



Resurgence of Dollar Spot After Fungicide Cessation on Fairways

Kurt Hockemeyer, Michael Ramirez, Jeremy Persinger, Amanda Bender, and Paul Koch, Ph.D.

Department of Plant Pathology
University of Wisconsin - Madison

Objective

To determine which fungicides cause a resurgence of dollar spot caused by the fungal pathogen *Claviceps 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 'Penncross' creeping bentgrass (*Agrostis stolonifera*) maintained at 0.5 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. 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 very high starting in mid-July with nontreated controls averaging over 154 infection centers per plot on the peak disease rating date of Aug 26. No statistical separation was observed in any treatment until Aug 26, when Fore and 3336F had statistically higher disease severity than the nontreated control. Daconil and 26GT had numerically higher disease severity than the nontreated control, but they were statistically similar. No statistical separation was observed in turf quality ratings until the AUTQC calculation, when 3336F and Xzemplar were the only fungicides to have a lower turf quality calculation than the nontreated control. These results show that some differences in disease development and turf quality can still be observed over 1 year after fungicide applications have stopped, indicating potential shifts in microbiome populations affecting disease development.

Table 1: Mean number of dollar spots per treatment at fairway 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 29 th	Dollar Spot Severity Aug 12 th	Dollar Spot Severity Aug 26 th	Dollar Spot Severity AUDPC
1	Nontreated Control	NA	NA	NA	36.0a	146.0a	154.5cd	4539.38a
2	Daconil Weatherstik	5.5 fl oz/1000 ft ²	14 day	L	36.8a	172.0a	191.5bcd	4876.25a
3	Fore Rainshield	8.0 oz/1000 ft ²	14 day	L	63.0a	170.0a	239.8ab	6331.13a
4	26 GT	4.0 fl oz/1000 ft ²	14 day	L	60.5a	170.8a	206.3abc	5682.63a
5	Secure	0.5 fl oz/1000 ft ²	14 day	L	68.3a	193.5a	179.8cd	6599.75a
6	3336F	4.0 fl oz/1000 ft ²	14 day	L	92.5a	188.3a	252.3a	7690.25a
7	Banner Maxx	2.0 fl oz/1000 ft ²	14 day	L	40.8a	138.8a	171.8cd	4467.00a
8	Torque	1.1 fl oz/1000 ft ²	14 day	L	63.5a	117.3a	165.3cd	4872.63a
9	Densicor	0.196 fl oz/1000 ft ²	14 day	L	51.8a	119.0a	155.0cd	4233.13a
10	Heritage TL	2.0 fl oz/1000 ft ²	14 day	L	64.0a	166.3a	157.8cd	5539.88a
11	Insignia SC	0.7 fl oz/1000 ft ²	14 day	L	74.3a	144.3a	164.0cd	5496.38a
12	Emerald	0.18 oz/1000 ft ²	28 day	J	60.8a	144.5a	154.0cd	5143.13a
13	Posterity	0.32 fl oz/1000 ft ²	28 day	J	46.0a	105.8a	184.8cd	4240.75a
14	Xzemplar	0.26 fl oz/1000 ft ²	28 day	J	59.8a	164.8a	150.3d	5779.25a
NA	NA	NA	NA	LSD P=.05	46.58	63.95	52.47	2306.50

Table Notes by Column Name

- **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 turf quality ratings per treatment at fairway height at the OJ Noer Turfgrass Research Facility in Madison, WI during 2026.

Ref #	Treatment	Rate	Application Interval	Last Application Code	Turf Quality July 23 rd	Turf Quality Aug 12 th	Turf Quality Aug 26 th	Turf Quality AUTQC
1	Nontreated Control	NA	NA	NA	5.0a	3.8a	4.0a	441.0a
2	Daconil Weatherstik	5.5 fl oz/1000 ft ²	14 day	L	4.8a	3.8a	4.0a	441.0a
3	Fore Rainshield	8.0 oz/1000 ft ²	14 day	L	4.3a	3.5a	4.0a	413.0a-d
4	26 GT	4.0 fl oz/1000 ft ²	14 day	L	4.8a	3.3a	4.0a	423.5ab
5	Secure	0.5 fl oz/1000 ft ²	14 day	L	4.3a	3.8a	4.0a	409.5a-d
6	3336F	4.0 fl oz/1000 ft ²	14 day	L	3.8a	3.0a	4.0a	385.0cd
7	Banner Maxx	2.0 fl oz/1000 ft ²	14 day	L	4.5a	4.0a	4.0a	434.0ab
8	Torque	1.1 fl oz/1000 ft ²	14 day	L	4.3a	4.3a	4.0a	430.5ab
9	Densicor	0.196 fl oz/1000 ft ²	14 day	L	4.5a	4.3a	4.0a	437.5ab
10	Heritage TL	2.0 fl oz/1000 ft ²	14 day	L	4.5a	3.8a	4.0a	416.5a-d
11	Insignia SC	0.7 fl oz/1000 ft ²	14 day	L	4.0a	3.8a	4.0a	420.0abc
12	Emerald	0.18 oz/1000 ft ²	28 day	J	4.0a	4.0a	4.0a	413.0a-d
13	Posterity	0.32 fl oz/1000 ft ²	28 day	J	4.8a	4.3a	4.3a	442.8a
14	Xzemplar	0.26 fl oz/1000 ft ²	28 day	J	4.3a	3.3a	4.0a	402.5bcd
NA	NA	NA	NA	LSD P=.05	1.01	0.9	0.18	38.02

Table Notes by Column Name

- **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.