

2019-2020 Idaho Snow Mold Control Evaluation: Whitetail 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

These evaluations were conducted at the Whitetail Club in McCall, ID: one on a ‘Dominant’ creeping bentgrass (*Agrostis stolonifera*) nursery putting green, the second on a fairway containing a mixed stand of Kentucky bluegrass, perennial ryegrass, and annual bluegrass. 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 boom sprayer equipped with two AI8004 Teejet air induction nozzles. 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 16 Oct 2019. Snow cover lasted for approximately 170 days, from approximately 15 Nov 2019 to 29 Apr 2020. Disease severity and turf quality were evaluated once via pictures taken of each plot on 29 Apr 2020, and again by an in person evaluation on 11 May 2020. Turf color was evaluated once on 11 May 2020. 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 (fairway) and 2 (nursery green).

RESULTS AND DISCUSSION

The primary disease present on both the nursery green and fairway plots was Microdochium patch, though speckled snow mold accounted for approximately 25% of the disease symptoms present on the fairway plot. Overall disease pressure was lessened somewhat by fairly frozen turf prior to snow cover, but pressure on the fairway plot was still high. The non-treated control averaged 38.8% disease and 14 of the 23 treatments reduced disease relative to the non-treated control on the April 29th rating date. Eight treatments provided excellent snow mold control (<10% disease) given the difficult conditions, and all of those treatments contained a mixture of 3 or more active ingredients from multiple chemical classes. Disease pressure was lower on the nursery green, and the only treatments that failed to provide excellent disease control were treatments that contained 2 or fewer active ingredients. Significant recovery occurred in the two weeks before snowmelt and the first rating on 29 Apr and the second rating on 11 May. Turf quality mirrored disease severity ratings, and phytotoxicity was not observed with any treatment. No differences in turf color were observed on either plot.

Table 1: Mean snow mold severity, turf quality, and turf color were assessed on April 29, 2020 and on May 11, 2020 on fairway turf at the Whitetail Club in McCall, ID.

	Treatment ^a	Rate	4/29/20 Disease Severity ^b	5/11/20 Disease Severity	4/29/20 Turf Quality ^c	5/11/20 Turf Quality	5/11/20 Turf Color ^d
1	Non-treated Control		38.8b	27.5bc	4.3ef	5.0def	358.3a
2	Premion	10.0 fl oz/1000 ft ²	8.8d-g	5.0fg	5.8a-d	6.3abc	426.8a
	Previa	4.0 fl oz/1000 ft ²					
	Foursome	0.5 fl oz/1000 ft ²					
3	Premion	10.0 fl oz/1000 ft ²	6.8efg	7.5fg	6.3ab	6.0a-d	330.0a
	Previa	5.5 fl oz/1000 ft ²					
	Foursome	0.5 fl oz/1000 ft ²					
4	Premion	10.0 fl oz/1000 ft ²	3.0g	3.8fg	6.5a	6.3abc	363.3a
	Secure	0.5 fl oz/1000 ft ²					
5	Foursome	0.5 fl oz/1000 ft ²	23.8b-e	11.3d-g	5.0c-f	5.5b-e	456.3a
	Concert II	5.5 fl oz/1000 ft ²					
	Turfcide	8.0 fl oz/1000 ft ²					
6	Foursome	0.5 fl oz/1000 ft ²	16.3d-g	12.5c-g	5.5a-d	5.8a-e	486.5a
	Concert II	8.3 fl oz/1000 ft ²					
	Turfcide	8.0 fl oz/1000 ft ²					
7	Previa	5.5 fl oz/1000 ft ²	37.5bc	25.0bcd	4.0f	4.8ef	451.5a
	Foursome	0.5 fl oz/1000 ft ²					
8	Interface	6.0 fl oz/1000 ft ²	22.5b-f	23.8b-e	4.8def	4.8ef	488.3a
9	Daconil Weatherstik	5.5 fl oz/1000 ft ²	5.5fg	6.3fg	6.3ab	6.0a-d	548.0a
	Interface	6.0 fl oz/1000 ft ²					
	Mirage	2.0 fl oz/1000 ft ²					
10	Interface	6.0 fl oz/1000 ft ²	12.5d-g	17.5c-f	5.8a-d	5.3c-f	303.3a
	Mirage	2.0 fl oz/1000 ft ²					
	Turfcide	6.0 fl oz/1000 ft ²					
11	Daconil Weatherstik	5.5 fl oz/1000 ft ²	5.5fg	3.8fg	6.3ab	6.5ab	405.8a
	Interface	6.0 fl oz/1000 ft ²					
	ESTC111	0.2 fl oz/1000 ft ²					
12	Traction	1.3 fl oz/1000 ft ²	7.5efg	2.5fg	6.3ab	6.5ab	341.0a
	26/36	4.0 fl oz/1000 ft ²					
13	Traction	1.3 fl oz/1000 ft ²	3.8g	1.3g	6.5a	6.8a	358.3a
	26/36	8.0 fl oz/1000 ft ²					
14	Affirm	0.88 oz/1000 ft ²	23.8b-e	8.8efg	5.0c-f	5.8a-e	441.5a
	Civitas Pre-Mixed	17.0 fl oz/1000 ft ²					
15	Tourney	0.44 oz/1000 ft ²	60.0a	33.8b	2.8g	4.3fg	339.8a
	Affirm	0.88 oz/1000 ft ²					
16	NUP-19022	0.21 fl oz/1000 ft ²	37.5bc	25.0bcd	4.3ef	4.8ef	401.0a
17	NUP-19022	0.21 fl oz/1000 ft ²	72.5a	53.8a	2.5g	3.3g	298.5a
	Traction	1.3 fl oz/1000 ft ²					
		LSD P=.05	18.04	15.83	1.12	1.15	168.77

^aAll applications were applied on 16 Oct 2019.

^bMean percent diseased area assessed on Apr 29, 2020 and on May 11, 2020. 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 29, 2020 and on May 11, 2020 on a fairway at the Whitetail Club in McCall, ID.

	Treatment ^a	Rate	4/29/20 Disease Severity ^b	5/11/20 Disease Severity	4/29/20 Turf Quality ^c	5/11/20 Turf Quality	5/11/20 Turf Color ^d
18	Contend A	1.0 fl oz/1000 ft ²					
	Contend B	2.6 fl oz/1000 ft ²					
	Daconil Weatherstik	5.4 fl oz/1000 ft ²	20.0c-g	13.8c-g	5.0c-f	5.5b-e	384.3a
	Ambient Plus	0.37 fl oz/1000 ft ²					
19	A22835C	2.9 fl oz/1000 ft ²					
	Daconil Weatherstik	5.4 fl oz/1000 ft ²	18.8d-g	7.5fg	5.0c-f	6.0a-d	399.5a
20	Ambient Plus	0.37 fl oz/1000 ft ²					
	Instrata	7.0 fl oz/1000 ft ²					
	Daconil Weatherstik	2.1 fl oz/1000 ft ²	15.0d-g	5.0fg	5.3b-e	6.0a-d	379.3a
21	Ambient Plus	0.37 fl oz/1000 ft ²					
	Contend A	1.0 fl oz/1000 ft ²					
	Contend B	2.6 fl oz/1000 ft ²					
	Turfcide	6.0 fl oz/1000 ft ²	10.0d-g	8.8efg	6.0abc	6.0a-d	456.3a
22	Ambient Plus	0.37 fl oz/1000 ft ²					
	A22835C	2.9 fl oz/1000 ft ²					
	Turfcide	6.0 fl oz/1000 ft ²	26.3bcd	8.8efg	4.8def	6.3abc	369.8a
23	Ambient Plus	0.37 fl oz/1000 ft ²					
	Instrata	7.0 fl oz/1000 ft ²					
24	Turfcide	6.0 fl oz/1000 ft ²	23.8b-e	13.8c-g	5.3b-e	5.8a-e	338.3a
	Ambient Plus	0.37 fl oz/1000 ft ²					
	Contend A	1.0 fl oz/1000 ft ²					
24	Contend B	2.6 fl oz/1000 ft ²	11.3d-g	1.3g	5.8a-d	6.8a	378.5a
	26/36	4.0 fl oz/1000 ft ²					
		LSD P=.05	18.04	15.83	1.12	1.15	168.77

^aAll applications were applied on 16 Oct 2019.

^bMean percent diseased area assessed on Apr 29, 2020 and on May 11, 2020. 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 29, 2020 and on May 11, 2020 on a putting green at the Whitetail Club in McCall, ID.

	Treatment ^a	Rate	4/29/20 Disease Severity ^b	5/11/20 Disease Severity	4/29/20 Turf Quality ^c	5/11/20 Turf Quality	5/11/20 Turf Color ^d
1	Non-treated Control		22.5a	20.0a	5.0c	5.0h	229.0a
2	Premion	10.0 fl oz/1000 ft ²	0.0c	0.0c	7.0a	7.0cde	251.0a
	Previa	4.0 fl oz/1000 ft ²					
	Foursome	0.5 fl oz/1000 ft ²					
3	Premion	10.0 fl oz/1000 ft ²	0.0c	0.0c	7.0a	7.0cde	259.8a
	Previa	5.5 fl oz/1000 ft ²					
	Foursome	0.5 fl oz/1000 ft ²					
4	Premion	10.0 fl oz/1000 ft ²	0.0c	1.3c	7.0a	6.8de	238.8a
	Secure	0.5 fl oz/1000 ft ²					
	Foursome	0.5 fl oz/1000 ft ²					
5	Concert II	5.5 fl oz/1000 ft ²	0.0c	0.0c	7.0a	7.0cde	234.0a
	Turfcide	8.0 fl oz/1000 ft ²					
	Foursome	0.5 fl oz/1000 ft ²					
6	Concert II	8.3 fl oz/1000 ft ²	0.0c	0.0c	7.0a	7.0cde	242.0a
	Turfcide	8.0 fl oz/1000 ft ²					
	Foursome	0.5 fl oz/1000 ft ²					
7	Turfcide	8.0 fl oz/1000 ft ²	0.0c	0.0c	7.0a	7.0cde	242.0a
	Previa	5.5 fl oz/1000 ft ²					
	Foursome	0.5 fl oz/1000 ft ²					
8	Interface	6.0 fl oz/1000 ft ²	0.0c	0.0c	7.0a	7.5abc	243.5a
	Daconil Weatherstik	5.5 fl oz/1000 ft ²					
	Interface	6.0 fl oz/1000 ft ²					
9	Mirage	2.0 fl oz/1000 ft ²	0.0c	0.0c	7.0a	8.0a	259.3a
	Interface	6.0 fl oz/1000 ft ²					
	Interface	6.0 fl oz/1000 ft ²					
10	Mirage	2.0 fl oz/1000 ft ²	0.0c	0.0c	7.0a	7.0cde	224.8a
	Turfcide	6.0 fl oz/1000 ft ²					
	Daconil Weatherstik	5.5 fl oz/1000 ft ²					
11	Interface	6.0 fl oz/1000 ft ²	0.0c	0.0c	7.0a	7.5abc	276.0a
	ESTC111	0.2 fl oz/1000 ft ²					
	Traction	1.3 fl oz/1000 ft ²					
12	26/36	4.0 fl oz/1000 ft ²	0.0c	0.0c	7.0a	7.3bcd	233.3a
	Traction	1.3 fl oz/1000 ft ²					
13	26/36	8.0 fl oz/1000 ft ²	0.0c	0.0c	7.0a	7.0cde	231.3a
	Affirm	0.88 oz/1000 ft ²					
14	Civitas Pre-Mixed	17.0 fl oz/1000 ft ²	22.5a	22.5a	5.0c	5.0h	215.3a
	Tourney	0.44 oz/1000 ft ²					
15	Affirm	0.88 oz/1000 ft ²	7.5b	8.8b	6.0b	5.8g	250.0a
	NUP-19022	0.21 fl oz/1000 ft ²					
16	NUP-19022	0.21 fl oz/1000 ft ²	1.3c	2.5c	6.8a	6.5ef	243.5a
	Traction	1.3 fl oz/1000 ft ²					
17	NUP-19022	0.21 fl oz/1000 ft ²	8.8b	7.5b	6.0b	6.0fg	257.0a
	Traction	1.3 fl oz/1000 ft ²					
		LSD P=.05	5.05	4.56	0.46	0.7	53.03

^aAll applications were applied on 16 Oct 2019.

^bMean percent diseased area assessed on Apr 29, 2020 and on May 11, 2020. 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 (cont): Mean snow mold severity, turf quality, and turf color were assessed on April 29, 2020 and on May 11, 2020 on a putting green at the Whitetail Club in McCall, ID.

	Treatment ^a	Rate	4/29/20 Disease Severity ^b	5/11/20 Disease Severity	4/29/20 Turf Quality ^c	5/11/20 Turf Quality	5/11/20 Turf Color ^d
18	Contend A	1.0 fl oz/1000 ft ²					
	Contend B	2.6 fl oz/1000 ft ²					
	Medallion	2.0 fl oz/1000 ft ²	0.0c	0.0c	7.0a	7.5abc	263.3a
	Ambient Plus	0.37 fl oz/1000 ft ²					
19	A22835C	2.9 fl oz/1000 ft ²	0.0c	0.0c	7.0a	7.8ab	252.3a
	Ambient Plus	0.37 fl oz/1000 ft ²					
20	A22835C	2.9 fl oz/1000 ft ²					
	Daconil Weatherstik	5.4 fl oz/1000 ft ²	0.0c	0.0c	7.0a	7.5abc	275.0a
	Ambient Plus	0.37 fl oz/1000 ft ²					
21	A22835C	2.9 fl oz/1000 ft ²					
	Banner Maxx	4.0 fl oz/1000 ft ²	0.0c	0.0c	7.0a	7.8ab	271.5a
	Ambient Plus	0.37 fl oz/1000 ft ²					
22	Instrata	11.0 fl oz/1000 ft ²					
	Ambient Plus	0.37 fl oz/1000 ft ²	0.0c	0.0c	7.0a	7.5abc	256.5a
23	Instrata	11.0 fl oz/1000 ft ²					
	Medallion	0.7 fl oz/1000 ft ²	1.3c	1.3c	6.8a	7.0cde	239.8a
	Ambient Plus	0.37 fl oz/1000 ft ²					
24	Instrata	7.0 fl oz/1000 ft ²					
	26/36	4.0 fl oz/1000 ft ²	0.0c	0.0c	7.0a	7.3bcd	232.3a
		LSD P=.05	5.05	4.56	0.46	0.7	53.03

^aAll applications were applied on 16 Oct 2019.

^bMean percent diseased area assessed on Apr 29, 2020 and on May 11, 2020. 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.