2010-2011 Snow Mold Control Evaluation: Sentryworld Golf Course - Stevens Point, WI.

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OBJECTIVE

To evaluate fungicides for the control of Typhula blight (caused by *Typhula ishikariensis* and *T. incarnata*) and Microdochium patch (caused by *Microdochium nivale*).

MATERIALS AND METHODS

This evaluation was conducted at Sentryworld Golf Course in Stevens Point, WI on a 'Penneagle' creeping bentgrass (*Agrostis stolonifera*) fairway nursery maintained at a height of 0.5-inch. Individual plots measured 3 ft x 8 ft (24 ft^2), and were arranged in a randomized complete block design with four replications. Individual treatments were applied at a nozzle pressure of 40 p.s.i using a CO_2 pressurized boom sprayer equipped with two XR Teejet 8004 VS nozzles. All fungicides were agitated by hand and applied in the equivalent of 2 gallons of water per 1000 ft^2,except for treatments 56-57 (3 gallons/1000 ft^2) and treatments 58-63 (2.5 gallons/1000 ft^2). Early applications were applied on October 19th, 2010 and late applications were applied on November 23rd, 2010. The experimental plot area was not inoculated. There was continuous snow cover on the plots from December 6th until mid-early April of 2011, a total of approximately 120 days. Disease severity, turf quality, and color were recorded on April 10th, 2011. Disease severity was visually rated as percent disease, turfgrass quality was visually rated on a 1-9 scale with 6 being acceptable, and Normalized Difference Vegetative Index (turfgrass color) was rated using a GreenSeeker NDVI Turf Color Meter® from NTech Industries (Ukiah, CA). Data were subjected to an analysis of variance and means were separated using the Waller-Duncan test. Means for disease severity, turf quality and color are presented in the following tables for individual treatments.

RESULTS AND DISCUSSION

Disease pressure was high at Sentryworld in 2010-2011 with non treated controls averaging 74.8% disease. The dominant pathogen observed was Typhula ishikariensis, the causal agent of gray snow mold (aka speckled snow mold). *T. incarnata* and *Microdochium nivale* were also observed but occurred infrequently and sporadically throughout the experimental area. Thirteen treatments failed to reduce disease severity when compared to the non-treated control. Despite this heavy pressure, 36 treatments provided acceptable disease suppression (<5% disease), including 12 that provided complete disease suppression. Differences in plot color and quality were also observed, though most products that provided excellent disease control provided statistically similar quality and color.

Snow Mold, Quality, and Color Ratings Recorded on April 10th, 2011 at Sentryworld GC

	Treatment	Rate	Timing[a]	Dis Severity[b]	Quality[c]	Color[d]
1	Non treated Control			74.8 a-e	2.3 l-o	0.437 ABC
6	V-10190	0.7 FL OZ/M	Late	88.8 abc	1.8 no	0.415 C
7	Tourney	0.37 OZ/M	Late	7.5 rst	5.5 d-h	0.614 b-k
	3336 Plus	4.0 FL OZ/M	Late			
8	Velista	0.7 OZ/M	Late	42.5 j-n	3.8 ijk	0.532 p-w
9	Velista	0.7 OZ/M	Late	6.8 rst	5.8 c-g	0.600 b-o
	Daconil Ultrex	5.0 OZ/M	Late			
	Chipco 26GT	4.0 FL OZ/M	Late			
10	Velista	0.7 OZ/M	Late	3.0 st	6.5 a-e	0.613 b-k
	Daconil Ultrex	5.0 OZ/M	Late			
	Heritage	0.7 OZ/M	Late			
11	Velista	0.7 OZ/M	Late	3.8 st	6.3 a-f	0.603 b-o
	Daconil Ultrex	5.0 OZ/M	Late			
	Banner MAXX	2.0 FL OZ/M	Late			
12	Velista	0.7 OZ/M	Late	3.5 st	6.0 b-f	0.608 b-m
	Daconil Ultrex	5.0 OZ/M	Late			
	3336 Plus	2.0 FL OZ/M	Late			
13	Velista	0.7 OZ/M	Late	7.5 rst	6.0 b-f	0.596 c-o
	Daconil Ultrex	5.0 OZ/M	Late			
14	Velista	0.7 OZ/M	Late	2.5 st	6.5 a-e	0.597 b-o
	Medallion	0.25 OZ/M	Late			
	Banner MAXX	2.0 FL OZ/M	Late			
15	Insignia SC	0.7 FL OZ/M	Late	3.0 st	6.3 a-f	0.615 b-k
	Trinity	1.5 FL OZ/M	Late			
	Daconil Ultrex	3.2 OZ/M	Late			
16	Insignia SC	0.54 FL OZ/M	Late	3.8 st	6.3 a-f	0.603 b-o
	Trinity	1.0 FL OZ/M	Late			
	Daconil Ultrex	3.2 OZ/M	Late			
17	Curalan EG	1.0 OZ/M	Early	0.5 t	6.8 a-d	0.606 b-n
	Daconil Ultrex	3.2 OZ/M	Early			
	Insignia SC	0.54 FL OZ/M	Late			
	Trinity	1.0 FL OZ/M	Late			
	Daconil Ultrex	3.2 OZ/M	Late			
18	Honor	0.84 OZ/M	Late	0.0 t	6.8 a-d	0.600 b-o
	Trinity	1.0 FL OZ/M	Late			
	Daconil Ultrex	3.2 OZ/M	Late			
19	Interface	5.0 FL OZ/M	Late	13.8 p-t	5.5 d-h	0.578 i-s
20	Interface	4.0 FL OZ/M	Late	4.3 st	6.3 a-f	0.596 c-p
	Daconil Ultrex	3.2 OZ/M	Late			
21	Interface	6.0 FL OZ/M	Late	1.8 st	6.5 a-e	0.613 b-l
	Triton FLO	0.85 FL OZ/M	Late			
22	Interface	5.0 FL OZ/M	Late	0.0 t	7 abc	0.639 a-i
	Triton FLO	0.85 FL OZ/M	Late			
23	Interface	4.0 FL OZ/M	Late	0.0 t	7.3 ab	0.630 a-j
	Triton FLO	0.85 FL OZ/M	Late			

Means followed by same letter do not significantly differ (P=.05, Waller-Duncan)

[a]Early and late fungicide treatments were applied on Oct. 19th, 2010 and Nov. 23rd, 2010, respectively

[b]Mean % diseased area

[c]Quality was visually rated on a scale of 1-9 where 1 = completely dead, 6 = acceptable, 9 = highest quality

[d]Color was rated using a GreenSeeker NDVI Turf Color Meter from Ntech Industries®

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Treatment	Rate	Timing[a]	Dis severity[b]	Quality[c]	Color[d]
24 Interface	3.0 FL OZ/M	Late	6.0 st	5.8 c-g	0.600 b-o
Triton FLO	0.5 FL OZ/M	Late			
25 Reserve	4.5 FL OZ/M	Late	3.0 st	6.3 a-f	0.597 c-o
Compass	0.25 OZ/M	Late			
26 Reserve	4.5 FL OZ/M	Late	0.5 t	6.8 a-d	0.610 b-m
Interface	4.0 FL OZ/M	Late			
27 Tartan	2.0 FL OZ/M	Late	7.5 rst	5.8 c-g	0.622 a-k
Daconil Ultrex	5.0 OZ/M	Late			
28 QP TM/C	6.0 OZ/M	Late	0.0 t	6.5 a-e	0.602 b-o
QP Ipro	4.0 FL OZ/M	Late			
QP Propiconazole	2.0 FL OZ/M	Late			
29 QP 642	11.75 FL OZ/M	Late	2.5 st	6.5 a-e	0.598 b-o
30 QP Chlorothalonil	2.66 FL OZ/M	Late	1.3 t	6.8 a-d	0.630 a-j
QP Ipro	4.0 FL OZ/M	Late			
QP Tebuconazole	0.69 FL OZ/M	Late			
31 QP Chlorothalonil	4.76 FL OZ/M	Late	3.0 st	6.0 b-f	0.605 b-o
QP Ipro	2.23 FL OZ/M	Late			
QP Fludioxonil	0.36 FL OZ/M	Late			
32 GWN-9803	0.5 FL OZ/M	Early/Late	67.5 c-i	2.5 k-n	0.479 v-B
GWN-6526	0.25% v/v	Early/Late			
33 GWN-9803	1.0 FL OZ/M	Early/Late	63.8 d-j	2.8 k-n	0.477 w-C
GWN-6526	0.25% v/v	Early/Late			
34 GWN-9803	2.0 OZ/M	Early/Late	70.5 a-g	2.3 l-o	0.453 x-C
GWN-6526	0.25% v/v	Early/Late			
35 NB37440	0.4 FL OZ/M	Late	75.0 a-e	2.0 mno	0.419 BC
36 NB37440	0.82 FL OZ/M	Late	35.0 l-p	4.3 hij	0.550 l-u
37 NB36137	0.45 OZ/M	Late	47.5 h-m	3.5 jkl	0.505 t-z
38 NB36137	0.9 OZ/M	Late	82.5 a-d	2.0 mno	0.445 y-C
39 NB36693	1.2 OZ/M	Late	82.3 a-d	2.0 mno	0.446 y-C
40 NB36693	2.4 OZ/M	Late	72.5 a-f	2.3 l-o	0.457 x-C
41 Civitas Mix 1			18.8 o-t	5.0 f-i	0.643 a-h
42 Civitas Mix 2			32.5 l-q	4.5 g-j	0.586 f-q
43 Civitas Mix 3			8.8 rst	5.8 c-g	0.643 a-h
44 Civitas Mix 4			7.5 rst	5.5 d-h	0.658 abc

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Treatment	Rate	Timing[a]	Dis severity[b]	Quality[c]	Color[d]
45 Civitas Mix 5			1.3 t	7.0 abc	0.652 a-e
46 Civitas Mix 6			20.0 o-t	5.5 d-h	0.606 b-n
47 Civitas Mix 7			80.0 a-e	2.3 l-o	0.487 u-A
48 Civitas Mix 8			75.0 a-e	2.8 k-n	0.568 j-t
49 Civitas Mix 9			6.3 st	6.8 a-d	0.590 d-p
50 Civitas Mix 10			11.3 q-t	5.5 d-h	0.629 a-j
51 Civitas Mix 11			10.0 rst	6.3 a-f	0.654 a-d
52 Civitas Mix 12			2.5 st	6.5 a-e	0.660 ab
53 Civitas Mix 13			0.0 t	7.0 abc	0.649 a-f
54 Civitas Mix 14			1.8 st	6.8 a-d	0.647 a-g
55 Civitas Mix 15			0.0 t	7.5 a	0.679 a
56 1367-A	12.0 FL OZ/M	Early/Late	91.3 ab	1.0 o	0.431 ABC
57 1367-A	24.0 FL OZ/M	Early/Late	92.5 a	1.0 o	0.452 y-C
58 1367-B	6.0 FL OZ/M	Early/Late	69.5 b-h	2.5 k-n	0.507 t-y
59 1367-B	12.0 FL OZ/M	Early/Late	90.8 ab	1.0 o	0.452 y-C
60 1367-C	6.0 FL OZ/M	Early/Late	70.5 a-g	2.8 k-n	0.443 z-C
61 1367-C	12.0 FL OZ/M	Early/Late	77.3 a-e	2.0 mno	0.472 w-C
62 1367-D	6.0 FL OZ/M	Early/Late	58.5 e-k	3.3 j-m	0.525 q-w
63 1367-D	12.0 FL OZ/M	Early/Late	46.0 i-n	3.3 j-m	0.521 r-w

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64 Instrata	5.0 FL OZ/M	Late	8.0 rst	5.8 c-g	0.580 r-w
65 Instrata	7.0 FL OZ/M	Late	0.5 t	6.8 a-d	0.606 b-n
66 Instrata	9.0 FL OZ/M	Late	3.8 st	6.3 a-f	0.603 b-o
67 Instrata	9.3 FL OZ/M	Late	0.0 t	6.8 a-d	0.585 g-q
68 Instrata	5.5 FL OZ/M	Early/Late	1.3 t	6.8 a-d	0.620 a-k
69 Concert	5.0 FL OZ/M	Late	17.5 o-t	5.0 f-i	0.588 e-q
Renown	2.5 FL OZ/M	Late			
70 Concert	8.5 FL OZ/M	Late	6.3 st	6.0 b-f	0.585 g-q
Banner MAXX	1.0 FL OZ/M	Late			
71 Concert	8.5 FL OZ/M	Late	0.0 t	6.8 a-d	0.617 a-k
Medallion	0.25 OZ/M	Late			
72 Concert	8.5 FL OZ/M	Late	3.8 st	6.3 a-f	0.626 a-k
Chipco 26GT	4.0 FL OZ/M	Late			
73 Concert	8.5 FL OZ/M	Late	4.3 st	6.0 b-f	0.587 f-q
74 Headway G	4.0 LB/M	Late	76.3 a-e	1.8 no	0.474 w-C
81 Torque	0.6 FL OZ/M	Late	2.5 st	6.5 a-e	0.614 b-k
26/36	4.0 FL OZ/M	Late			
82 Torque	0.9 FL OZ/M	Late	0.0 t	7.0 abc	0.618 a-k
26/36	4.0 FL OZ/M	Late			
83 Torque	0.6 FL OZ/M	Late	1.8 st	6.5 a-e	0.615 b-k
26/36	4.0 FL OZ/M	Late			
Spectro	3.67 OZ/M	Late			
84 Torque	0.9 FL OZ/M	Late	0.0 t	7.0 abc	0.608 b-n
26/36	4.00 FL OZ/M	Late			
Spectro	3.7 OZ/M	Late			
85 Torque	0.6 FL OZ/M	Late	0.0 t	7.3 abc	0.636 a-i
Affirm	0.9 OZ/M	Late			
86 Torque	0.6 FL OZ/M	Late	0.0 t	7.0 abc	0.605 b-n
Affirm	0.9 OZ/M	Late			
Spectro	3.7 OZ/M	Late			
87 Chipco 26GT	4.0 FL OZ/M	Late	28.8 m-r	4.5 g-j	0.564 k-t
Daconil Wstik	5.5 FL OZ/M	Late			
88 Endorse	4.0 OZ/M	Late	61.3 d-j	3.3 j-m	0.548 m-u
89 Segway	0.75 FL OZ/M	Late	76.3 a-e	2.0 mno	0.419 BC
90 Endorse	3.0 OZ/M	Late	50.0 g-m	3.5 jkl	0.544 n-u
Segway	0.45 FL OZ/M	Late			

Means followed by same letter do not significantly differ (P=.05, Waller-Duncan)

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