2011 Turf Disease Trials: Anthracnose and Dollar Spot

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Anthracnose

Anthracnose is a common pathogen occurring on annual bluegrass. Twenty two fungicide treatments were evaluated for their ability to control anthracnose preventatively on an annual bluegrass "tee". Inoculation was achieved through core aeration and dragging in order to spread the existing inoculum. The plot was originally established in 2007 from seed with 'Peterson's Creeping' annual bluegrass. Beginning in May 2011, nitrogen was withheld from the turf followed by initiation of fungicide treatments on 1 June 2011 before disease symptoms were present.

Location:	UCR Turf Facility
Soil:	Hanford fine sandy loam amended with sand
Experimental Design:	Completely randomized with 6 replications
Plot Size:	4 ft x 6 ft
Fertility:	Monthly applications of 0.5 lbs/1000 ft^2 of nitrogen through April 2011. No nitrogen was applied from May until 26 August. Turf received 0.2 lbs N/1000 ft^2 using liquid calcium nitrate and again on 11 September.
Application Information:	CO_2 Backpack sprayer TeeJet 8004VS 9" nozzle spacing 12" boom height Speed: 2 mph Output: 87GPA Pressure: 32psi @ tank
Mowing Regime:	0.25 inches 3 days/wk
Irrigation Regime:	Daily according to ET requirements
Data Collection:	Percent disease cover and turf phytotoxicity measured visually
Acknowledgments:	Special thanks to BASF, Syngenta, Valent, DuPont, Bayer, Cleary Chemical, and Crop Production Services for providing fungicides and support

Results:

- ✓ Overall, anthracnose disease pressure was moderate throughout the study area and period with isolated sections where activity was severe and expanding as the summer progressed.

- ✓ Injury (thinning and 10-25% phyto) occurred from treatments 11 (BASF Program 1), 23 (Tourney), and to a lesser extent treatment 22 (Valent Program 1) (data not shown. Injury corresponded to application of the triazole (triticonazole or metconazole) active ingredient in these products or programs.

- ✓ Several fungicides or fungicide programs significantly reduced disease severity compared to the untreated control. Those that resulted in less than 10% disease cover by the end of the experiment included:

    1. Velista + Heritage (0%)
    2. BASF Program 1 (0.8%)
    3. BASF Program 4 (1.7%)
    4. Valent Program 1 (3.3%)
    5. Bayer Program 1 (4.2%)
    6. Bayer Program 3 (5%)
    7. Cleary Program 1 (6.7%)
    8. Velista + Banner Maxx (8.3%)

Anthracnose Fungicide Trial
Plot Map – 12G-4

North

21	8	17	23	4	5	18	6	16	3	5	11	12
7	15	13	17	2	16	9	19	13	14	20	2	20
16	19	17	13	4	9		23	8	2	13	22	22
5	1	8	23	1	11	18	6	21	4	3	23	15
21	17		22	17	6	14	16	12	23	12	7	19
10	21	11	5	3	22	12	1	15	3	4		2
15	1	22	21	1	20	13	16	7	16	4	14	23
13	18	8	11	10	19	2	22	17	20	14	6	8
4	21	15	18	9	10	9	2	3	7	20	10	14
	10	6	12	9	8	19	1	19	18	12	5	14
5	15	18	7	3	6	10	11	7	11		9	20

South (road)

Table 1. Anthracnose cover (0-100%) following application of fungicides. Initial application made on 1 June 2011. Riverside, CA.

Trt	Name	Rate Unit	Interval	6/24/11	7/8/11	7/22/11	8/6/11	8/19/11
1	Untreated Check			15.8 a	20 a	27.2 a	49.2 a	70 a
2	Cleary Program 1		14	4.2 a	6.7 a	3.7 a	4.5 ef	6.7 efg
3	Daconil ACTion	2.7 fl oz/1000 ft2	14	1.7 a	9.2 a	5 a	13 c-f	23.3 c-g
4	Daconil WeatherStik	2.7 fl oz/1000 ft2	14	17.5 a	25.8 a	30.8 a	42.5 ab	58.3 ab
5	EXC948	2.7 fl oz/1000 ft2	14	5 a	6.7 a	9.2 a	14.2 b-f	22.5 c-g
6	Medallion TL	1 fl oz/1000 ft2	14	12.5 a	17.5 a	24.5 a	38.3 abc	54.2 abc
7	Daconil ACTion	3.6 fl oz/1000 ft2	14	8.3 a	6.7 a	10 a	22.5 a-f	20 d-g
8	Daconil WeatherStik	3.6 fl oz/1000 ft2	14	11.7 a	5.8 a	6 a	5.8 def	11.7 d-g
9	EXC948	3.6 fl oz/1000 ft2	14	9.2 a	6.7 a	6.2 a	25.8 a-f	28.3 b-g
10	Medallion TL	1.3 fl oz/1000 ft2	14	8.3 a	14.2 a	20 a	33.3 a-d	43.3 a-d
11	BASF Program 1		21	5.8 a	3.3 a	2.5 a	4.2 ef	0.8 g
12	BASF Program 2		21	13.3 a	10 a	5.8 a	10.8 c-f	18.3 d-g
13	Velista	14 g/1000 ft2	14	14.2 a	9.5 a	8.3 a	18.3 b-f	35.8 b-f

Table 1 (Cont.).

Trt	Name	Rate Unit	Interval	6/24/11	7/8/11	7/22/11	8/6/11	8/19/11
14	Velista	14 g/1000 ft2	14	10.8 a	16.7 a	16.7 a	29.2 a-e	38.3 a-e
	Daconil WeatherStik	3.5 fl oz/1000 ft2						
15	Velista	14 g/1000 ft2	14	13.3 a	2.5 a	3.5 a	6 def	8.3 efg
	Banner Maxx	1 fl oz/1000 ft2						
16	Velista	14 g/1000 ft2	14	6.7 a	4.2 a	4.5 a	6.7 def	0 g
	Heritage	0.2 oz wt/1000 ft2						
17	Bayer Program 1		14	2.5 a	2.5 a	0 a	0 f	4.2 fg
18	Bayer Program 2		14	6.7 a	2 a	10 a	15 b-f	18.3 d-g
19	Bayer Program 3		14	3.3 a	1.7 a	3 a	9.2 def	5 fg
20	BASF Program 3		21	6.7 a	9.2 a	13.3 a	17.5 b-f	17.5 d-g
21	BASF Program 4		21	4.2 a	2.5 a	1.7 a	0.5 ef	1.7 g
22	Valent Program 1		14	17.5 a	9.5 a	12.5 a	15 b-f	3.3 fg
23	Tourney	0.37 oz/1000 ft2	14	13.3 a	6.7 a	15 a	15.8 b-f	20 d-g
	LSD (P=.05)			NS	NS	NS	28.71	32.65
	Standard Deviation			11.52	13.33	18.75	25.11	28.56
	CV			124.69	153.82	180.17	145.37	128.8

Means followed by same letter do not significantly differ according to Fishers Protected LSD (P= 0.05). NS = Not significant.

Table 2. Fungicide Programs for anthracnose. Rates in oz/1000ft2 unless otherwise noted.

14 day intervals

#	1-Jun	15-Jun	1-Jul	14-Jul	28-Jul	11-Aug	25-Aug
2	Torque 0.6 fl oz + Legend 3 floz	Affirm 0.9 oz + Spectro 3.6 oz	Torque 0.6 fl oz + Legend 3 fl oz	Affirm 0.9 oz + Spectro 3.6 oz	Torque 0.6 fl oz + Legend 3 fl oz	Affirm 0.9 oz + Spectro 3.6 oz	Torque 0.6 fl oz + Legend 3 floz
17	Reserve 4.8 SC 3.6 fl oz	Reserve 4.8 SC 3.6 fl oz	Daconil WeatherStik 3.2 fl oz + Insignia 0.9 oz	Reserve 4.8SC 3.6 fl oz	Daconil WeatherStik 3.2 fl oz + Insignia 0.9 oz	Reserve 4.8SC 3.6 fl oz	Reserve 4.8SC 3.6 fl oz
18			Daconil WeatherStik 3.2 fl oz + Chipco Signature 4 oz	Reserve 4.8 SC 3.6 fl oz	Daconil WeatherStik 3.2 fl oz + Chipco Signature 4 oz	Reserve 4.8SC 3.6 fl oz	Reserve 4.8SC 3.6 fl oz
19	Reserve 4.8 SC 3.6 fl oz	Reserve 4.8 SC 3.6 fl oz	Daconil WeatherStik 3.2 fl oz + Insignia 0.9 oz	Reserve 4.8 SC 3.6 fl oz	Daconil WeatherStik 3.2 fl oz + Insignia 0.9 oz	Daconil WeatherStik 3.2 fl oz + Chipco Signature 4 oz	Reserve 4.8SC 3.6 fl oz
22	Tourney .37 oz	Insignia 0.9 oz	Tourney .37 oz	Insignia 0.9 oz	Signature 4 oz + Daconil 1000 3.2 oz	Tourney .37 oz	

21 day intervals

#	1-Jun	23-Jun	14-Jul	4-Aug	25-Aug
11	Trinity 2 fl oz	Insignia SC 0.7 fl oz	Trinity 2 fl oz	Insignia SC 0.7 fl oz	Trinity 2 fl oz
12	Trinity 1fl oz	Insignia SC 0.7 fl oz	Trinity 1 fl oz	Insignia SC 0.7 fl oz	Trinity 1 fl oz
20	Curalan Gold 2.85 fl oz	Trinity 1 fl oz	Curalan Gold 2.85 fl oz	Insignia SC 0.7 fl oz	Curalan Gold 2.85 fl oz
21	Honor 1.1 oz	Trinity 1 fl oz	Honor 1.1 oz	Trinity 1 fl oz	Honor 1.1 oz

Dollar Spot

Dollar spot (*Sclerotinia homoeocarpa*) is one of the most economically important diseases on turfgrasses under high cultural intensity. Twenty two fungicide treatments were evaluated for their ability to control dollar spot on creeping bentgrass (*Agrostis stolonifera)*. Inoculation was achieved through core aeration and dragging in order to spread the existing inoculum. The green was a 90/10 mix of creeping bentgrass and annual bluegrass, established in 2005 from sod.

Location: UCR Turf Facility

Soil: Hanford fine sandy loam amended with sand

Experimental Design: Completely randomized with 6 replications

Plot Size: 4 ft x 6 ft

Fertility: Monthly applications of 0.5 lbs/1000 ft^2 of nitrogen through April 2011. No nitrogen was applied during study.

Application Information:
CO_2 Backpack sprayer
TeeJet 8004VS
9" nozzle spacing
12" boom height
Speed: 2 mph
Output: 87GPA
Pressure: 32psi @ tank

Mowing Regime: 0.25 inches 3 days/wk

Irrigation Regime: Daily according to ET requirements

Data Collection: Percent disease cover and turf phytotoxicity measured visually

Acknowledgements: Special thanks to BASF, Syngenta, Valent, DuPont, Bayer, Cleary Chemical, and Crop Production Services for providing fungicides and support

Results:

Disease pressure on the study area was medium to low severity due to high heat and low humidity during most of the summer. Consequently, most all fungicides or fungicide programs provided effective control of dollar spot throughout the study period. There was no turf injury from any of the treatments.

Dollar Spot Fungicide Trial
Plot Map - 12G-6

North

21	8	17	23	4	5	18	6	16	3	5	11	12
7	15	13	17	2	16	9	19	13	14	20	2	20
16	19	17	13	4	9		23	8	2	13	22	22
5	1	8	23	1	11	18	6	21	4	3	23	15
21	17		22	17	6	14	16	12	23	12	7	19
10	21	11	5	3	22	12	1	15	3	4		2
15	1	22	21	1	20	13	16	7	16	4	14	23
13	18	8	11	10	19	2	22	17	20	14	6	8
4	21	15	18	9	10	9	2	3	7	20	10	14
	10	6	12	9	8	19	1	19	18	12	5	14
5	15	18	7	3	6	10	11	7	11		9	20

South (road)

Table 3. Dollar spot cover (0-100%) following application of fungicides. Initial application made on 1 June 2011. Riverside, CA.

Trt	Name	Rate	Interval	6/24/11	7/8/11	7/22/11	8/6/11	8/19/11
1	Untreated Check			38.3 a	60.8 a	47.5 a	44.2 a	51.7 a
2	Velista	8.4 g/1000 ft2	14	0 b	0 c	0 c	0 b	0 b
3	Velista	14 g/1000 ft2	14	0 b	0 c	0 c	0 b	0 b
4	Tourney	10.5 g/1000 ft2	14	0.8 b	1.7 bc	0 c	0 b	0 b
5	S-2200	0.5 fl oz/1000 ft2	14	0 b	0 c	0 c	0 b	0 b
6	S-2200	0.4 fl oz/1000 ft2	14	2.5 b	0 c	0 c	0 b	0 b
	Tourney	7.95 g/1000 ft2	14					
7	Tourney	0.1 oz wt/gal	14	0 b	3.3 bc	0 c	2.5 b	3.3 b
8	V-10277	2.5 lb/1000 ft2	14	3.3 b	5.8 b	3.3 bc	4.2 b	0 b
9	Interface	4 fl oz/1000 ft2	14	0 b	0 c	1.7 bc	0 b	0 b
10	Daconil ACTion	2.7 fl oz/1000 ft2	14	0 b	0 c	0 c	0 b	0 b
11	Daconil WeatherStik	2.7 fl oz/1000 ft2	14	3.3 b	3.3 bc	8.3 b	3.3 b	0 b
12	BASF Program 1		21	0 b	0 c	0 c	0 b	0 b
13	BASF Program 2		21	0 b	0 c	0 c	0 b	0 b
14		0.157 fl oz/1000 ft2	14	0 b	0 c	0 c	2.5 b	0 b
15		0.13 oz wt/1000 ft2	14	0 b	0 c	0 c	0 b	0 b
16		0.211 fl oz/1000 ft2	21	0 b	0 c	0 c	0 b	0 b
17		0.18 oz wt/1000 ft2	21	1.7 b	0 c	0 c	0 b	0 b
18		0.262 fl oz/1000 ft2	28	0 b	0 c	0 c	0 b	0 b
19		0.18 oz wt/1000 ft2	28	0.8 b	0 c	0 c	0 b	0 b
20		0.34 fl oz/1000 ft2	21	0.8 b	0 c	0 c	0 b	0 b
21		0.84 oz wt/1000 ft2	21	0 b	0 c	0 c	1.7 b	0 b
22		0.472 fl oz/1000 ft2	28	0.8 b	0 c	0 c	0 b	0 b
23		1.1 oz wt/1000 ft2	28	0 b	0 c	0 c	0 b	0 b
	LSD (P=.05)			7.91	4.64	7.86	8.75	7.63
	Standard Deviation			6.92	4.06	6.88	7.65	6.67
	CV			303.09	124.38	259.98	301.7	278.94

Means followed by same letter do not significantly differ according to Fisher's Protected LSD (P=0.05)

Table 4. BASF Programs for dollar spot. Rates in oz/1000 ft^2 unless otherwise noted.

Trt	1-Jun	23-Jun	14-Jul	4-Aug	25-Aug
11	Trinity 2 floz	Insignia SC 0.7 fl oz	Trinity 2 fl oz	Insignia SC 0.7 fl oz	Trinity 2 fl oz
12	Trinity 1floz	Insignia SC 0.7 fl oz	Trinity 1 fl oz	Insignia SC 0.7 fl oz	Trinity 1 fl oz
20	Curalan Gold 2.85 fl oz	Trinity 1 fl oz	Curalan Gold 2.85 fl oz	Insignia SC 0.7 fl oz	Curalan Gold 2.85 floz
21	Honor 1.1 oz	Trinity 1 fl oz	Honor 1.1 oz	Trinity 1 fl oz	Honor 1.1 oz

Table 5. Materials Tested in 2011.

Fungicide	Manufacturer	Common Names	Notes
Affirm 11.3WDG	Cleary Chemical	polyoxin-D	A new formulation of polyoxin-D similar to Endorse.
Banner Maxx II	Syngenta	propiconazole	
Curalan Gold	BASF	Vinclozolin	
Daconil ACTion	Syngenta	chlorothalonil + Acibenzolar-S-methyl	
Daconil WeatherStik	Syngenta	Chlorothalonil	
Heritage	Syngenta	Azoxystrobin	
Honor	BASF	Pyraclastrobin + boscalid	
Insignia SC	BASF	pyraclastrobin	
Interface 2.27SC	Bayer	iprodione + trifloxystrobin	A premix of the active ingredients in 26GT and Compass with StressGard pigment.
Legend	Cleary Chemical	Chlorothalonil	
Medallion TL	Syngenta	fludioxonil	
Reserve 4.8SC	Bayer	chlorothalonil + triticonazole	A premix of the active ingredients in Daconil and Triton FLO with StressGard pigment.
Signature	Bayer	fosetyl-Al	A phosphonate fungicide with StressGard pigment.
Spectro	Cleary Chemical	Chlorothalonil + Thiophanate methyl	
Torque	Cleary Chemical	tebuconazole	A new DMI fungicide.
Tourney	Valent	metconazole	A new DMI fungicide.
Trinity	BASF	triticonazole	A new DMI fungicide with StressGard pigment..
Velista	DuPont	penthiopyrad	A new SDHI fungicide in the same class as Emerald and ProStar with a different disease spectrum.