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**From:** K-State turf information [K-STATE\_TURF@LISTSERV.KSU.EDU] on behalf of Megan Kennelly [kennelly@KSU.EDU]  
**Sent:** Sunday, February 15, 2009 10:10 AM  
**To:** K-STATE\_TURF@LISTSERV.KSU.EDU  
**Subject:** [K-STATE\_TURF] K-State Turf, dollar spot information  
**Attachments:** dollarspot.pdf

Hello,

I'm attaching a pdf file with some information from our summer 2008 trials for dollar spot management in putting green height creeping bentgrass. It is similar to the tall fescue-brown patch file I sent a few weeks ago--you should be able to click through to see all the pages (slides).

For more information on dollar spot control, you can check out this website:

<http://www.oznet.ksu.edu/library/plant2/EP131.pdf>

The focus is on greens, but much of the information could be translated to fairways, and the part about the biology of the fungus may be of interest to lawn/landscape as well.





On dewy mornings, a cottony white mycelium is sometimes visible. These are fungal threads growing from leaf to leaf.

Dollar spot trial, 2008.  
KSU Rocky Ford Turf Research Center

Cato-Crenshaw creeping bentgrass, putting green height

Individual spray plots were 4 x 5 feet, with four replications for each treatment

The first applications were on May 20, and the final treatment was on 30 July. After that the trial was ended due to some scalping on the greens.

We continued to rate disease for about 2 more months to observe the residual disease control.

Disease was rated by estimating the % of each plot affected by dollar spot symptoms

## Several conventional fungicides were tested in the trial

All the products reduced disease compared to the untreated. On 16 September, about 6 weeks after the final application, these products still significantly suppressed dollar spot compared to the untreated.

*(In one column, treatments with a letter (abc) in common are not statistically different).*

<b>Material</b>	<b>Active ingredient</b>	<b>Oz/ 1000 sq ft</b>	<b>Spray interval (days)</b>	<b>% disease 15 Jul</b>	<b>% disease 16 Sep</b>
Trinity	triticonazole	1.00	14	0.0 a	3.0 ab
Trinity	triticonazole	1.50	21	0.0 a	3.0 ab
Emerald	boscalid	0.13	13	0.0 a	1.3 a
Emerald	boscalid	0.18	21	0.0 a	1.3 a
Spectro	thiophanate-methyl + chlorothalonil	4.00	14	0.0 a	3.0 ab
Cleary 26/36	thiophanate-methyl + iprodione	3.00	14	0.0a	4.0 b
Cleary 3336 F	thiophanate-methyl	3.00	14	0.0a	5.8 b
Untreated	-----	-----	-----	17.0 b	22.0 c

We also tested several biological control products. Ecoguard contains some nitrogen, so we included a “fertility check” with the equivalent amount of nitrogen. Actinovate was applied with the wetting agent Revolution, so we also included Revolution by itself. The treatments are listed here:

<b>Material</b>	<b>Active ingredient</b>	<b>Oz/ 1,000 sq ft</b>	<b>Spray interval (days)</b>
Ecoguard	<i>Bacillus lichiniformis</i>	20	14
Ecoguard	<i>Bacillus lichiniformis</i>	20	7
Actinovate	<i>Streptomyces lydicus</i>	0.27	14
Actinovate	<i>Streptomyces lydicus</i>	0.27	7
Endofine	<i>Clonostachys rosea</i>	1.0	14
Endofine	<i>Clonostachys rosea</i>	2.0	14
Contans	<i>Coniothyrium minitans</i>	2.25	14
Contans	<i>Coniothyrium minitans</i>	1.5	14
Revolution	(wetting agent)	6.0	7
Urea	(0.14 pounds N/1000)	2.2	7
Untreated			

\*On June 2, none of these materials reduced disease compared to the untreated.

\*On July 15, the 7-day application of Ecoguard (pink) reduced disease compared to the untreated control *and* compared to the urea-only control (blue).

\*Though not statistically significant, urea alone did reduce disease compared to the untreated on 15 July. Dollar spot tends to be more severe when nitrogen is low.

Material	Active ingredient	Oz/ 1,000 sq ft	Spray interval (days)	% disease 2 Jun	% disease 15 Jul
Ecoguard	<i>Bacillus lichiniformis</i>	20	14	13.8 c	6.5 b
Ecoguard	<i>Bacillus lichiniformis</i>	20	7	17.5 c	<b>2.0 a</b>
Actinovate	<i>Streptomyces lydicus</i>	0.27	14	15.0 c	14.0 b
Actinovate	<i>Streptomyces lydicus</i>	0.27	7	13.0 c	9.5 b
Endofine	<i>Clonostachys rosea</i>	1.0	14	16.3 c	9.5 b
Endofine	<i>Clonostachys rosea</i>	2.0	14	13.8 c	8.3 b
Contans	<i>Coniothyrium minitans</i>	2.25	14	16.3 c	13.3 b
Contans	<i>Coniothyrium minitans</i>	1.5	14	18.0 c	14.5 b
Revolution	(wetting agent)	6.0	7	13.8 c	22.5 b
Urea	(0.14 pounds N/1000)	2.2	7	10.0 c	<b>6.8 b</b>
Untreated				11.3 c	17.0 b

*In a given column, treatments that share a common letter (a, b, etc) are NOT statistically different from each other.*

Material	Oz/ 1000 sq feet	Spray Interval (days)	% Disease 5 Aug	% Disease 21 Aug
Ecoguard	20	14	2.3 b	3.0 bc
Ecoguard	20	7	0.8 b	3.8 bcd
Actinovate	0.27	14	9.5 c	13.3 de
Actinovate	0.27	7	5.8 c	11.5 de
Endofine	1.0	14	1.8 b	6.8 bcde
Endofine	2.0	14	5.8 c	5.8 bcde
Contans	2.25	14	2.5 bc	5.0 bcde
Contans	1.5	14	8.3 c	17.3 e
Revolution	6.0	7	3.3 c	6.0 bcde
Urea	2.2	7	2.5 bc	2.8 b
Untreated			7.0 c	8.8 cde

On 5 August, a few of the products reduced disease compared to the untreated. The Ecoguard did *not* perform better than the urea control, though.

On 21 August, urea alone (arrow) reduced disease significantly compared to the untreated control. Dollar spot is more severe under low N