Management of Rapid Blight Disease on Putting Greens in Southern California

Rapid Blight disease affecting annual bluegrass on the practice putting green at Hidden Valley Golf Club, Norco, CA. Symptoms were more severe on this area of the study that received bi-weekly verticutting, sand topdressing, and dragging vs. the area in the background that received topdressing and no dragging. Photo taken 21 Sep 2012.

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Management of Rapid Blight Disease on Putting Greens in Southern California

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The Bottom Line: Rapid blight disease activity was sporadic due in part to distribution of *Poa annua* on the putting green and environmental conditions. Rapid blight was most severe on the area of the green that received more aggressive cultivation practices (light verticutting, sand topdressing, dragging). In contrast, light sand topdressing without dragging incited less disease and thus would be recommended during the summer months on greens with a history of the disease. Pillar G (Insignia) alternated with Fore Rainshield (mancozeb) provided the best overall suppression of rapid blight. Velista (penthiopyrad) appeared to offer the greatest Rapid blight suppression among newer and previously untested fungicides.

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. Few fungicides are effective for control of rapid blight, but include pyraclostrobin (Insignia), trifloxystrobin (Compass), and mancozeb (Fore).

Objectives:

1. Evaluate new and existing fungicides and nutrients for preventative control of Rapid Blight disease on a *Poa*/bentgrass putting green.
2. Evaluate two cultivation strategies for their impact on disease incidence and severity.

Location: Hidden Valley Golf Club, Norco, CA

Site: Practice putting green

Rootzone: Sand

Mowing Height: 0.110-0.125 inches

Fertility: See treatment list

Experimental Design: Randomized Complete Block; 4 replications

Plot Size: 4 ft by 6 ft

Sprayer: Output: 2 gal/1000 ft^2
Nozzles: TeeJet 8004VS nozzles

Study Period: 3 July (first chemical treatments) to 28 Sept. (final rating) 2012

Cultural Practices:

Prior to the study, the normal maintenance regimen on the green included spraying every two weeks with 0.2 - 0.3 lb N/1000ft^2, and 0.4 - 0.6 lbs K/1000ft^2 and Primo Maxx at the high label rate. These practices were stopped during the study period.

Cultivation Treatments:

One area of the green where chemical treatments were applied received double verticutting, light sand topdressing, and dragging on 17 July 2012 and approximately every 2 weeks thereafter during the study. Chemical treatments were also applied to another area of the same green that received light sand topdressing only every two weeks. The entire green was core aerated and topdressed on 9 July 2012.

Data Collected:

Percent *Poa annua* cover (0-100%) at Day 0; Disease Cover (0-100%); Visual Turf Quality (1-9, 9 = best, 6 = minimally acceptable); Electrical conductivity (dS/m); Digital images (overall + individual plots)

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Results:

- ✓ Initial disease activity was observed on 3 August, 28 days after initial chemical treatments. However, greatest activity occurred at the end of August through September.

- ✓ There were significant differences in rapid blight activity between the cultivation practices at three rating dates (Table 1). The more aggressive practice of

verticutting, topdressing, and dragging incited more disease and resulted in higher salinity on one rating date only (Table 2).

- ✓ The only significant differences in rapid blight suppression among the chemical treatments occurred on 30 August and 28 September (final rating date) (Table 3). Although there was appreciable variation in rapid blight disease activity due to *Poa annua* distribution and environmental conditions during the study, the best disease suppression was achieved with the proven rapid blight fungicides: pyraclostrobin, mancozeb, and trifloxystrobin. Mancozeb applied alone provided among the best rapid blight suppression when applications were made on a routine basis. However, protection was short-lived following the final application in late August. A similar observation was made for the treatment combination of PK Plus, Elicitor, and Kelplex. Of the newer fungicides, Velista (penthiopyrad) offered among the best and longest disease suppression; however further testing is needed to confirm activity.

- ✓ Our results confirmed that preventative applications of proper fungicides in conjunction with minimally invasive cultivation practices are key components to managing rapid blight on *Poa annua* putting greens in southern California.

Table 1. Effects of cultivation treatments on rapid blight disease severity averaged over chemical treatments. 2012. Norco, CA.

	Rapid Blight Cover (%)	**Rapid Blight Cover (%)**	**Rapid Blight Cover (%)**
	8/30/12	**9/20/12**	**9/28/12**
Verticut	49.01	67.46	67.15
Non-verticut	36.70	34.26	42.29
LSD (α = 0.05)	**2.43**	**4.07**	**4.13**

Table 2. Effects of cultivation treatments on soil electrical conductivity (EC) averaged over chemical treatments. 2012. Norco, CA.

	Soil EC (dS/m) Mean
Verticut	0.546
Non-verticut	0.456
LSD (α = 0.05)	**0.367**

Table 3. Effects of chemical treatments on rapid blight disease severity averaged over cultivation treatments. 2012. Norco, CA.

No.	Treatment	Company	Formulation	Rate (oz/1000 ft^2)	Applications (d)	Rapid Blight Cover (%) 30 Aug 2012	Rapid Blight Cover (%) 28 Sep 2012
1	Control	--	--	--	--	53.9	51.9
2	PK Plus	Grigg Bros.		6	0,14,28, 42, 56	52.4	67.9
3	Elicitor	Grigg Bros.		2	0,14,28, 42, 56	44.0	63.9
4	PK Plus Elicitor	Grigg Bros. Grigg Bros.		6 2	0,14,28, 42, 56 0,14,28, 42, 56	49.5	64.2
5	PK Plus Kelplex	Grigg Bros. Grigg Bros.		6 2	0,14,28, 42, 56 0,14,28, 42, 56	53.5	68.5
6	PK Plus Elicitor Kelplex	Grigg Bros. Grigg Bros. Grigg Bros.		6 2 2	0,14,28, 42, 56 0,14,28, 42, 56 0,14,28, 42, 56	35.8	58.5
7	N,P,K control	--	--	--	0,14,28, 42, 56	52.2	60.6
8	Secure	Syngenta	4 SC	0.5	0,14,28, 42, 56	46.5	57.0
9	Secure Daconil Action	Syngenta Syngenta	4 SC SC	0.5 3.0	0,14,28, 42, 56 0,14,28, 42, 56	40.5	52.8
10	A12946B	Syngenta		0.5	0,14,28, 42, 56	43.6	61.0
11	Pillar Fore Rainshield	BASF Dow	G 80 WP	3.0 lbs 8.0	0, 28, 56 14, 42	28.5	26.6
12	Insignia	BASF	2 SC	0.7	0, 21, 42	45.1	39.8
13	Insignia Fore Rainshield	BASF Dow	2 SC 80 WP	0.7 8.0	0, 28, 56 14, 42	32.4	47.1
14	Compass Fore Rainshield	Bayer Dow	50 WG 80 WP	0.25 8.0	0,14,28, 42, 56 0,14,28, 42, 56	41.9	44.8
15	Fore Rainshield	Dow	80 WP	8.0	0,14,28, 42, 56	25.5	81.9
16	Velista	DuPont	50 WDG	0.5	0,14,28, 42, 56	41.6	39.4
17	Velista Daconil Ultrex	DuPont Syngenta	50 WDG 82.5 WDG	0.3 3.25	0,14,28, 42, 56 0,14,28, 42, 56	33.1	51.4
18	Velista Insignia	DuPont BASF	50 WDG 2 SC	0.3 0.5	0,14,28, 42, 56 0,14,28, 42, 56	36.6	60.5
19	UCR001	Exp.		0.31	0,14,28, 42, 56	53.1	45.0
20	0-0-50	--	G	2.0 lbs	14,28, 42, 56	47.4	51.8
	LSD (α = 0.06)					**6.1**	**7.3**

Application Dates: A = 3 July; B = 19 July; C = 3 Aug; D = 16 Aug; E = 30 Aug.
N, P, K control provided same amounts of nutrients as contained in trts 2-6.