



Resurgence of Dollar Spot After Fungicide Cessation on Putting Greens

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Objective

To determine which fungicides cause a resurgence of dollar spot caused by the fungal pathogen *Clarireedia jacksonii* after fungicide applications have ceased.

Materials and Methods

The study was conducted at the O. J. Noer Turfgrass Research and Education Facility on a stand of 'Pennncross' creeping bentgrass (*Agrostis stolonifera*) maintained at 0.125 inches. Individual plots measured 3 feet by 10 feet and were arranged in a randomized complete block design with four replications. Treatments in 2023, 2024, and 2025 were applied at a nozzle pressure of 40 psi using a CO₂-pressurized boom 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 ft². The final fungicide applications were made in July of 2025. In 2026, no applications were made, and the study was only observed. 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 through the end of August. Brown patch severity was rated on two dates when symptoms were present. 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 Table 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 high starting in mid-July with nontreated controls averaging over 112 infection centers per plot on the peak disease rating date of Aug 26. On Jul 1, 3336F and Insignia had higher dollar spot severity than the nontreated control. On Aug 12 and Aug 26, Daconil, 3336F, and Insignia had higher dollar spot severity than the nontreated control. Brown patch severity was more severe on the Posterity treatment than on the nontreated control. Only 3336F had a lower turf quality rating than the nontreated control. These results show some differences between plots over 1 year after fungicide applications have ceased, indicating potential shifts in the microbiome communities that affect disease severity.

Table 1: Mean number of dollar spots per treatment at greens height at the OJ Noer Turfgrass Research Facility in Madison, WI during 2026.

Ref #	Treatment	Rate	Application Interval	Last Application Code	Dollar Spot Severity July 1 st	Dollar Spot Severity Aug 12 th	Dollar Spot Severity Aug 26 th	Dollar Spot Severity AUDPC
1	Nontreated Control	NA	NA	NA	26.0c	98.0d	112.8de	3637.25c
2	Daconil Weatherstik	5.5 fl oz/1000 ft ²	14 day	L	36.5bc	163.5abc	185.8abc	5595.50bc
3	Fore Rainshield	8.0 oz/1000 ft ²	14 day	L	29.8c	152.0bcd	168.3bcd	5109.13bc
4	26 GT	4.0 fl oz/1000 ft ²	14 day	L	23.3c	127.0cd	135.8cde	3856.38c
5	Secure	0.5 fl oz/1000 ft ²	14 day	L	34.0bc	151.3bcd	168.5a-d	5211.00bc
6	3336F	4.0 fl oz/1000 ft ²	14 day	L	49.0ab	205.3ab	197.8ab	6767.25ab
7	Banner Maxx	2.0 fl oz/1000 ft ²	14 day	L	38.5abc	155.5bcd	163.8bcd	5621.00bc
8	Torque	1.1 fl oz/1000 ft ²	14 day	L	27.5c	137.5cd	133.3cde	4404.50c
9	Densicor	0.196 fl oz/1000 ft ²	14 day	L	34.5bc	126.3cd	140.5cde	4479.75c
10	Heritage TL	2.0 fl oz/1000 ft ²	14 day	L	23.3c	112.0cd	124.3de	3831.88c
11	Insignia SC	0.7 fl oz/1000 ft ²	14 day	L	57.3a	221.0a	225.3a	7884.38a
12	Emerald	0.18 oz/1000 ft ²	28 day	J	20.8c	140.0cd	147.8b-e	4800.13bc
13	Posterity	0.32 fl oz/1000 ft ²	28 day	J	33.0bc	139.8cd	139.8cde	5173.75bc
14	Xzemplar	0.26 fl oz/1000 ft ²	28 day	J	30.8bc	142.5cd	146.0b-e	4978.38bc
15	Kabuto	0.7 fl oz/1000 ft ²	21 day	K	26.3c	102.8d	98.0e	3800.13c
NA	NA	NA	NA	LSD P=.05	18.93	59.04	56.86	2184.85

Table Notes by Column Name

- **Last Application Code** - J = Jul 10th, 2025, K = Jul 17th, 2025, L = Jul 24th, 2025
- **Dollar Spot Severity** – was rated as number of dollar spot infection centers. Means followed by the same letter do not significantly differ (P=.05, Fisher's LSD).
- **AUDPC** - Area under the disease progress curve was calculated using the trapezoidal method.

Table 2: Mean brown patch percentage per treatment at greens height at the OJ Noer Turfgrass Research Facility in Madison, WI during 2026.

Ref #	Treatment	Rate	Application Interval	Last Application Code	Brown Patch Percentage Jul 29 th	Brown Patch Percentage Aug 12 th	Brown Patch AUDPC
1	Nontreated Control	NA	NA	NA	3.8bc	7.5b-f	78.8cd
2	Daconil Weatherstik	5.5 fl oz/1000 ft ²	14 day	L	0.0c	0.0f	0.0d
3	Fore Rainshield	8.0 oz/1000 ft ²	14 day	L	7.5bc	11.3bcd	131.3abc
4	26 GT	4.0 fl oz/1000 ft ²	14 day	L	1.3c	4.3c-f	38.5cd
5	Secure	0.5 fl oz/1000 ft ²	14 day	L	5.0bc	12.5bc	122.5bc
6	3336F	4.0 fl oz/1000 ft ²	14 day	L	3.8bc	3.8def	52.5cd
7	Banner Maxx	2.0 fl oz/1000 ft ²	14 day	L	3.8bc	6.8b-f	73.5cd
8	Torque	1.1 fl oz/1000 ft ²	14 day	L	0.0c	0.0f	0.0d
9	Densicor	0.196 fl oz/1000 ft ²	14 day	L	0.0c	2.5ef	17.5cd
10	Heritage TL	2.0 fl oz/1000 ft ²	14 day	L	0.0c	2.3ef	15.8cd
11	Insignia SC	0.7 fl oz/1000 ft ²	14 day	L	0.0c	4.3c-f	29.8cd
12	Emerald	0.18 oz/1000 ft ²	28 day	J	7.5bc	7.5b-f	105.0cd
13	Posterity	0.32 fl oz/1000 ft ²	28 day	J	17.5a	15.0ab	227.5ab
14	Xzemplar	0.26 fl oz/1000 ft ²	28 day	J	2.5c	10.0b-e	87.5cd
15	Kabuto	0.7 fl oz/1000 ft ²	21 day	K	12.5ab	22.5a	245.0a
NA	NA	NA	NA	LSD P=.05	9.31	8.59	116.6

Table Notes by Column Name

- **Last Application Code** - J = Jul 10th, 2025, K = Jul 17th, 2025, L = Jul 24th, 2025
- **Brown Patch Percentage** - was rated as percentage of plot area affected. Means followed by the same letter do not significantly differ (P=.05, Fisher's LSD)

Table 3: Mean turf quality ratings per treatment at greens height at the OJ Noer Turfgrass Research Facility in Madison, WI during 2026.

Ref #	Treatment	Rate	Application Interval	Last Application Code	Turf Quality July 1 st	Turf Quality Aug 12 th	Turf Quality Aug 26 th	Turf Quality AUTQC
1	Nontreated Control	NA	NA	NA	5.0a	5.0a	4.5a	430.5bc
2	Daconil Weatherstik	5.5 fl oz/1000 ft ²	14 day	L	5.0a	4.8a	4.0a	420.0bcd
3	Fore Rainshield	8.0 oz/1000 ft ²	14 day	L	5.0a	5.0a	4.3a	435.8bc
4	26 GT	4.0 fl oz/1000 ft ²	14 day	L	5.0a	5.0a	4.0a	434.0bc
5	Secure	0.5 fl oz/1000 ft ²	14 day	L	5.0a	5.0a	4.0a	427.0bc
6	3336F	4.0 fl oz/1000 ft ²	14 day	L	5.0a	4.5a	4.0a	402.5d
7	Banner Maxx	2.0 fl oz/1000 ft ²	14 day	L	5.0a	4.8a	4.0a	420.0bcd
8	Torque	1.1 fl oz/1000 ft ²	14 day	L	5.0a	5.0a	4.3a	432.3bc
9	Densicor	0.196 fl oz/1000 ft ²	14 day	L	5.0a	4.8a	4.3a	414.8cd
10	Heritage TL	2.0 fl oz/1000 ft ²	14 day	L	5.3a	5.3a	4.3a	462.0a
11	Insignia SC	0.7 fl oz/1000 ft ²	14 day	L	5.0a	4.5a	4.0a	430.5bc
12	Emerald	0.18 oz/1000 ft ²	28 day	J	5.3a	5.0a	4.0a	439.3b
13	Posterity	0.32 fl oz/1000 ft ²	28 day	J	5.0a	5.0a	4.3a	425.3bc
14	Xzemplar	0.26 fl oz/1000 ft ²	28 day	J	5.0a	5.0a	4.0a	434.0bc
15	Kabuto	0.7 fl oz/1000 ft ²	21 day	K	5.0a	5.3a	4.5a	437.5b
NA	NA	NA	NA	LSD P=.05	0.25	0.72	0.42	22.62

Table Notes by Column Name

- **Last Application Code** - J = Jul 10th, 2025, K = Jul 17th, 2025, L = Jul 24th, 2025
- **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).
- **AUTQC** - Area under the turfgrass quality curve was calculated using the trapezoidal method.