Bermudagrass Spring Dead Spot Disease Control in California

Spring Dead Spot can be a devastating disease of bermudagrass turf, especially when untreated with fungicides. Photo above taken of the 14th fairway (site of fungicide trial) at North Ridge Country Club, Fair Oaks, CA on 24 May 2017. Turf between study area (left) and rough (right) did not receive fungicide applications.

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The Bottom Line: Nineteen commercial and experimental fungicides were tested alone or in combination against an untreated control for management of spring dead spot (SDS) disease caused by *Ophiosphaerella spp.* on a bermudagrass fairway at North Ridge Country Club in Fair Oaks (suburb of Sacramento). All treatments were applied on 29 September and 26 October 2016. Most treatments reduced SDS severity and improved turfgrass quality compared to the untreated control; however, Lexicon (pyraclostrobin + fluxapyroxad), A20581, and Mirage (tebuconazole) + Xzemplar (fluxapyroxad) produced the lowest disease severity. Based on the results from two consecutive SDS trials at North Ridge CC, Mirage, Xzemplar, and Lexicon fungicides have provided the best and most consistent control of SDS.

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Introduction:

Bermudagrass (Cynodon spp.) is considered by many to be the “go to” turfgrass species for golf courses, athletic fields, and other turf areas throughout most of California because of it’s water use efficiency, tolerance to drought, salinity, and traffic, and recovery from wear. Bermudagrass is also tolerant to most pests, especially in California’s Mediterranean climate. However, bermudagrass can be susceptible to spring dead spot (SDS), a root disease caused by three primary species of fungi in the genus *Ophiosphaerella*. Typically, SDS occurs on intensively managed bermudagrass turf that is subject to freezing temperatures and winter dormancy. Although the disease is active in during the fall and, in some cases, early spring, symptoms of circular dead patches to not appear until green-up and active growth in spring. Then, turf recovery in affected areas can be very slow and often symptoms reappear in the same vicinity year after year.

Cultural and chemical management of SDS provides no guarantee of complete disease control. However, it is best to avoid late season nitrogen fertilization even though results are mixed. Winter hardy bermudagrass cultivars that are best adapted for the U.S. transition zone tend to be more tolerant to SDS; however, these cultivars are usually not well adapted for use in California. If there is a history of SDS on bermudagrass in California, usually it is best to apply a fungicide or fungicides beginning in September or

October followed by a repeat application 30 days after. Historically, the DMI (e.g., propiconazole, tebuconazole, etc.) and QoI (e.g., azoxystrobin) fungicides have been most effective on SDS. The objective of this research was to test these along with newer or experimental fungicides, particularly the SDHI fungicides including flutolanil (Prostar), fluxapyroxad (Xzemplar), fluopyram (Exteris), and penthiopyrad (Velista).

Materials and Methods:

The study was conducted on the 14th fairway at North Ridge Country Club in Fair Oaks, a suburb of Sacramento. The fairways are a mix of common and hybrid bermudagrasses with a history of SDS caused by a species of *Ophiosphaerella* most closely resembling *narmari*. Experimental design was a randomized block with 4 replications. Plot size was 6-ft x 8-ft with 2-ft alleys. Fungicides were applied using a CO_2-powered backpack sprayer equipped with 8003VS nozzles to deliver 2 gal/M. Fungicide treatments were applied on 29 September and 26 October 2016. The fairway was irrigated with 0.2 inches of water immediately following each application. Soil temperatures averaged 72F from 2 inches into the profile on the day of initial treatment.

Results:

Spring dead spot distribution was sporadic as is usually typical of this disease, but severity reached as high as 38% mean visual disease cover in the untreated controls (Fig. 1). Most of the treatments reduced SDS disease cover compared to the untreated control (Table 1). Lexicon (pyraclostrobin + fluxapyroxad), A20581, and Mirage (tebuconazole) + Xzemplar (fluxapyroxad) produced the lowest disease severity.

Results from our 2015-16 SDS trial at North Ridge CC pointed to possible synergistic effects of tank-mixing DMI (e.g., tebuconazole, propiconazole) and SDHI (e.g., flutolanil, fluopyram, penthiopyrad) fungicides for enhanced control of SDS. In this trial, Mirage + Xzemplar provided the best disease control of the combinations tested. Overall, Mirage, Xzemplar, and Lexicon fungicides have provided the best and most consistent SDS control based on two consecutive years of testing. A third consecutive SDS fungicide trial is scheduled for 2017-18 at North Ridge CC.

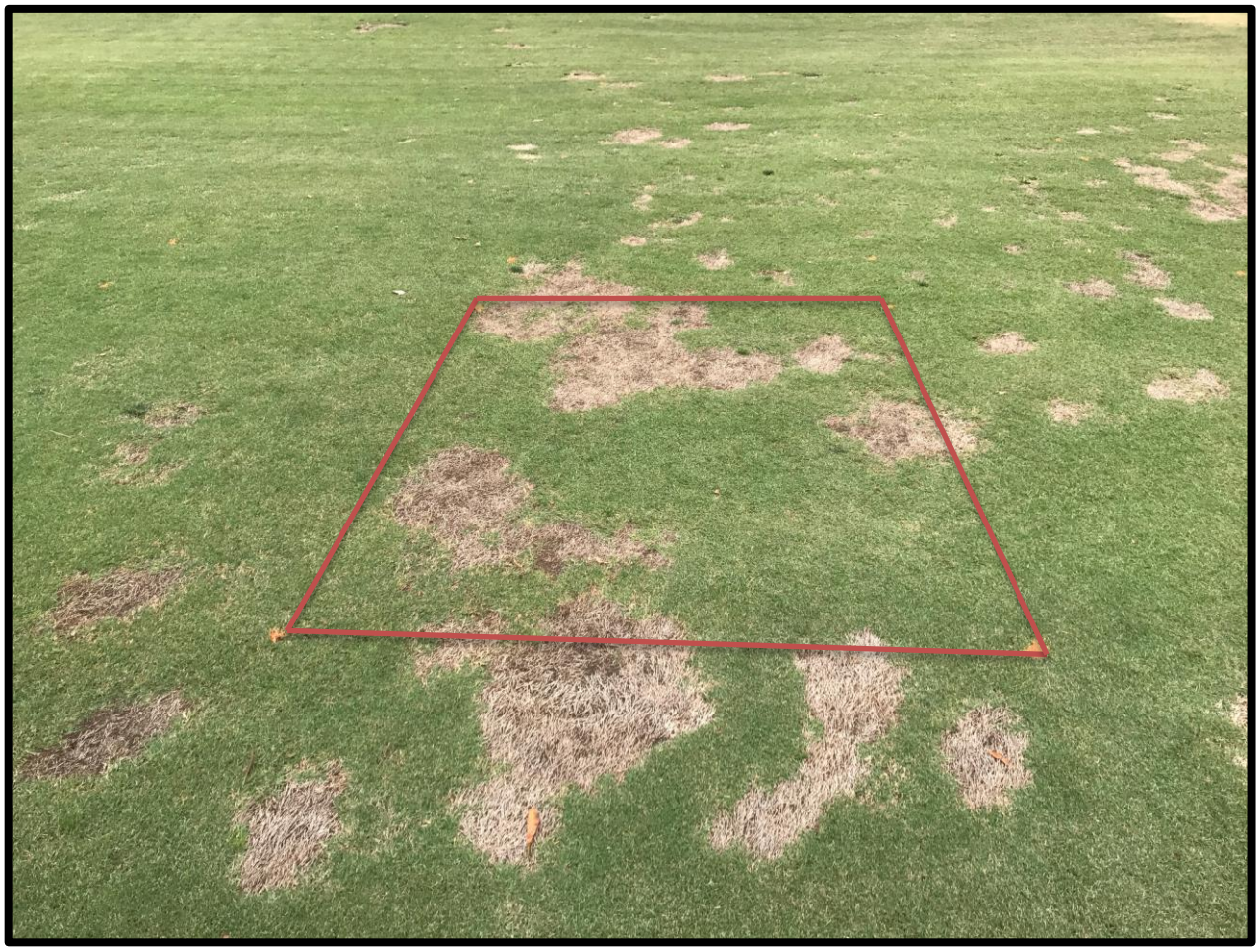

Figure 1. Spring Dead Spot disease severity in untreated control (outlined) and untreated alley directly below. Photo taken on 16 May 2017 at North Ridge Country Club, Fair Oaks, CA.

Table 1. Spring Dead Spot disease severity (0-100%) in spring 2017 following fall applications of fungicides on 29 September and 26 October 2016. North Ridge Country Club, Fair Oaks, CA.

No.	Product(s)	Company	Rate (oz/M)	4/11/17	5/16/17	6/7/17
1	Untreated Control	--	--	38 A	28 A	19 A
2	Banner Maxx	Syngenta	4.0	22 A-E	12 B-D	6 B-D
3	Velista	Syngenta	0.7	32 AB	20 AB	14 AB
4	Velista	Syngenta	0.5	9 DE	6 C-E	2 D
4	Banner Maxx	Syngenta	2.0			
5	Velista	Syngenta	0.5	14 B-E	9 B-E	3 D
5	Heritage Action	Syngenta	0.2			
6	Headway 1.39SC	Syngenta	3.0	19 B-E	8 B-E	4 CD
7	A19188		1.0	26 A-D	16 A-C	12 A-C
8	A20581		0.47	4 E	0 E	0 D
9	A21616		0.26	20 A-E	11 B-E	4 CD
10	A19649		0.16	18 B-E	11 B-E	4 CD
10	A15457		0.24			
11	A21664		0.52	31 A-C	20 AB	8 B-D
12	A22070		3.0	12 C-E	9 B-E	4 CD
13	A19649		0.157	11 DE	4 C-E	4 CD
14	A19649		0.314	11 DE	5 C-E	2 D
15	Exteris Stressgard	Bayer	4.0	17 B-E	10 B-E	5 CD
15	Mirage	Bayer	2.0			
16	Banner Maxx	Syngenta	2.0	12 C-E	8 C-E	4 CD
16	Xzemplar	BASF	0.26			
17	Mirage	Bayer	2.0	7 E	1 DE	0 D
17	Xzemplar	BASF	0.26			
18	Xzemplar	BASF	0.26	20 A-E	12 B-D	5 CD
19	Lexicon	BASF	0.47	6 E	3 DE	1 D
20	Trinity	BASF	1.0	17 B-E	9 B-E	6 B-D
20	Xzemplar	BASF	0.26			

Means followed by the same letter in a column are not significantly different (P = 0.05).