Evaluation of Fungicides for Control of Rapid Blight Disease on Putting Greens

Rapid Blight disease affecting annual bluegrass on the former 10th green on the Diablo Course at Ridgemark GCC, Hollister, CA. Unfortunately, drought and dwindling water resources led to recent closure of 18 holes including this one. However, this provided a unique opportunity to maximize disease pressure to evaluate fungicide efficacy. Photo taken 3 October 2014.

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Evaluation of Fungicides for Control of Rapid Blight Disease on Putting Greens

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The Bottom Line: Sixteen fungicides/fungicide combinations were tested for control of rapid blight disease on a putting green at Ridgemark Golf & Country Club in Hollister, CA. History of disease and implementation of cultural practices that incite pressure resulted in greater than 50% rapid blight cover by the end of the study. Several fungicide treatments reduced rapid blight disease compared to the untreated control; however, the combination of A20235 + A20964, and Velista (penthiopyrad) with or without Secure (fluazinam), all from Syngenta, provided the lowest disease cover (<10%) by the end of the study.

Introduction:

Rapid blight, caused by *Labyrinthula terrestris*, is an increasingly serious disease of *Poa trivialis*, *Poa annua*, and perennial ryegrass turf. Disease is usually associated with poor quality irrigation water with elevated sodium chloride, and severity on *Poa annua* putting greens in California typically manifests in late summer as salts accumulate in the turf profile. Furthermore, cultivation practices aimed at improving putting conditions can incite disease activity by compounding summer stress of host species. Historically, few fungicides have provided effective control of rapid blight, but include pyraclostrobin (Insignia), trifloxystrobin (Compass), and mancozeb (Fore).

Objective:

1. Evaluate new and existing fungicides for control of rapid blight disease on a *Poa*/bentgrass putting green.

Study Conditions:

Study Period:	11 July (initial treatment) to 2 October (final rating) 2014
Site:	Former #10 green, Diablo Course
Species:	*Poa annua*/creeping bentgrass
Rootzone:	Sand
Mowing Height:	0.100-0.135 (after cultivation) inches
Fertility:	0.1 lbs N/M/2 wks (13-0-44)
Cultivation:	Aerated/topdressed twice using 3/8-1/2-inch tines; rolled twice/wk; verticutting 8 times during study
Irrigation:	To induce stress
Design:	Randomized complete block; 4 Replications
Plot size:	4 ft X 6 ft
Sprayer:	CO_2-powered backpack; 8003VS nozzles; 2 gal/M
Ratings:	Disease cover (0-100%) rated bi-weekly

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Results:

- ✓ Disease cover ranged from 0-20% at the beginning of the study on 11 July 2014. However, subsequent fertilization and moderate temperatures resulted in turf recovery and minimal disease activity (<5% cover) during the subsequent three rating dates (data not shown and not significant).

- ✓ Inducing stress by lowering height of cut, increasing verticutting/aeration/topdressing/rolling, and reducing irrigation resulted in escalating rapid blight pressure and significant fungicide treatment differences starting 5 September 2014 (Table 1).

- ✓ Several fungicide treatments reduced rapid blight disease compared to the untreated control; however the combination of A20235 + A20964, and Velista with or without Secure (all from Syngenta) provided the lowest disease cover by the end of the study (Table 1 and Figs. 1 and 2).

- ✓ Secure (fluazinam) applied alone provided moderate disease control (Table 1). Although disease control was not improved when tank-mixed with Velista, tank-mixing Secure with Heritage improved disease control compared to Heritage alone.

- ✓ This study provided a unique opportunity to test fungicides under extreme disease pressure not normally possible on a golf course that is open for play. Disease pressure was due in large part to the employment of cultural practices that are widely known to be avoided during the summer when there is potential for rapid blight disease. Fungicides that normally provide the best control of rapid blight

disease (e.g., pyraclostrobin, mancozeb, trifloxystrobin) did not sustain disease control with mounting pressure in this study. Perhaps under normal circumstances where best disease management practices are employed, these fungicides would have performed according to expectations.

- ✓ Nevertheless, results from this study and from our rapid blight study in 2012 identified Velista (penthiopyrad) as an important fungicide for inclusion in rapid blight disease management programs. Registration of Velista in California is expected in 2015.

- ✓ A20964 also performed well in the 2014 anthracnose fungicide trial in Riverside, CA (data not shown). A20235 and A20964 are under consideration for further development.

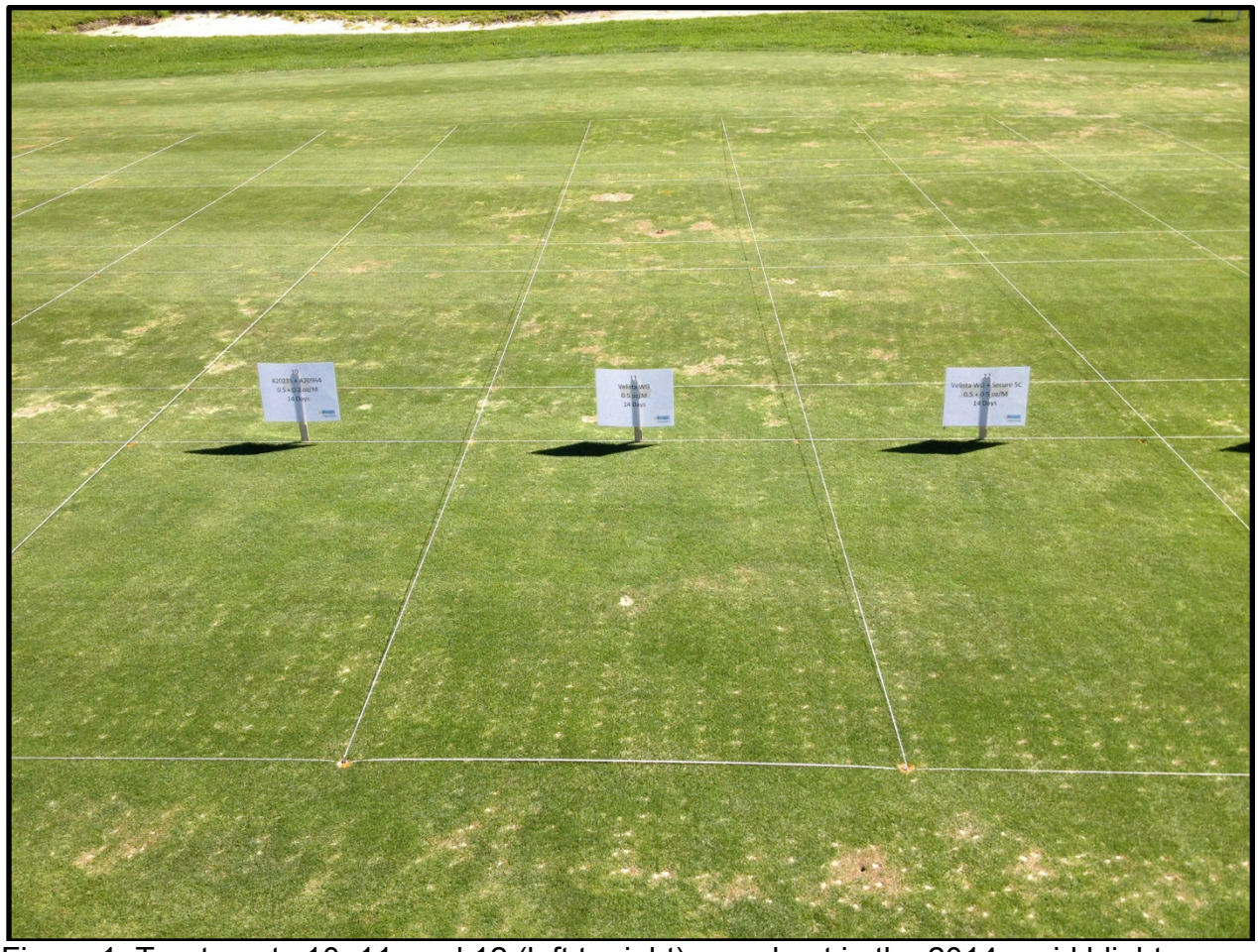

Figure 1. Treatments 10, 11, and 12 (left to right) were best in the 2014 rapid blight fungicide trial. Hollister, CA. Photo taken on 3 October 2014.

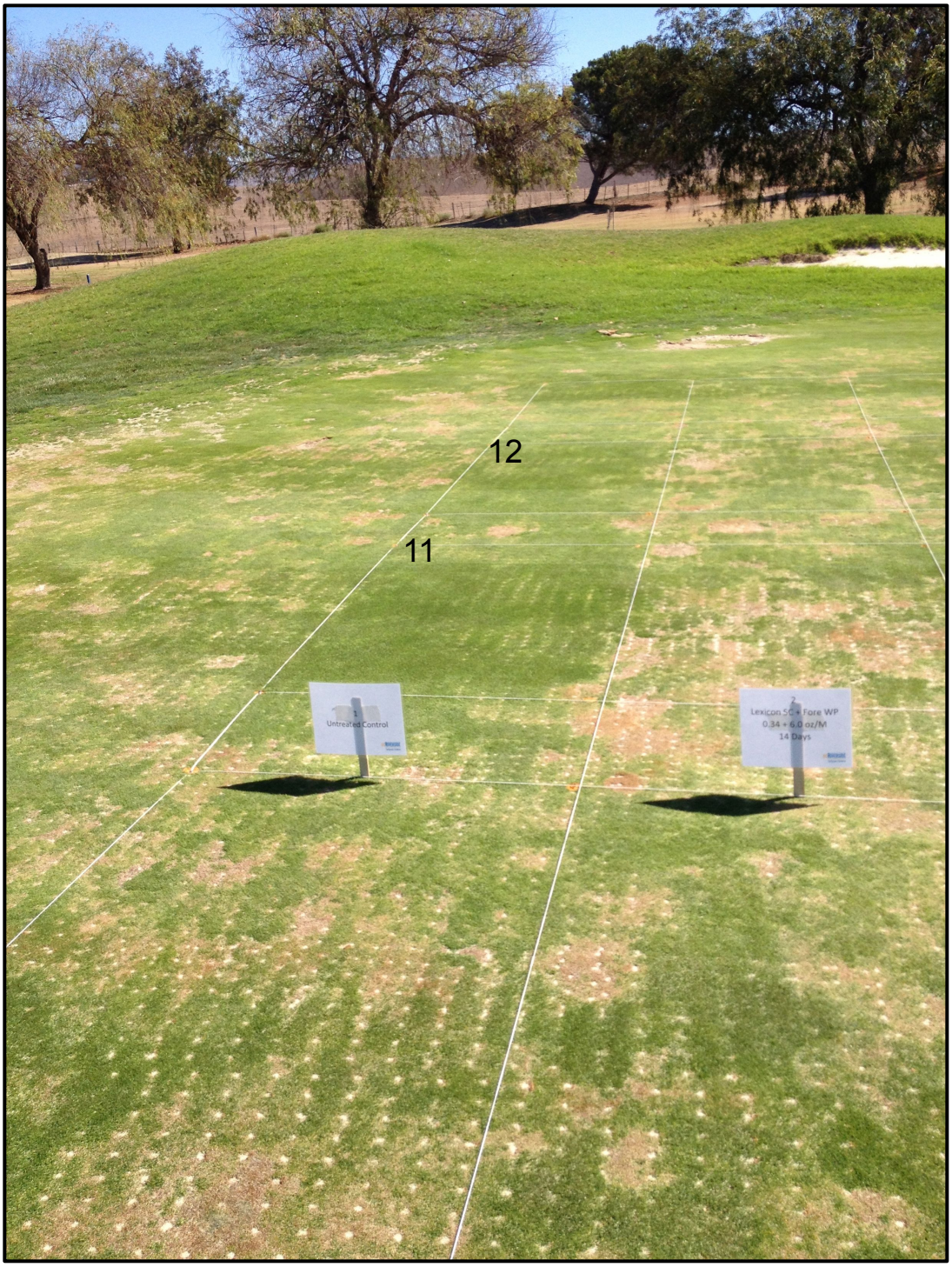

Figure 2. Treatments 11 and 12 containing Velista held up to considerable rapid blight disease pressure. Hollister, CA. Photo taken on 3 October 2014.

Table 1. Effects of fungicide treatments on Rapid Blight (RB) disease cover (0-100%) on a *Poa annua* putting green. 2014. Hollister, California.

No.	Product	Rate (oz/M)	Timing	RB Cover (%) 5 Sep 2014	RB Cover (%) 19 Sep 2014	RB Cover (%) 2 Oct 2014
1	Control	--	--	21 a	40 ab	56 ab
2	Lexicon SC	0.34	ABCDEF			
2	Fore WP	6.0	ABCDEF	4 de	26 c	34 cde
3	Lexicon SC	0.47	ABCDEF	7 cde	38 ab	50 abc
4	Lexicon SC	0.47	ACE			
4	Fore WP	8.0	BDF	5 cde	21 cd	20 efg
5	Secure SC	0.5	ABCDEF	3 de	14 de	20 efg
6	A20235	0.5	ABCDEF	2 e	2 f	16 efg
7	Heritage WG	0.2	ABCDEF	16 ab	40 ab	46 abc
8	A20964	0.2	ABCDEF	5 cde	10 def	24 def
9	Secure SC	0.5	ABCDEF			
9	Heritage WG	0.2	ABCDEF	1 e	4 ef	16 efg
10	A20235	0.5	ABCDEF			
10	A20964	0.2	ABCDEF	1 e	1 f	2 g
11	Velista WG	0.5	ABCDEF	6 cde	1 f	7 fg
12	Velista WG	0.5	ABCDEF			
12	Secure SC	0.5	ABCDEF	4 de	1 f	9 fg
13	Insignia SC	0.4	ABCDEF	8 cde	25 c	35 cde
14	Interface	5.0	ABCDEF			
14	Fore WP	6.0	ABCDEF	8 cde	12 def	42 bcd
15	BCS-CN88460	0.16	ABCD			
15	Fore WP	6.0	ABCDEF	10 bcd	30 bc	48 abc
16	BCS-CN88460	0.12	ABCD	12 bc	40 ab	58 ab
17	BCS-CN88460	0.24	ABCD	22 a	46 a	65 a

Means followed by the same letter are not significantly different (α = 0.05).

Application Timing:
A = 11 July 2014
B = 25 July 2014
C = 7 August 2014
D = 21 August 2014
E = 5 September 2014
F = 19 September 2014