



Suppression of Fairy Ring on Creeping Bentgrass Fairway

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Objective

To determine the efficacy of standard and experimental fungicides for controlling fairy ring on a creeping bentgrass fairway.

Materials and Methods

The study was conducted at the Pleasant View Golf Course on a mixed stand of 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 CO₂-pressurized sprayer equipped with one Teejet AI9508EVS nozzle. All fungicides were agitated by hand and applied in the equivalent of 2 gallons of water per 1000 ft². All treatments were initiated on May 12th, 2026, and subsequent applications were made at 14-, 28-, or 35-day intervals. Treatments were watered in with approximately 0.125" of overhead irrigation shortly after application. Percentage of fairy ring symptoms per plot, fairy ring severity (0-2, 0 being no fairy ring symptoms, 1 being moderate symptoms, and 2 being severe symptoms), and turf quality were visually assessed throughout the summer. Replication 4 was removed because of the absence of any fairy ring symptoms. Percent disease, fairy ring severity, and turf quality were subjected to an analysis of variance and means separated using Fisher's LSD ($P = 0.05$). Results of percent disease, fairy ring severity, and turf quality ratings can be found in tables 1, 2, and 3, respectively. Area under the disease progress curve (AUDPC), area under the fairy ring curve (AUFRC), and area under the turf quality curve (AUTQC) were calculated using the trapezoidal method and summarize the whole season's ratings per plot and are included in tables 1, 2, and 3, respectively.

Results and Discussion

Fairy ring symptoms were visible throughout the course of the study, but symptoms were only present consistently across the first replication and inconsistently across replications 2 and 3. Therefore the 4th replication was excluded from analysis. No statistical differences were observed on any rating date. Most of the fungicide treatments did numerically reduce disease ratings. Turf quality mostly mirrored disease severity. No phytotoxicity was observed with any treatment.

Table 1: Mean fairy ring percentage per treatment at fairway height at the Pleasant View Golf Course in Middleton, WI during 2026.

Ref #	Treatment	Rate	Application Interval	Application Code	Fairy Ring Percent July 15 th	Fairy Ring Percent July 29 th	Fairy Ring Percent Aug 26 th	Fairy Ring Percent AUDPC
1	Non-treated control	NA	NA	NA	6.7a	13.3a	6.7a	420.0a
2	25-579 21-418A 15-128B 19-349 25-579 CP 99-031 21-418A 15-114	0.32 fl oz/1000 ft ² 0.195 fl oz/1000 ft ² 3.0 fl oz/1000 ft ² 2.0 fl oz/1000 ft ² 0.32 fl oz/1000 ft ² 0.26 fl oz/1000 ft ² 0.195 fl oz/1000 ft ² 0.77 fl oz/1000 ft ²	A A E E I I M M	55 soil temp 28 day 28 day 28 day	3.3a	6.7a	0.0a	163.3a
3	25-579 21-418A AA 21015X 15-128B 19-349 AA 21015X 25-579 CP 99-031 AA 21015X 21-418A 15-114 AA 21015X	0.32 fl oz/1000 ft ² 0.195 fl oz/1000 ft ² 5.0 fl oz/1000 ft ² 3.0 fl oz/1000 ft ² 2.0 fl oz/1000 ft ² 4.0 fl oz/1000 ft ² 0.32 fl oz/1000 ft ² 0.26 fl oz/1000 ft ² 4.0 fl oz/1000 ft ² 0.195 fl oz/1000 ft ² 0.77 fl oz/1000 ft ² 4.0 fl oz/1000 ft ²	A A A E E E I I I M M M	55 soil temp 28 day 28 day 28 day	3.3a	6.7a	0.0a	163.3a
4	25-579 21-418A 15-128B 19-349 25-579 CP 99-031	0.32 fl oz/1000 ft ² 0.195 fl oz/1000 ft ² 3.0 fl oz/1000 ft ² 2.0 fl oz/1000 ft ² 0.32 fl oz/1000 ft ² 0.26 fl oz/1000 ft ²	A A F F K K	55 soil temp 35 day 35 day	1.7a	0.0a	0.0a	11.7a
5	25-579 21-418A AA 21015X 15-128B 19-349 AA 21015X 25-579 CP 99-031 AA 21015X	0.32 fl oz/1000 ft ² 0.195 fl oz/1000 ft ² 5.0 fl oz/1000 ft ² 3.0 fl oz/1000 ft ² 2.0 fl oz/1000 ft ² 4.0 fl oz/1000 ft ² 0.32 fl oz/1000 ft ² 0.26 fl oz/1000 ft ² 4.0 fl oz/1000 ft ²	A A A F F F K K K	55 soil temp 35 day 35 day	1.7a	0.0a	0.0a	11.7a
6	21-418A	0.195 fl oz/1000 ft ²	AEIM	28 day	3.3a	6.7a	3.3a	210.0a
7	21-418A AA 21015X AA 21015X	0.195 fl oz/1000 ft ² 5.0 fl oz/1000 ft ² 4.0 fl oz/1000 ft ²	AEIM A EIM	28 day	1.7a	0.0a	2.5a	58.3a
8	21-418A 15-114	0.195 fl oz/1000 ft ² 0.77 fl oz/1000 ft ²	AEIM AEIM	28 day	5.0a	13.3a	8.3a	431.7a

Ref #	Treatment	Rate	Application Interval	Application Code	Fairy Ring Percent July 15 th	Fairy Ring Percent July 29 th	Fairy Ring Percent Aug 26 th	Fairy Ring Percent AUDPC
9	21-418A 15-114 AA 21015X AA 21015X	0.195 fl oz/1000 ft ² 0.77 fl oz/1000 ft ² 5.0 fl oz/1000 ft ² 4.0 fl oz/1000 ft ²	AEIM AEIM A EIM	28 day	3.3a	6.7a	3.3a	210.0a
10	Pedigree AA 21015X AA 21015X	3.25 fl oz/1000 ft ² 5.0 fl oz/1000 ft ² 4.0 fl oz/1000 ft ²	AEIM A EIM	28 day	1.7a	3.3a	3.3a	128.3a
11	NFA 0630 401	0.75 fl oz/1000 ft ²	AC	14 day	3.3a	6.7a	5.0a	233.3a
12	NF 080010 NF 080034 NF 080033	0.26 fl oz/1000 ft ² 0.7 fl oz/1000 ft ² 0.36 g/1000 ft ²	AC AC AC	14 day	3.3a	3.3a	3.3a	140.0a
13	Lexicon	0.47 fl oz/1000 ft ²	AC	14 day	6.7a	13.3a	5.0a	396.7a
NA	NA	NA	NA	LSD P =.05	7.14	14.24	1.16	428.0

Table Notes by Column Name

Fairy Ring Percent - Was rated as percentage of plot area affected. Means followed by the same letter do not significantly differ (P=.05, Fisher's LSD).

Application Code - A = May 12th, C = May 26th, E = June 12th, F = June 18th, I = July 9th, K = July 23rd, M = August 6th

AUDPC - Area under the disease progress curve was calculated using the trapezoidal method.

Table 2: Mean fairy ring severity (0-2) per treatment at fairway height at the Pleasant View Golf Course in Middleton, WI during 2026.

Ref #	Treatment	Rate	Application Interval	Application Code	Fairy Ring Severity July 15 th	Fairy Ring Severity July 29 th	Fairy Ring Severity Aug 26 th	Fairy Ring Severity AUFRC
1	Non-treated control	NA	NA	NA	1.3a	1.3a	1.0a	81.3a
2	25-579 21-418A 15-128B 19-349 25-579 CP 99-031 21-418A 15-114	0.32 fl oz/1000 ft ² 0.195 fl oz/1000 ft ² 3.0 fl oz/1000 ft ² 2.0 fl oz/1000 ft ² 0.32 fl oz/1000 ft ² 0.26 fl oz/1000 ft ² 0.195 fl oz/1000 ft ² 0.77 fl oz/1000 ft ²	A A E E I I M M	55 soil temp 28 day 28 day 28 day	0.7a	0.7a	0.0a	28.7a
3	25-579 21-418A AA 21015X 15-128B 19-349 AA 21015X 25-579 CP 99-031 AA 21015X 21-418A 15-114 AA 21015X	0.32 fl oz/1000 ft ² 0.195 fl oz/1000 ft ² 5.0 fl oz/1000 ft ² 3.0 fl oz/1000 ft ² 2.0 fl oz/1000 ft ² 4.0 fl oz/1000 ft ² 0.32 fl oz/1000 ft ² 0.26 fl oz/1000 ft ² 4.0 fl oz/1000 ft ² 0.195 fl oz/1000 ft ² 0.77 fl oz/1000 ft ² 4.0 fl oz/1000 ft ²	A A A E E E I I I M M M	55 soil temp 28 day 28 day 28 day	0.7a	0.7a	0.0a	38.7a
4	25-579 21-418A 15-128B 19-349 25-579 CP 99-031	0.32 fl oz/1000 ft ² 0.195 fl oz/1000 ft ² 3.0 fl oz/1000 ft ² 2.0 fl oz/1000 ft ² 0.32 fl oz/1000 ft ² 0.26 fl oz/1000 ft ²	A A F F K K	55 soil temp 35 day 35 day	0.3a	0.0a	0.0a	12.3a
5	25-579 21-418A AA 21015X 15-128B 19-349 AA 21015X 25-579 CP 99-031 AA 21015X	0.32 fl oz/1000 ft ² 0.195 fl oz/1000 ft ² 5.0 fl oz/1000 ft ² 3.0 fl oz/1000 ft ² 2.0 fl oz/1000 ft ² 4.0 fl oz/1000 ft ² 0.32 fl oz/1000 ft ² 0.26 fl oz/1000 ft ² 4.0 fl oz/1000 ft ²	A A A F F F K K K	55 soil temp 35 day 35 day	0.3a	0.0a	0.0a	12.3a
6	21-418A	0.195 fl oz/1000 ft ²	AEIM	28 day	0.7a	0.7a	0.3a	36.7a
7	21-418A AA 21015X AA 21015X	0.195 fl oz/1000 ft ² 5.0 fl oz/1000 ft ² 4.0 fl oz/1000 ft ²	AEIM A EIM	28 day	0.3a	0.0a	0.3a	13.7a
8	21-418A	0.195 fl oz/1000 ft ²	AEIM	28 day	1.0a	1.3a	1.3a	70.3a

Ref #	Treatment	Rate	Application Interval	Application Code	Fairy Ring Severity July 15 th	Fairy Ring Severity July 29 th	Fairy Ring Severity Aug 26 th	Fairy Ring Severity AUFRC
	15-114	0.77 fl oz/1000 ft ²	AEIM					
9	21-418A 15-114 AA 21015X AA 21015X	0.195 fl oz/1000 ft ² 0.77 fl oz/1000 ft ² 5.0 fl oz/1000 ft ² 4.0 fl oz/1000 ft ²	AEIM AEIM A EIM	28 day	0.7a	0.7a	0.3a	36.7a
10	Pedigree AA 21015X AA 21015X	3.25 fl oz/1000 ft ² 5.0 fl oz/1000 ft ² 4.0 fl oz/1000 ft ²	AEIM A EIM	28 day	0.3a	0.3a	0.7a	28.7a
11	NFA 0630 401	0.75 fl oz/1000 ft ²	AC	14 day	0.7a	0.7a	0.7a	41.3a
12	NF 080010 NF 080034 NF 080033	0.26 fl oz/1000 ft ² 0.7 fl oz/1000 ft ² 0.36 g/1000 ft ²	AC AC AC	14 day	0.7a	0.3a	0.7a	34.3a
13	Lexicon	0.47 fl oz/1000 ft ²	AC	14 day	1.3a	1.3a	1.0a	78.0a
NA	NA	NA	NA	LSD P =.05	1.43	1.42	1.16	74.51

Table Notes by Column Name

Fairy Ring Severity - Was rated visually on a 0-2 scale with 0 being no fairy ring symptoms, 1 being moderate fairy ring symptoms, and 2 being severe fairy ring symptoms. Means followed by the same letter do not significantly differ (P=.05, Fisher's LSD).

Application Code - A = May 12th, C = May 26th, E = June 12th, F = June 18th, I = July 9th, K = July 23rd, M = August 6th

AUFRC - Area under the fairy ring curve was calculated using the trapezoidal method.

Table 3: Mean turf quality rating per treatment at fairway height at the Pleasant View Golf Course in Middleton, WI during 2026.

Ref #	Treatment	Rate	Application Interval	Application Code	Turf Quality July 15 th	Turf Quality July 29 th	Turf Quality Aug 26 th	Turf Quality AUTQC
1	Non-treated control	NA	NA	NA	5.7a	5.7a	5.3a	233.3a
2	25-579 21-418A 15-128B 19-349 25-579 CP 99-031 21-418A 15-114	0.32 fl oz/1000 ft ² 0.195 fl oz/1000 ft ² 3.0 fl oz/1000 ft ² 2.0 fl oz/1000 ft ² 0.32 fl oz/1000 ft ² 0.26 fl oz/1000 ft ² 0.195 fl oz/1000 ft ² 0.77 fl oz/1000 ft ²	A A E E I I M M	55 soil temp 28 day 28 day 28 day	6.3a	6.3a	6.3a	266.0a
3	25-579 21-418A AA 21015X 15-128B 19-349 AA 21015X 25-579 CP 99-031 AA 21015X 21-418A 15-114 AA 21015X	0.32 fl oz/1000 ft ² 0.195 fl oz/1000 ft ² 5.0 fl oz/1000 ft ² 3.0 fl oz/1000 ft ² 2.0 fl oz/1000 ft ² 4.0 fl oz/1000 ft ² 0.32 fl oz/1000 ft ² 0.26 fl oz/1000 ft ² 4.0 fl oz/1000 ft ² 0.195 fl oz/1000 ft ² 0.77 fl oz/1000 ft ² 4.0 fl oz/1000 ft ²	A A A E E E I I I M M M	55 soil temp 28 day 28 day 28 day	6.3a	6.3a	7.3a	280.0a
4	25-579 21-418A 15-128B 19-349 25-579 CP 99-031	0.32 fl oz/1000 ft ² 0.195 fl oz/1000 ft ² 3.0 fl oz/1000 ft ² 2.0 fl oz/1000 ft ² 0.32 fl oz/1000 ft ² 0.26 fl oz/1000 ft ²	A A F F K K	55 soil temp 35 day 35 day	6.7a	7.0a	6.0a	277.7a
5	25-579 21-418A AA 21015X 15-128B 19-349 AA 21015X 25-579 CP 99-031 AA 21015X	0.32 fl oz/1000 ft ² 0.195 fl oz/1000 ft ² 5.0 fl oz/1000 ft ² 3.0 fl oz/1000 ft ² 2.0 fl oz/1000 ft ² 4.0 fl oz/1000 ft ² 0.32 fl oz/1000 ft ² 0.26 fl oz/1000 ft ² 4.0 fl oz/1000 ft ²	A A A F F F K K K	55 soil temp 35 day 35 day	6.7a	7.0a	6.0a	277.7a
6	21-418A	0.195 fl oz/1000 ft ²	AEIM	28 day	6.3a	6.3a	6.0a	261.3a
7	21-418A AA 21015X AA 21015X	0.195 fl oz/1000 ft ² 5.0 fl oz/1000 ft ² 4.0 fl oz/1000 ft ²	AEIM A EIM	28 day	6.7a	7.0a	5.7a	273.0a

Ref #	Treatment	Rate	Application Interval	Application Code	Turf Quality July 15 th	Turf Quality July 29 th	Turf Quality Aug 26 th	Turf Quality AUTQC
8	21-418A 15-114	0.195 fl oz/1000 ft ² 0.77 fl oz/1000 ft ²	AEIM AEIM	28 day	6.0a	5.7a	5.0a	231.0a
9	21-418A 15-114 AA 21015X AA 21015X	0.195 fl oz/1000 ft ² 0.77 fl oz/1000 ft ² 5.0 fl oz/1000 ft ² 4.0 fl oz/1000 ft ²	AEIM AEIM A EIM	28 day	6.3a	6.3a	6.3a	266.0a
10	Pedigree AA 21015X AA 21015X	3.25 fl oz/1000 ft ² 5.0 fl oz/1000 ft ² 4.0 fl oz/1000 ft ²	AEIM A EIM	28 day	6.7a	6.7a	5.7a	266.0a
11	NFA 0630 401	0.75 fl oz/1000 ft ²	AC	14 day	6.3a	6.3a	6.0a	261.3a
12	NF 080010 NF 080034 NF 080033	0.26 fl oz/1000 ft ² 0.7 fl oz/1000 ft ² 0.36 g/1000 ft ²	AC AC AC	14 day	6.3a	6.7a	6.0a	268.3a
13	Lexicon	0.47 fl oz/1000 ft ²	AC	14 day	5.7a	5.7a	5.7a	238.0a
NA	NA	NA	-	LSD P =.05	1.42	1.42	1.16	46.74

Table Notes by Column Name

Turf 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).

Application Code - A = May 12th, C = May 26th, E = June 12th, F = June 18th, I = July 9th, K = July 23rd, M = August 6th

AUTQC - Area under the turf quality curve was calculated using the trapezoidal method.