



## 2023-2024 Snow Mold Control Evaluation: Wausau Country Club – Wausau, WI

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### OBJECTIVE

To evaluate fungicides for the control of gray snow mold (caused by *Typhula incarnata*), speckled snow mold (*T. ishikariensis*), and Microdochium patch (*Microdochium nivale*) on golf course turfgrass.

### MATERIALS AND METHODS

This evaluation was conducted at Wausau Country Club in Wausau, WI on a creeping bentgrass (*Agrostis stolonifera*) and annual bluegrass (*Poa annua*) golf course fairway maintained at a height of 0.5 inches. Individual plots measured 3 ft x 10 ft and were arranged in a randomized complete block design with four replications. Individual treatments were applied at a nozzle pressure of 40 psi using a CO<sub>2</sub>-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 ft<sup>2</sup>, except for Protone SG (trt 24) which was applied in 2.0 gallons of water per 1000 ft<sup>2</sup>. Early applications were made on 17 Oct 2023, and late applications were made on 17 Nov 2023. The experimental plot area was not inoculated. Snow cover was present for approximately 21 days during the month of January. Disease severity, turf quality, and turf color were measured on 5 Mar 2024. Disease severity was visually rated as percent area affected, turfgrass quality was visually rated on a 1-9 scale with 6 being acceptable, and chlorophyll content (turfgrass color) was rated using a FieldScout CM 1000 Chlorophyll Meter from Spectrum Technologies, Inc. (Aurora, IL). Treatment means were analyzed using Fisher's LSD method and are presented in Table 1.

### RESULTS AND DISCUSSION

Disease pressure in Wausau was very low, with nontreated controls averaging 2.5% disease. Most of the disease was caused by *Typhula incarnata* (90%) with a small amount caused by *Microdochium nivale* (10%). Most fungicide treatments were able to completely control disease. Due to very low disease pressure, all treatments were of acceptable turf quality. Phytotoxicity was not observed with any treatment.

**Table 1: Mean snow mold severity, turf quality, and turf color were assessed on 5 Mar 2024 at Wausau Country Club in Wausau, WI.**

	Treatment	Rate	Application Timing <sup>a</sup>	Disease Severity <sup>b</sup>	Turf Quality <sup>c</sup>	Turf Color <sup>d</sup>
1	Non-treated control			2.5cd	6.8ef	167.5a
2	Aramax	1.0 fl oz/1000 ft2	Late	0.0e	7.3cd	158.5a
3	Aramax	1.0 fl oz/1000 ft2	Late	0.0e	7.0de	162.3a
	26GT Turfcide	4.0 fl oz/1000 ft2 8.0 fl oz/1000 ft2				
4	Aramax	1.0 fl oz/1000 ft2	Late	0.0e	7.0de	166.5a
	Medallion	1.0 fl oz/1000 ft2				
5	Insignia Pro	0.8 fl oz/1000 ft2	Late	0.0e	7.3cd	180.0a
6	Insignia Pro	0.8 fl oz/1000 ft2	Late	0.0e	7.0de	184.3a
	Medallion	1.0 fl oz/1000 ft2				
7	Posterity XT	3.0 fl oz/1000 ft2	Late	0.0e	8.0a	178.8a
	Ascernity	1.0 fl oz/1000 ft2				
	Par	0.37 fl oz/1000 ft2				
8	Posterity XT	1.5 fl oz/1000 ft2	Late	0.0e	8.0a	210.0a
	Tuque exoGEM	2.87 fl oz/1000 ft2				
	Par	0.37 fl oz/1000 ft2				
9	Tuque exoGEM	2.87 fl oz/1000 ft2	Late	0.0e	8.0a	188.8a
	Tebuconazole	1.1 fl oz/1000 ft2				
10	Par	0.37 fl oz/1000 ft2	Late	0.0e	8.0a	185.8a
	Tuque exoGEM	2.87 fl oz/1000 ft2				
11	Tuque exoGEM	2.87 fl oz/1000 ft2	Early	0.0e	8.0a	189.5a
	Instrata	7.0 fl oz/1000 ft2	Late			
12	Par	0.37 fl oz/1000 ft2	Late	0.0e	8.0a	194.5a
	Tuque exoGEM	2.87 fl oz/1000 ft2				
13	Concert II	5.5 fl oz/1000 ft2	Late	0.0e	8.0a	196.8a
	Par	0.37 fl oz/1000 ft2				
14	Tuque exoGEM	2.87 fl oz/1000 ft2	Late	0.0e	8.0a	218.0a
	Banner Max	2.0 fl oz/1000 ft2				
15	Par	0.37 fl oz/1000 ft2	Late	0.0e	8.0a	167.8a
	PM Tebuconazole	1.0 fl oz/1000 ft2				
	PM Propiconazole	2.0 fl oz/1000 ft2				
	PM Chlorothalonil	3.0 fl oz/1000 ft2				
	PM Fluoxastrobin	0.4 fl oz/1000 ft2				
	Activator+SA	0.2 fl oz/1000 ft2				
Par	0.37 fl oz/1000 ft2					
LSD P=.05				2.4	0.46	50.34

<sup>a</sup>Early treatments were applied on 17 Oct 2023. Late treatments were applied on 17 Nov 2023.

<sup>b</sup>Mean percent diseased area assessed on 5 Mar 2024

<sup>c</sup>Quality was visually assessed where 1 = dead, 6 = acceptable, 9 = dark green.

<sup>d</sup>Color was assessed using a FieldScout CM1000 Chlorophyll Meter from Spectrum Technologies, Inc.

**Table 1(cont): Mean snow mold severity, turf quality, and turf color were assessed on 5 Mar 2024 at Wausau Country Club in Wausau, WI.**

	Treatment	Rate	Application Timing <sup>a</sup>	Disease Severity <sup>b</sup>	Turf Quality <sup>c</sup>	Turf Color <sup>d</sup>
16	PM Propiconazole	1.0 fl oz/1000 ft2	Early	0.0e	8.0a	207.0a
	Turfcide	3.0 fl oz/1000 ft2	Early			
	Activator+SA	0.2 fl oz/1000 ft2	Early/Late			
	Par	0.37 fl oz/1000 ft2	Early/Late			
	PM Tebuconazole	1.0 fl oz/1000 ft2	Late			
	PM Propiconazole	2.0 fl oz/1000 ft2	Late			
	PM Fluoxastrobin	0.3 fl oz/1000 ft2	Late			
	Turfcide	4.0 fl oz/1000 ft2	Late			
17	PM Tebuconazole	1.0 fl oz/1000 ft2	Late	0.0e	8.0a	195.3a
	PM Propiconazole	2.0 fl oz/1000 ft2				
	PM Chlorothalonil	3.0 fl oz/1000 ft2				
	Turfcide	4.0 fl oz/1000 ft2				
	Activator+SA	0.2 fl oz/1000 ft2				
	Par	0.37 fl oz/1000 ft2				
18	PM Propiconazole	2.0 fl oz/1000 ft2	Early	0.0e	8.0a	188.3a
	Par	0.37 fl oz/1000 ft2	Early			
	PM Tebuconazole	1.0 fl oz/1000 ft2	Late			
	PM Fluoxastrobin	0.2 fl oz/1000 ft2	Late			
	Turfcide	3.0 fl oz/1000 ft2	Late			
	Activator+SA	0.2 fl oz/1000 ft2	Late			
19	Extra Green 20	6.0 oz/1000 ft2	Early/Late	1.3de	7.3cd	206.0a
20	Sulfur DF	5.0 oz/1000 ft2	Early/Late	6.3a	6.3g	179.0a
21	Duraphite 12	6.0 oz/1000 ft2	Early/Late	1.3de	6.8ef	210.5a
22	Sulfur DF	5.0 oz/1000 ft2	Early/Late	0.0e	7.0de	198.5a
	Duraphite 12	6.0 oz/1000 ft2				
23	Potassium bicarbonate	1.7 lb/1000 ft2	Early/Late	3.8bc	6.5fg	160.3a
24	Protone SG	1.35 oz/1000 ft2	Early/Late	0.0e	7.0de	188.0a
25	ReTain	0.27 oz/1000 ft2	Early/Late	1.3de	6.8ef	168.5a
26	Zio	6.0 oz/1000 ft2	Early/Late	2.5cd	6.8ef	165.5a
27	Rhapsody	10 fl oz/1000 ft2	Early/Late	3.8bc	6.5fg	157.5a
28	Civitas Pre-Mixed	8.5 fl oz/1000 ft2	Early	0.0e	8.0a	196.0a
		34.0 fl oz/1000 ft2	Late			
29	Primo Maxx	1.0 fl oz/1000 ft2	Early/Late	1.3de	6.8ef	152.3a
30	Anuew	0.735 fl oz/1000 ft2	Early/Late	2.5cd	6.8ef	162.3a
31	Instrata	11.0 fl oz/1000 ft2	Late	0.0e	7.0de	162.0a
32	Instrata	5.5 fl oz/1000 ft2	Late	0.0e	7.0de	191.8a
33	Instrata Activo	5.5 fl oz/1000 ft2	Late	0.0e	7.8ab	183.5a
		1.5 fl oz/1000 ft2	Late			
34	Medallion	1.0 fl oz/1000 ft2	Late	0.0e	7.0de	176.5a
	Torque	1.1 fl oz/1000 ft2	Late			
LSD P=.05				2.4	0.46	50.34

<sup>a</sup>Early treatments were applied on 17 Oct 2023. Late treatments were applied on 17 Nov 2023.

<sup>b</sup>Mean percent diseased area assessed on 5 Mar 2024

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**Table 1(cont): Mean snow mold severity, turf quality, and turf color were assessed on 5 Mar 2024 at Wausau Country Club in Wausau, WI.**

	Treatment	Rate	Application Timing <sup>a</sup>	Disease Severity <sup>b</sup>	Turf Quality <sup>c</sup>	Turf Color <sup>d</sup>
35	Traction	1.3 fl oz/1000 ft <sup>2</sup>	Late	0.0e	7.8ab	194.5a
	26/36	6.0 fl oz/1000 ft <sup>2</sup>				
	Par	0.28 fl oz/1000 ft <sup>2</sup>				
36	NFA0800009	0.196 fl oz/1000 ft <sup>2</sup>	Late	0.0e	7.8ab	178.0a
	NUP19026	0.5 fl oz/1000 ft <sup>2</sup>				
	26/36	6.0 fl oz/1000 ft <sup>2</sup>				
37	Par	0.28 fl oz/1000 ft <sup>2</sup>	Late	0.0e	7.8ab	197.8a
	NFA0630301	1.1 fl oz/1000 ft <sup>2</sup>				
	26/36	6.0 fl oz/1000 ft <sup>2</sup>				
38	Par	0.28 fl oz/1000 ft <sup>2</sup>	Late	0.0e	8.0a	193.3a
	NUP19022	0.213 fl oz/1000 ft <sup>2</sup>				
	NFA0800009	0.196 fl oz/1000 ft <sup>2</sup>				
	NUP19026	0.5 fl oz/1000 ft <sup>2</sup>				
39	3-Way Fungicide	6.5 lb/1000 ft <sup>2</sup>	Late	0.0e	7.0de	156.3a
40	Exp 0614	6.5 lb/1000 ft <sup>2</sup>	Late	0.0e	7.3cd	161.3a
41	Exp 0810	6.5 lb/1000 ft <sup>2</sup>	Late	2.5cd	6.5fg	158.3a
42	Exp 0814	6.5 lb/1000 ft <sup>2</sup>	Late	0.0e	7.0de	158.0a
43	Exp 1011	6.5 lb/1000 ft <sup>2</sup>	Late	0.0e	7.0de	161.8a
44	EXP 20	0.942 fl oz/1000 ft <sup>2</sup>	Late	0.0e	7.5bc	185.5a
	CA6242A	0.371 fl oz/1000 ft <sup>2</sup>				
45	A22011B	0.175 fl oz/1000 ft <sup>2</sup>	Late	1.3de	7.3cd	190.5a
	CA6242A	0.371 fl oz/1000 ft <sup>2</sup>				
46	A23543A	2.25 fl oz/1000 ft <sup>2</sup>	Late	0.0e	8.0a	179.8a
	CA6242A	0.371 fl oz/1000 ft <sup>2</sup>				
47	A23543A	2.25 fl oz/1000 ft <sup>2</sup>	Late	0.0e	8.0a	193.3a
	A6780L	2.0 fl oz/1000 ft <sup>2</sup>				
	CA6242A	0.371 fl oz/1000 ft <sup>2</sup>				
48	A23543A	2.25 fl oz/1000 ft <sup>2</sup>	Late	0.0e	8.0a	188.3a
	A9898A	1.3 fl oz/1000 ft <sup>2</sup>				
	CA6242A	0.371 fl oz/1000 ft <sup>2</sup>				
49	A23543A	2.25 fl oz/1000 ft <sup>2</sup>	Late	0.0e	8.0a	182.5a
	A19858D	1.1 fl oz/1000 ft <sup>2</sup>				
	CA6242A	0.371 fl oz/1000 ft <sup>2</sup>				
50	A23543A	2.25 fl oz/1000 ft <sup>2</sup>	Late	0.0e	8.0a	166.5a
	A14212C	3.0 fl oz/1000 ft <sup>2</sup>				
	CA6242A	0.371 fl oz/1000 ft <sup>2</sup>				
51	A23419A	4.0 lb/1000 ft <sup>2</sup>	Late	0.0e	7.0de	186.5a
52	A12704A	0.385 oz/1000 ft <sup>2</sup>	Late	0.0e	7.0de	191.5a
	A15457R	0.233 fl oz/1000 ft <sup>2</sup>				
53	A21790A	6.0 fl oz/1000 ft <sup>2</sup>	Late	0.0e	8.0a	210.3a
	A21791A	2.0 fl oz/1000 ft <sup>2</sup>				
	A12531B	5.5 fl oz/1000 ft <sup>2</sup>				
LSD P=.05				2.4	0.46	50.34

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54	Interface	6.0 fl oz/1000 ft <sup>2</sup>	Late	0.0e	8.0a	182.8a
	Mirage	2.0 fl oz/1000 ft <sup>2</sup>				
55	Interface	6.0 fl oz/1000 ft <sup>2</sup>	Late	0.0e	8.0a	220.5a
	Mirage	2.0 fl oz/1000 ft <sup>2</sup>				
	Daconil Weatherstik	5.0 fl oz/1000 ft <sup>2</sup>				
56	Interface	6.0 fl oz/1000 ft <sup>2</sup>	Late	0.0e	8.0a	180.0a
	Mirage	2.0 fl oz/1000 ft <sup>2</sup>				
	Turfcide	5.0 fl oz/1000 ft <sup>2</sup>				
57	Interface	4.0 fl oz/1000 ft <sup>2</sup>	Late	0.0e	8.0a	188.8a
	Mirage	2.0 fl oz/1000 ft <sup>2</sup>				
58	Interface	4.0 fl oz/1000 ft <sup>2</sup>	Late	0.0e	8.0a	215.3a
	Mirage	2.0 fl oz/1000 ft <sup>2</sup>				
	Densicor	0.196 fl oz/1000 ft <sup>2</sup>				
59	Interface	4.0 fl oz/1000 ft <sup>2</sup>	Late	0.0e	8.0a	200.3a
	Mirage	2.0 fl oz/1000 ft <sup>2</sup>				
	Turfcide	5.0 fl oz/1000 ft <sup>2</sup>				
60	Interface	4.0 fl oz/1000 ft <sup>2</sup>	Late	0.0e	7.8ab	172.5a
	Mirage	2.0 fl oz/1000 ft <sup>2</sup>				
	Secure Action	0.5 fl oz/1000 ft <sup>2</sup>				
61	ESTC184	4.0 fl oz/1000 ft <sup>2</sup>	Late	0.0e	8.0a	176.5a
	ESTC120	2.0 fl oz/1000 ft <sup>2</sup>				
	ESTC280	0.2 fl oz/1000 ft <sup>2</sup>				
62	ESTC184	4.0 fl oz/1000 ft <sup>2</sup>	Late	0.0e	8.0a	222.8a
	ESTC120	2.0 fl oz/1000 ft <sup>2</sup>				
	ESTC499	3.0 fl oz/1000 ft <sup>2</sup>				
63	ESTC120	2.0 fl oz/1000 ft <sup>2</sup>	Late	0.0e	7.8ab	201.0a
	ESTC280	0.4 fl oz/1000 ft <sup>2</sup>				
64	ESTC120	2.0 fl oz/1000 ft <sup>2</sup>	Late	0.0e	7.3cd	192.0a
	ESTC499	5.9 fl oz/1000 ft <sup>2</sup>				
65	ESTC183	2.0 fl oz/1000 ft <sup>2</sup>	Late	0.0e	7.8ab	177.8a
66	ESTC183	2.0 fl oz/1000 ft <sup>2</sup>	Late	0.0e	7.3cd	172.8a
	ESTC192	1.0 fl oz/1000 ft <sup>2</sup>				
LSD P=.05				2.4	0.46	50.34

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