and 23 May; 4 and 18 June; and 2 July.

Treatment on the 28-day interval were applied 8 May, 4 June and 2 July.

**Means in a column followed by the same letter are not significantly different at $P=0.05$ according to the least significant difference t-test.