Dollar Spot Suppression on Golf Course Fairways

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OBJECTIVE

To determine the efficacy of standard and experimental fungicides for controlling dollar spot caused by the fungus *Clarireedia jacksonii* on a creeping bentgrass fairway.

MATERIALS AND METHODS

The study was conducted at the O. J. Noer Turfgrass Research and Education Facility on a mixed stand of 'Penncross' creeping bentgrass (*Agrostis stolonifera*) and annual bluegrass (*Poa annua*) maintained at 0.5 inches. Individual plots measured 3 feet by 5 feet and were arranged in a randomized complete block design with four replications. Treatments were applied at a nozzle pressure of 40 psi using a CO_2-pressurized sprayer equipped with one Teejet AI9508EVS nozzle. All fungicides were agitated by hand and applied in the equivalent of 1.5 gallons of water per 1000 ft^2. All treatments were initiated on May 22, 2025, and subsequent applications were made at 14- or 21-day intervals. Number of dollar spot foci per plot and turfgrass quality (1-9, 9 being excellent, 6 acceptable, and 1 bare soil) were visually assessed every 2 weeks. Turf quality and disease severity were subjected to an analysis of variance and means separated using Fisher's LSD (P = 0.05). Results of disease severity and turfgrass quality ratings can be found in tables 1 and 2, respectively. Area under the disease progress curve (AUDPC) and area under the turf quality curve (AUTQC) were calculated using the trapezoidal method and summarize the whole season disease severity and turf quality and are included in tables 1 and 2, respectively.

RESULTS AND DISCUSSION

Dollar spot pressure was very high throughout the study with nontreated controls averaging over 280 dollar spot infection centers per plot on the peak disease date of Jul 23. Sixteen of the 27 public treatments tested were in the most effective statistical category on Jul 23, and 6 of those treatments limited dollar spot foci to less than 10 per plot. Treatments on a 14-day reapplication interval generally performed much better than treatments on a 21-day reapplication interval. Turf quality mirrored disease severity. No phytotoxicity was observed with any treatment.

Table 1. Mean number of dollar spots per treatment at fairway height at the OJ Noer Turfgrass Research Facility in Madison, WI during 2025.

	Treatment	Rate	Application Interval	Application Code[b]	Dollar Spot Severity[a] July 9th	Dollar Spot Severity July 23rd	Dollar Spot Severity Aug 6th	Dollar Spot Severity AUDPC[c]
1	Non-treated control				141.5a	280.8bc	58.5bc	7770.0a
2	Aramax	1.0 fl oz/1000 ft^2	21 day	CFILO	41.0bcd	463.8a	13.0fg	7511.0a
3	Maxtima	0.4 fl oz/1000 ft^2	21 day	CFILO	2.8d	74.3f-i	5.8g	1158.5bcd
4	Enartis	4.0 fl oz/1000 ft^2	21 day	CFILO	5.8d	99.0e-i	4.5g	1531.3bcd
5	Xzemplar	0.26 fl oz/1000 ft^2	21 day	CFILO	17.0cd	153.8c-f	13.8fg	2598.8bc
6	Xzemplar Duo	0.75 fl oz/1000 ft^2	21 day	CFILO	0.3d	4.5hi	0.5g	73.5cd
7	Xzemplar Duo	0.75 fl oz/1000 ft^2	14 day	CEGIKMO	2.5d	0.0i	0.0g	35.0cd
8	Maxtima	0.6 fl oz/1000 ft^2	14 day	CEGIKMO	0.5d	0.0i	0.3g	10.5d
9	Aramax	1.0 fl oz/1000 ft^2	14 day	CEGIKMO	16.5cd	5.8ghi	1.0g	325.5cd
10	NFA 0630 401	0.75 fl oz/1000 ft^2	21 day	CFILO	1.0d	41.8f-i	1.8g	623.0bcd
11	NFA 08-09 NFA 08-10	0.196 fl oz/1000 ft^2 0.26 fl oz/1000 ft^2	21 day	CFILO	0.8d	85.8f-i	6.5g	1302.0bcd
12	NFA 08-10 Spirato Rotator	0.26 fl oz/1000 ft^2 0.5 fl oz/1000 ft^2 0.5 fl oz/1000 ft^2	21 day	CFILO	0.3d	17.3f-i	2.8g	283.5cd
13	ESTC351	1.4 fl oz/1000 ft^2	21 day	CFILO	7.0d	79.0f-i	15.3fg	1421.0bcd
14	ESTC111	0.196 floz/1000 ft^2	21 day	CFILO	42.8bcd	106.5e-i	4.0g	2156.0bcd
15	ESTC 351 ESTC 279	1.4 fl oz/1000 ft^2 2.0 fl oz/1000 ft^2	21 day	CFILO	2.5d	75.5f-i	11.8fg	1260.0bcd
16	ESTC 111 ESTC 279	0.196 fl oz/1000 ft^2 2.0 fl oz/1000 ft^2	21 day	CFILO	58.0a-d	145.5c-f	13.5fg	3038.0b
17	ESTC 111 ESTC 124	0.196 fl oz/1000 ft^2 3.0 fl oz/1000 ft^2	21 day	CFILO	5.5d	139.5d-h	9.8fg	2191.0bcd
18	HM 1876	2.94 fl oz/1000 ft^2	14 day	CEGIKMO	74.8a-d	300.5b	45.8cd	6531.0a
19	HM 1876	5.9 fl oz/1000 ft^2	14 day	CEGIKMO	97.3abc	334.8ab	20.8efg	7581.0a
20	HM 9754	2.94 fl oz/1000 ft^2	14 day	CEGIKMO	139.0a	324.3b	68.5b	8578.5a
21	HM 1876 HM 9754	2.94 fl oz/1000 ft^2 2.94 fl oz/1000 ft^2	14 day	CEGIKMO	135.0a	225.3b-e	39.8cde	6237.0a
22	HM 1876 HM 9754	5.9 fl oz/1000 ft^2 2.94 fl oz/1000 ft2	14 day	CEGIKMO	124.5ab	298.5b	31.8def	7395.5a
23	EF-719	1.47 fl oz/1000 ft^2	14 day	CEGIKMO	11.5d	0.0i	0.8g	171.5cd
24	EF-719	1.47 fl oz/1000 ft^2	21 day	CFILO	5.3d	142.5d-g	4.3g	2128.0bcd
25	NB 41543	1.5 fl oz/1000 ft^2	14 day	CEGIKMO	10.3d	1.8hi	5.8g	252.0cd
26	NB 41543	1.5 fl oz/1000 ft^2	21 day	CFILO	11.0d	114.8e-i	17.3fg	2002.0bcd
27	Tekken	3.0 fl oz/1000 ft^2	21 day	CFILO	45.3bcd	85.5f-i	8.5g	1949.5bcd
				LSD P=.05	84.19	137.87	22.05	2573.01

[a]Dollar spot rated as number of dollar spot infection centers per plot. Means followed by the same letter do not significantly differ (P=.05, Fisher's LSD).

[b]Application Code: C = May 22nd, E = Jun 3rd, F = Jun 10th, G = Jun 17th, I = Jul 1st, K = Jul 15th, L = Jul 22nd, M = Jul 29th, O = Aug 12th

[c] Area under the disease progress curve (AUDPC) was calculated using the trapezoidal method.

Table 2. Mean turfgrass quality per treatment at fairway height at the OJ Noer Turfgrass Research Facility in Madison, WI during 2025.

	Treatment	Rate	Application Interval	Application Code[b]	Turfgrass Quality[a] July 9th	Turfgrass Quality July 23rd	Turfgrass Quality Aug 6th	Turfgrass Quality AUTQC[c]
1	Non-treated control				4.0h	3.3gh	4.5ij	308.5lm
2	Aramax	1.0 fl oz/1000 ft^2	21 day	CFILO	5.3ef	4.3efg	5.3fgh	369.8j
3	Maxtima	0.4 fl oz/1000 ft^2	21 day	CFILO	6.8ab	5.3c	6.0cde	433.5d-h
4	Enartis	4.0 fl oz/1000 ft^2	21 day	CFILO	6.5abc	4.8cde	6.0cde	413.0ghi
5	Xzemplar	0.26 fl oz/1000 ft^2	21 day	CFILO	6.0cd	4.5def	5.3fgh	401.3i
6	Xzemplar Duo	0.75 fl oz/1000 ft^2	21 day	CFILO	7.0a	6.8ab	7.0a	472.5ab
7	Xzemplar Duo	0.75 fl oz/1000 ft^2	14 day	CEGIKMO	7.0a	7.0a	7.0a	473.0ab
8	Maxtima	0.6 fl oz/1000 ft^2	14 day	CEGIKMO	7.0a	7.0a	7.0a	476.0a
9	Aramax	1.0 fl oz/1000 ft^2	14 day	CEGIKMO	5.8de	6.3b	6.8ab	437.8def
10	NFA 0630 401	0.75 fl oz/1000 ft^2	21 day	CFILO	7.0a	5.0cd	6.3bcd	438.3def
11	NFA 08-09 NFA 08-10	0.196 fl oz/1000 ft^2 0.26 fl oz/1000 ft^2	21 day	CFILO	7.0a	5.0cd	6.3bcd	433.8d-g
12	NFA 08-10 Spirato Rotator	0.26 fl oz/1000 ft^2 0.5 fl oz/1000 ft^2 0.5 fl oz/1000 ft^2	21 day	CFILO	7.0a	6.3b	6.8ab	460.8abc
13	ESTC351	1.4 fl oz/1000 ft^2	21 day	CFILO	6.3bcd	5.0cd	5.5efg	411.5hi
14	ESTC111	0.196 floz/1000 ft^2	21 day	CFILO	6.8ab	4.8cde	6.5abc	433.0d-h
15	ESTC 351 ESTC 279	1.4 fl oz/1000 ft^2 2.0 fl oz/1000 ft^2	21 day	CFILO	6.5abc	5.0cd	5.5efg	418.3f-i
16	ESTC 111 ESTC 279	0.196 fl oz/1000 ft^2 2.0 fl oz/1000 ft^2	21 day	CFILO	6.8ab	5.0cd	5.8def	420.3f-i
17	ESTC 111 ESTC 124	0.196 fl oz/1000 ft^2 3.0 fl oz/1000 ft^2	21 day	CFILO	6.8ab	5.0cd	5.8def	424.8e-h
18	HM 1876	2.94 fl oz/1000 ft^2	14 day	CEGIKMO	4.3gh	3.8fg	4.8hi	328.3kl
19	HM 1876	5.9 fl oz/1000 ft^2	14 day	CEGIKMO	4.3gh	4.3efg	5.0ghi	336.3k
20	HM 9754	2.94 fl oz/1000 ft^2	14 day	CEGIKMO	4.0h	3.3h	4.5ij	301.5m
21	HM 1876 HM 9754	2.94 fl oz/1000 ft^2 2.94 fl oz/1000 ft^2	14 day	CEGIKMO	4.0h	4.0fg	5.0ghi	333.0k
22	HM 1876 HM 9754	5.9 fl oz/1000 ft^2 2.94 fl oz/1000 ft2	14 day	CEGIKMO	4.0h	4.0fg	5.0ghi	329.5kl
23	EF-719	1.47 fl oz/1000 ft^2	14 day	CEGIKMO	7.0a	7.0a	7.0a	477.8a
24	EF-719	1.47 fl oz/1000 ft^2	21 day	CFILO	7.0a	5.3c	6.0cde	435.5def
25	NB 41543	1.5 fl oz/1000 ft^2	14 day	CEGIKMO	6.5abc	7.0a	5.8def	451.3bcd
26	NB 41543	1.5 fl oz/1000 ft^2	21 day	CFILO	6.8ab	4.8cde	5.5efg	418.5f-i
27	Tekken	3.0 fl oz/1000 ft^2	21 day	CFILO	7.0a	5.0cd	5.5efg	427.0e-h
				LSD P=.05	0.52	0.58	0.7	22.05

[a] Turfgrass quality was rated visually on a 1 – 9 scale with 6 being acceptable. Means followed by the same letter do not significantly differ (P=.05, Fisher's LSD).

[b] Application Code: C = May 22nd, E = Jun 3rd, F = Jun 10th, G = Jun 17th, I = Jul 1st, K = Jul 15th, L = Jul 22nd, M = Jul 29th, O = Aug 12th

[c] Area under the turf quality curve (AUTQC) was calculated using the trapezoidal method.