

**2021-2022 Idaho Snow Mold Control Evaluation:
Whitetail Club – McCall, ID
McCall Golf Club – McCall, ID**

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OBJECTIVE

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

MATERIALS AND METHODS

The evaluations were conducted at both Whitetail Club and at McCall Golf Club in McCall, ID on fairway plots containing a mixed stand of Kentucky bluegrass (*Poa pratensis*), perennial ryegrass (*Lolium perenne*), and annual bluegrass (*Poa annua*). 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 CO₂-pressurized sprayer equipped with one AI9508EVS Teejet nozzle. All fungicides were agitated by hand and applied in the equivalent of 1.5 gallons of water per 1000 ft². All applications were made on 12 Oct 2021. Snow cover lasted from early December until mid-April, a total of approximately 140 days. Disease severity, turf quality, and turf color were evaluated on 18 Apr 2022. 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 Tables 1 (Whitetail Club) and 2 (McCall Golf Club).

RESULTS AND DISCUSSION

Disease pressure at Whitetail Club was very low with non-treated controls averaging 8.8% disease. On the other hand, disease pressure at McCall Golf Club was very high with non-treated controls averaging 72.5% disease. The primary disease present at both locations was Microdochium patch, though minor amounts of speckled snow mold were observed at McCall GC. At Whitetail, most treatments significantly reduced disease severity relative to the non-treated control and all treatments were of acceptable turf quality. At McCall, aside from one treatment, the best performing treatments had 20-30% disease. This was likely due to the exceptionally abnormal weather in McCall last fall. Permanent snow cover not only came approximately 1 month later than normal, but McCall received approximately 3 inches of rain between the timing of our application in mid-October and snow cover in December. This meant that there was likely significant degradation of the treatments before snow cover arrived. However, statistical differences could still be observed among the treatments at McCall, and about half of the treatments were significantly better than the non-treated control. The best performing treatments were those that contained mixtures of 3 or 4 active ingredients from multiple different chemical classes. Turf quality and turf color mostly mirrored disease severity ratings, and phytotoxicity was not observed with any treatment.

Table 1: Mean snow mold severity, turf quality, and turf color were assessed on April 18, 2022 on fairway turf at the Whitetail Club in McCall, ID.

	Treatment ^a	Rate	Disease Severity ^b	Turf Quality ^c	Turf Color ^d
1	Non-treated Control		8.8ab	6.0bc	153.0a-g
2	Rayora	1.4 fl oz/1000 ft ²	8.8ab	6.0bc	145.5b-h
	Fame C	5.9 fl oz/1000 ft ²			
3	Enclave	8.0 fl oz/1000 ft ²	0.0c	7.0a	128.3fgh
4	Enclave	8.0 fl oz/1000 ft ²	0.0c	7.0a	132.8d-h
	Foursome Plus	0.5 fl oz/1000 ft ²			
5	Contend A	1.0 fl oz/1000 ft ²	1.3bc	6.8ab	137.3b-h
	Contend B	2.6 fl oz/1000 ft ²			
	Daconil Weatherstik	5.5 fl oz/1000 ft ²			
	Ambient Plus	0.37 fl oz/1000 ft ²			
6	A23543A	3.0 fl oz/1000 ft ²	3.8bc	6.5ab	158.0a-e
	Daconil Weatherstik	5.5 fl oz/1000 ft ²			
7	Ambient Plus	0.37 fl oz/1000 ft ²	3.8bc	6.3abc	156.8a-e
	Instrata	9.3 fl oz/1000 ft ²			
8	Contend A	1.0 fl oz/1000 ft ²	0.0c	7.0a	139.0b-h
	Posterity XT	3.0 fl oz/1000 ft ²			
	Ambient Plus	0.37 fl oz/1000 ft ²			
9	A23543A	3.0 fl oz/1000 ft ²	6.3Bc	6.5ab	160.8a-d
	Posterity XT	3.0 fl oz/1000 ft ²			
10	Ambient Plus	0.37 fl oz/1000 ft ²	2.5Bc	6.5ab	161.8ab
	Contend A	1.0 fl oz/1000 ft ²			
	Posterity XT	3.0 fl oz/1000 ft ²			
	Daconil Weatherstik	5.5 fl oz/1000 ft ²			
11	Ambient Plus	0.37 fl oz/1000 ft ²	0.0C	7.0a	128.5fgh
	Traction	1.3 fl oz/1000 ft ²			
12	26/36	6.0 fl oz/1000 ft ²	1.3Bc	6.8ab	139.8b-h
	DV-101	0.4 fl oz/1000 ft ²			
13	Traction	1.3 fl oz/1000 ft ²	2.5Bc	6.8ab	124.3h
	26/36	6.0 fl oz/1000 ft ²			
14	Torque	0.15 fl oz/1000 ft ²	2.5Bc	6.8ab	135.0b-h
	Traction	1.3 fl oz/1000 ft ²			
	26/36	6.0 fl oz/1000 ft ²			
	DV-101	0.4 fl oz/1000 ft ²			
15	NFA0630301	1.1 fl oz/1000 ft ²	5.0Bc	6.3abc	175.3a
	Torque	0.75 fl oz/1000 ft ²			
16	ESTC184	6.0 fl oz/1000 ft ²	3.8bc	6.5ab	127.8fgh
	ESTC120	2.0 fl oz/1000 ft ²			
17	ESTC184	6.0 fl oz/1000 ft ²	3.8bc	6.3abc	145.3b-h
	ESTC120	2.0 fl oz/1000 ft ²			
	ESTC190	5.0 fl oz/1000 ft ²			
		LSD P=.05	7.52	0.84	28.03

^aAll applications were applied on 12 Oct 2021.

^bMean percent diseased area assessed on 18 Apr 2022. Means followed by the same letter do not differ significantly.

^cQuality was visually assessed where 1 = dead, 6 = acceptable, 9 = dark green.

^dColor 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 April 18, 2022 on fairway turf at the Whitetail Club in McCall, ID.

	Treatment ^a	Rate	Disease Severity ^b	Turf Quality ^c	Turf Color ^d
18	ESTC184	6.0 fl oz/1000 ft ²	0.0c	7.0a	127.3gh
	ESTC120	2.0 fl oz/1000 ft ²			
	ESTC111	0.196 fl oz/1000 ft ²			
19	ESTC185	6.0 fl oz/1000 ft ²	3.8bc	6.5ab	132.0e-h
	ESTC120	2.0 fl oz/1000 ft ²			
20	ESTC185	6.0 fl oz/1000 ft ²	0.0c	7.0a	132.0e-h
	ESTC120	2.0 fl oz/1000 ft ²			
	ESTC111	0.196 fl oz/1000 ft ²			
21	ESTC184	3.0 fl oz/1000 ft ²	1.3bc	6.8ab	133.0c-h
	ESTC120	2.0 fl oz/1000 ft ²			
22	ESTC184	3.0 fl oz/1000 ft ²	0.0c	7.0a	126.0gh
	ESTC120	2.0 fl oz/1000 ft ²			
	ESTC111	0.196 fl oz/1000 ft ²			
23	ESTC185	3.0 fl oz/1000 ft ²	6.3bc	6.0bc	126.5gh
	ESTC120	2.0 fl oz/1000 ft ²			
24	ESTC185	3.0 fl oz/1000 ft ²	6.3bc	6.3abc	142.5b-h
	ESTC120	2.0 fl oz/1000 ft ²			
	ESTC111	0.196 fl oz/1000 ft ²			
25	ESTC184	3.0 fl oz/1000 ft ²	6.3bc	6.3abc	124.8h
	ESTC120	2.0 fl oz/1000 ft ²			
	ESTC125	1.0 fl oz/1000 ft ²			
26	ESTC184	3.0 fl oz/1000 ft ²	1.3bc	6.8ab	123.8h
	ESTC120	2.0 fl oz/1000 ft ²			
	ESTC125	1.0 fl oz/1000 ft ²			
	ESTC190	5.0 fl oz/1000 ft ²			
27	ESTC184	3.0 fl oz/1000 ft ²	0.0c	7.0a	121.8h
	ESTC120	2.0 fl oz/1000 ft ²			
	ESTC125	1.0 fl oz/1000 ft ²			
	ESTC111	0.196 fl oz/1000 ft ²			
28	ESTC185	3.0 fl oz/1000 ft ²	2.5bc	6.8ab	142.0b-h
	ESTC120	2.0 fl oz/1000 ft ²			
	ESTC125	1.0 fl oz/1000 ft ²			
29	ESTC185	3.0 fl oz/1000 ft ²	2.5bc	6.5ab	142.3b-h
	ESTC120	2.0 fl oz/1000 ft ²			
	ESTC125	1.0 fl oz/1000 ft ²			
	ESTC190	5.0 fl oz/1000 ft ²			
30	ESTC185	3.0 fl oz/1000 ft ²	0.0c	7.0a	137.3b-h
	ESTC120	2.0 fl oz/1000 ft ²			
	ESTC125	1.0 fl oz/1000 ft ²			
	ESTC111	0.196 fl oz/1000 ft ²			
31	ESTC185	3.0 fl oz/1000 ft ²	2.5bc	6.5ab	139.0b-h
	ESTC120	2.0 fl oz/1000 ft ²			
	ESTC125	2.0 fl oz/1000 ft ²			
LSD P=.05			7.52	0.84	28.03

^aAll applications were applied on 12 Oct 2021.

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Table 1 (cont): Mean snow mold severity, turf quality, and turf color were assessed on April 18, 2022 on fairway turf at the Whitetail Club in McCall, ID.

	Treatment ^a	Rate	Disease Severity ^b	Turf Quality ^c	Turf Color ^d
32	ESTC185	3.0 fl oz/1000 ft ²	5.0bc	6.3abc	120.5h
	ESTC120	2.0 fl oz/1000 ft ²			
	ESTC125	2.0 fl oz/1000 ft ²			
	ESTC190	5.0 fl oz/1000 ft ²			
33	ESTC185	3.0 fl oz/1000 ft ²	1.3bc	6.8ab	131.5e-h
	ESTC120	2.0 fl oz/1000 ft ²			
	ESTC125	2.0 fl oz/1000 ft ²			
	ESTC111	0.196 fl oz/1000 ft ²			
34	ESTC183	2.0 fl oz/1000 ft ²	15.0a	5.5c	123.8h
35	ESTC183	2.0 fl oz/1000 ft ²	2.5bc	6.5ab	136.0b-h
	ESTC192	1.0 fl oz/1000 ft ²			
		LSD P=.05	7.52	0.84	28.03

^aAll applications were applied on 12 Oct 2021.

^bMean percent diseased area assessed on 18 Apr 2022. Means followed by the same letter do not differ significantly.

^cQuality was visually assessed where 1 = dead, 6 = acceptable, 9 = dark green.

^dColor was assessed using a FieldScout CM1000 Chlorophyll Meter from Spectrum Technologies, Inc.

Table 2: Mean snow mold severity, turf quality, and turf color were assessed on April 18, 2022 on fairway turf at the McCall Golf Club in McCall, ID.

Treatment ^a	Rate	Disease Severity ^b	Turf Quality ^c	Turf Color ^d	
1 Non-treated Control		72.5ab	3.0fg	138.8hi	
2 Rayora	1.4 fl oz/1000 ft ²	25.0h-k	5.3abc	175.8b-i	
Fame C	5.9 fl oz/1000 ft ²				
3 Enclave	8.0 fl oz/1000 ft ²	43.8b-j	4.5b-f	200.3a-f	
4 Enclave	8.0 fl oz/1000 ft ²	57.5a-g	3.5d-g	158.3d-i	
Foursome Plus	0.5 fl oz/1000 ft ²				
5 Contend A	1.0 fl oz/1000 ft ²	16.3jk	5.8ab	225.8abc	
	Contend B				2.6 fl oz/1000 ft ²
	Daconil Weatherstik				5.5 fl oz/1000 ft ²
	Ambient Plus				0.37 fl oz/1000 ft ²
	A23543A				3.0 fl oz/1000 ft ²
6 Daconil Weatherstik	5.5 fl oz/1000 ft ²	45.0b-j	3.8c-g	204.0a-f	
Ambient Plus	0.37 fl oz/1000 ft ²				
7 Instrata	9.3 fl oz/1000 ft ²	18.8ijk	5.3abc	200.3a-f	
Ambient Plus	0.37 fl oz/1000 ft ²				
Contend A	1.0 fl oz/1000 ft ²				
8 Posterity XT	3.0 fl oz/1000 ft ²	27.5g-k	4.5b-f	199.0a-g	
Ambient Plus	0.37 fl oz/1000 ft ²				
A23543A	3.0 fl oz/1000 ft ²				
9 Posterity XT	3.0 fl oz/1000 ft ²	43.8b-j	4.0c-g	199.3a-f	
Ambient Plus	0.37 fl oz/1000 ft ²				
10 Contend A	1.0 fl oz/1000 ft ²	16.3jk	5.3abc	214.3a-d	
	Posterity XT				3.0 fl oz/1000 ft ²
	Daconil Weatherstik				5.5 fl oz/1000 ft ²
	Ambient Plus				0.37 fl oz/1000 ft ²
11 Traction	1.3 fl oz/1000 ft ²	42.5b-j	4.0c-g	208.3a-e	
26/36	6.0 fl oz/1000 ft ²				
12 Traction	1.3 fl oz/1000 ft ²	40.0c-j	4.0c-g	197.8a-g	
26/36	6.0 fl oz/1000 ft ²				
DV-101	0.4 fl oz/1000 ft ²				
13 Traction	1.3 fl oz/1000 ft ²	31.3e-k	4.8b-e	206.0a-f	
26/36	6.0 fl oz/1000 ft ²				
Torque	0.15 fl oz/1000 ft ²				
14 Traction	1.3 fl oz/1000 ft ²	21.3h-k	5.3abc	226.8ab	
26/36	6.0 fl oz/1000 ft ²				
Torque	0.15 fl oz/1000 ft ²				
DV-101	0.4 fl oz/1000 ft ²				
15 NFA0630301	1.1 fl oz/1000 ft ²	5.0k	6.8a	237.8a	
Torque	0.75 fl oz/1000 ft ²				
16 ESTC184	6.0 fl oz/1000 ft ²	26.3g-k	5.3abc	207.8a-e	
ESTC120	2.0 fl oz/1000 ft ²				
ESTC184	6.0 fl oz/1000 ft ²				
17 ESTC120	2.0 fl oz/1000 ft ²	33.8d-k	4.5b-f	176.3b-i	
ESTC190	5.0 fl oz/1000 ft ²				
	LSD P=.05	32.22	1.7	56.26	

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Table 2 (cont): Mean snow mold severity, turf quality, and turf color were assessed on April 18, 2022 on fairway turf at the McCall Golf Club in McCall, ID.

	Treatment ^a	Rate	Disease Severity ^b	Turf Quality ^c	Turf Color ^d
18	ESTC184	6.0 fl oz/1000 ft ²			
	ESTC120	2.0 fl oz/1000 ft ²	45.0b-j	4.0c-g	170.0c-i
	ESTC111	0.196 fl oz/1000 ft ²			
19	ESTC185	6.0 fl oz/1000 ft ²	65.0a-d	3.3efg	142.8ghi
	ESTC120	2.0 fl oz/1000 ft ²			
20	ESTC185	6.0 fl oz/1000 ft ²			
	ESTC120	2.0 fl oz/1000 ft ²	36.3c-k	4.5b-f	173.8b-i
	ESTC111	0.196 fl oz/1000 ft ²			
21	ESTC184	3.0 fl oz/1000 ft ²	67.5abc	3.3efg	151.0f-i
	ESTC120	2.0 fl oz/1000 ft ²			
22	ESTC184	3.0 fl oz/1000 ft ²			
	ESTC120	2.0 fl oz/1000 ft ²	52.5a-h	3.5d-g	190.0a-h
	ESTC111	0.196 fl oz/1000 ft ²			
23	ESTC185	3.0 fl oz/1000 ft ²	62.5a-e	3.5d-g	157.3e-i
	ESTC120	2.0 fl oz/1000 ft ²			
24	ESTC185	3.0 fl oz/1000 ft ²			
	ESTC120	2.0 fl oz/1000 ft ²	60.0a-f	3.3efg	155.3e-i
	ESTC111	0.196 fl oz/1000 ft ²			
25	ESTC184	3.0 fl oz/1000 ft ²			
	ESTC120	2.0 fl oz/1000 ft ²	38.8c-j	4.5b-f	154.3e-i
	ESTC125	1.0 fl oz/1000 ft ²			
26	ESTC184	3.0 fl oz/1000 ft ²			
	ESTC120	2.0 fl oz/1000 ft ²			
	ESTC125	1.0 fl oz/1000 ft ²	46.3a-j	4.0c-g	163.3d-i
	ESTC190	5.0 fl oz/1000 ft ²			
27	ESTC184	3.0 fl oz/1000 ft ²			
	ESTC120	2.0 fl oz/1000 ft ²	45.0b-j	4.0c-g	181.3b-h
	ESTC125	1.0 fl oz/1000 ft ²			
	ESTC111	0.196 fl oz/1000 ft ²			
28	ESTC185	3.0 fl oz/1000 ft ²			
	ESTC120	2.0 fl oz/1000 ft ²	38.8c-j	4.3b-f	172.5b-i
	ESTC125	1.0 fl oz/1000 ft ²			
29	ESTC185	3.0 fl oz/1000 ft ²			
	ESTC120	2.0 fl oz/1000 ft ²	28.8f-k	5.0bcd	190.8a-h
	ESTC125	1.0 fl oz/1000 ft ²			
	ESTC190	5.0 fl oz/1000 ft ²			
30	ESTC185	3.0 fl oz/1000 ft ²			
	ESTC120	2.0 fl oz/1000 ft ²	50.0a-i	3.8c-g	169.5c-i
	ESTC125	1.0 fl oz/1000 ft ²			
	ESTC111	0.196 fl oz/1000 ft ²			
31	ESTC185	3.0 fl oz/1000 ft ²			
	ESTC120	2.0 fl oz/1000 ft ²	57.5a-g	3.3efg	123.8i
	ESTC125	2.0 fl oz/1000 ft ²			
		LSD P=.05	32.22	1.7	56.26

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	Treatment ^a	Rate	Disease Severity ^b	Turf Quality ^c	Turf Color ^d
32	ESTC185	3.0 fl oz/1000 ft ²	42.5b-j	4.0c-g	183.3a-h
	ESTC120	2.0 fl oz/1000 ft ²			
	ESTC125	2.0 fl oz/1000 ft ²			
	ESTC190	5.0 fl oz/1000 ft ²			
33	ESTC185	3.0 fl oz/1000 ft ²	72.5ab	2.5g	139.3hi
	ESTC120	2.0 fl oz/1000 ft ²			
	ESTC125	2.0 fl oz/1000 ft ²			
	ESTC111	0.196 fl oz/1000 ft ²			
34	ESTC183	2.0 fl oz/1000 ft ²	45.0b-j	4.3b-f	181.0b-h
35	ESTC183	2.0 fl oz/1000 ft ²	60.0a-f	3.8c-g	136.5hi
	ESTC192	1.0 fl oz/1000 ft ²			
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