2010-2011 Snow Mold Control Evaluation
Wawonowin CC – Champion, MI

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OBJECTIVE

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

MATERIALS AND METHODS

This evaluation was conducted at Wawonowin Country Club in Champion, MI on a creeping bentgrass (*Agrostis stolonifera*) and annual bluegrass (*Poa annua*) fairway maintained at a height of 0.5 inch. Individual plots measured 3 ft x 10 ft (30 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 54-55 (3 gallons/1000 ft^2) and treatments 56-61 (2.5 gallons/1000 ft^2). Early applications were applied on October 12th, 2010 and late applications were applied on November 9th, 2010. The experimental plot area was not inoculated. There was continuous snow cover on the plots from mid-November until mid-April of 2011, a total of approximately 150 days. Disease severity, turf quality, and color were recorded on April 14th, 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 Wawonowin in 2010-2011 with non-treated controls averaging 90.8% disease. The dominant pathogen observed was *Typhula ishikariensis*, the causal agent of gray snow mold (aka speckled snow mold). Microdochium patch (*Microdochium nivale*) was also observed but made up less than 10% of the snow mold oberved. Nine treatments failed to reduce disease severity when compared to the non-treated control. Despite this heavy pressure, 44 treatments provided acceptable disease suppression (<5% disease), including 20 that provided complete disease suppression. Differences in plot color and turf 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 14th, 2011 at Wawonowin CC

	Treatment	Rate	Timing[a]	Dis Severity[b]	Quality[c]	Color[d]
1	Non treated Control			90.8 a	2.0 k	0.346 EF
6	V-10190	0.7 FL OZ/M	Late	30.0 h-m	4.8 d-g	0.446 s-y
7	Tourney	0.37 OZ/M	Late	0.0 r	6.0 abc	0.523 a-p
	3336 Plus	4.0 FL OZ/M	Late			
8	Velista	0.7 OZ/M	Late	22.5 i-q	5.3 b-e	0.494 i-s
9	Velista	0.7 OZ/M	Late	2.5 qr	6.0 abc	0.518 a-p
	Daconil Ultrex	5.0 OZ/M	Late			
	Chipco 26GT	4.0 FL OZ/M	Late			
10	Velista	0.7 OZ/M	Late	1.3 r	6.0 abc	0.484 l-v
	Daconil Ultrex	5.0 OZ/M	Late			
	Heritage	0.7 OZ/M	Late			
11	Velista	0.7 OZ/M	Late	0.8 r	6.0 abc	0.520 a-p
	Daconil Ultrex	5.0 OZ/M	Late			
	Banner MAXX	2.0 FL OZ/M	Late			
12	Velista	0.7 OZ/M	Late	0.8 r	6.0 abc	0.514 b-p
	Daconil Ultrex	5.0 OZ/M	Late			
	3336 Plus	2.0 FL OZ/M	Late			
13	Velista	0.7 OZ/M	Late	6.3 n-r	6.0 abc	0.501 d-r
	Daconil Ultrex	5.0 OZ/M	Late			
14	Velista	0.7 OZ/M	Late	0.0 r	6.3 ab	0.569 a
	Medallion	0.25 OZ/M	Late			
	Banner MAXX	2.0 FL OZ/M	Late			
15	Insignia SC	0.7 FL OZ/M	Late	2.5 r	6.0 abc	0.528 a-n
	Trinity	1.0 FL OZ/M	Late			
	Daconil Ultrex	3.2 OZ/M	Late			
16	Insignia SC	0.54 FL OZ/M	Late	3.8 r	6.0 abc	0.545 a-i
	Trinity	1.0 FL OZ/M	Late			
	Daconil Ultrex	3.2 OZ/M	Late			
17	Curalan EG	1.0 OZ/M	Early	0.0 l-r	6.0 abc	0.550 a-f
	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	13 l-r	5.8 a-d	0.471 p-w
	Trinity	1.0 FL OZ/M	Late			
	Daconil Ultrex	3.2 OZ/M	Late			
19	Interface	4.0 FL OZ/M	Late	0.0 r	6.0 abc	0.513 b-p
	Daconil Ultrex	3.2 OZ/M	Late			
20	Interface	5.0 FL OZ/M	Late	6.3 n-r	6.0 abc	0.509 c-q
21	Interface	6.0 FL OZ/M	Late	1.3 r	6.3 ab	0.537 a-k
	Triton FLO	0.85 FL OZ/M	Late			
22	Interface	3.0 FL OZ/M	Late	3.8 pqr	6.0 abc	0.531 a-m
	Triton FLO	0.5 FL OZ/M	Late			
23	Reserve	5.4 FL OZ/M	Late	1.8 r	6.0 abc	0.506 c-q
	Compass	0.25 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. 12th, 2010 and Nov. 9th, 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®

Snow Mold, Quality, and Color Ratings Recorded on April 14th, 2011 at Wawonowin CC

Treatment	Rate	Timing[a]	Dis severity[b]	Quality[c]	Color[d]
24 Reserve	5.4 FL OZ/M	Late	0.0 r	5.3 b-e	0.535 a-l
Interface	6.0 FL OZ/M	Late			
25 Reserve	5.4 FL OZ/M	Late	3.8 pqr	6.0 abc	0.552 a-d
Interface	4.0 OZ/M	Late			
26 QP TM/C	6.0 OZ/M	Late	0.0 r	6.0 abc	0.500 e-r
QP Ipro	4.0 FL OZ/M	Late			
QP Propiconazole	2.0 FL OZ/M	Late			
27 QP 642	11.75 FL OZ/M	Late	1.3 r	6.3 ab	0.546 a-h
28 QP Chlorothalonil	2.66 FL OZ/M	Late	1.3 r	6.0 abc	0.484 l-v
QP Ipro	4.0 FL OZ/M	Late			
QP Tebuconazole	0.69 FL OZ/M	Late			
29 QP Chlorothalonil	4.76 FL OZ/M	Late	0.0 r	6.0 abc	0.498 g-s
QP Ipro	2.23 FL OZ/M	Late			
QP Fludioxonil	0.36 FL OZ/M	Late			
30 GWN-9803	0.5 FL OZ/M	Early/Late	82.5 ab	2.8 ijk	0.337 F
GWN-6526	0.0 v/v	Early/Late			
31 GWN-9803	1.0 FL OZ/M	Early/Late	90.0 a	2.0 k	0.340 EF
GWN-6526	0.0 v/v	Early/Late			
32 GWN-9803	2.0 FL OZ/M	Early/Late	87.5 a	2.0 k	0.348 DEF
GWN-6526	0.0 v/v	Early/Late			
33 NB37440	0.4 FL OZ/M	Late	17.5 j-r	5.5 a-d	0.459 q-x
34 NB37440	0.82 FL OZ/M	Late	20.0 i-r	5.3 b-e	0.451 r-y
35 NB36137	0.45 OZ/M	Late	48.8 e-h	4.0 fgh	0.402 y-C
36 NB36137	0.9 OZ/M	Late	33.8 g-k	4.3 e-h	0.441 t-z
37 NB36693	1.2 OZ/M	Late	40.0 f-i	4.0 fgh	0.433 v-z
38 NB36693	2.4 OZ/M	Late	56.3 c-f	3.8 ghi	0.424 w-A
39 Civitas Mix 1			25.0 i-o	6.3 ab	0.472 p-w
40 Civitas Mix 2			25.0 i-o	5.3 b-e	0.526 a-o
41 Civitas Mix 3			15.0 k-r	6.0 abc	0.497 h-s
42 Civitas Mix 4			26.3 i-n	5.0 v-f	0.479 m-v
43 Civitas Mix 5			0.0 r	6.5 a	0.507 c-q

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

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Treatment	Rate	Timing[a]	Dis severity[b]	Quality[c]	Color[d]
44 Civitas Mix 6			7.5 n-r	5.8 a-d	0.486 k-u
45 Civitas Mix 7			63.8 b-e	3.8 ghi	0.378 A-F
46 Civitas Mix 8			22.5 i-q	6.0 abc	0.423 w-A
47 Civitas Mix 9			7.5 n-r	6.3 abc	0.520 a-p
48 Civitas Mix 10			0.8 r	6.5 a	0.509 c-q
49 Civitas Mix 11			1.3 r	6.0 abc	0.484 l-v
50 Civitas Mix 12			13.8 k-r	6.0 abc	0.521 a-p
51 Civitas Mix 13			7.5 n-r	6.0 abc	0.492 j-t
52 Civitas Mix 14			0.0 r	6.5 a	0.500 d-r
53 Civitas Mix 15			7.5 n-r	5.8 a-d	0.493 i-s
54 1367-A	12.0 FL OZ/M	Early/Late	36.3 f-j	4.3 e-h	0.436 u-z
55 1367-A	24.0 FL OZ/M	Early/Late	23.8 i-p	2.3 jk	0.400 y-C
56 1367-B	6.0 FL OZ/M	Early/Late	71.3 a-d	2.5 jk	0.399 y-D
57 1367-B	12.0 FL OZ/M	Early/Late	51.3 d-g	4.0 fgh	0.391 z-E
58 1367-C	6.0 FL OZ/M	Early/Late	90.8 a	2.0 k	0.355 C-F
59 1367-C	12.0 FL OZ/M	Early/Late	78.3 ab	2.8 ijk	0.372 A-F
60 1367-D	6.0 FL OZ/M	Early/Late	85.0 a	2.3 jk	0.367 B-F
61 1367-D	12.0 FL OZ/M	Early/Late	90.0 a	2.0 k	0.360 C-F
62 Instrata	5.0 FL OZ/M	Late	0.0 r	6.3 abc	0.527 a-n
63 Instrata	7.0 FL OZ/M	Late	3.8 r	6.0 abc	0.502 d-r
64 Instrata	9.0 FL OZ/M	Late	0.0 r	6.0 abc	0.518 a-p
65 Instrata	9.3 FL OZ/M	Late	0.0 r	6.0 abc	0.550 a-g
66 Instrata	5.5 FL OZ/M	Early/Late	0.0 r	6.0 abc	0.554 abc

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Treatment	Rate	Timing[a]	Dis severity[b]	Quality[c]	Color[d]
67 Concert	5.0 FL OZ/M	Late	1.3 r	6.0 abc	0.539 a-j
Renown	2.5 FL OZ/M	Late			
68 Concert	8.5 FL OZ/M	Late	5.0 o-r	6.0 abc	0.527 a-n
Banner MAXX	1.0 FL OZ/M	Late			
69 Concert	8.5 FL OZ/M	Late	0.0 r	6.3 ab	0.534 a-l
Medallion	0.25 OZ/M	Late			
70 Concert	8.5 FL OZ/M	Late	3.3 pqr	6.3 ab	0.521 a-p
Chipco 26GT	4.0 FL OZ/M	Late			
71 Concert	8.5 FL OZ/M	Late	3.8 pqr	6.0 abc	0.499 e-r
72 Headway G	4.0 LB/M	Late	33.8 g-k	4.8 d-g	0.458 q-x
79 Torque	0.6 FL OZ/M	Late	0.0 r	5.0 c-f	0.457 q-x
26/36	4.0 FL OZ/M	Late			
80 Torque	0.9 FL OZ/M	Late	7.5 n-r	5.8 a-d	0.507 c-q
26/36	4.0 FL OZ/M	Late			
81 Torque	0.6 FL OZ/M	Late	0.0 r	6.3 abc	0.493 j-s
26/36	4.0 FL OZ/M	Late			
Spectro	3.67 OZ/M	Late			
82 Torque	0.9 FL OZ/M	Late	0.0 r	6.5 a	0.520 a-p
26/36	4.0 FL OZ/M	Late			
Spectro	3.67 OZ/M	Late			
83 Torque	0.6 FL OZ/M	Late	0.0 r	6.0 abc	0.495 h-s
Affirm	0.9 OZ/M	Late			
84 Torque	0.6 FL OZ/M	Late	10.0 m-r	5.3 b-e	0.497 h-s
Affirm	0.9 OZ/M	Late			
Spectro	3.67 OZ/M	Late			
85 3336 Plus	2.0 FL OZ/M	Late	0.0 r	6.0 abc	0.507 c-q
Chipco 26GT	4.0 FL OZ/M	Late			
Daconil Wstik	5.5 FL OZ/M	Late			
86 3336 Plus	4.0 FL OZ/M	Late	15.0 k-r	5.5 a-d	0.478 n-v
Daconil Wstik	5.5 FL OZ/M	Late			
87 Chipco 26GT	4.0 FL OZ/M	Late	2.5 qr	6.0 abc	0.502 d-r
Daconil Wstik	5.5 FL OZ/M	Late			
88 Endorse	4.0 OZ/M	Late	13.8 k-r	5.0 c-f	0.438 u-z
89 Segway	0.75 FL OZ/M	Late	74.5 abc	3.3 hij	0.338 F
90 Endorse	3.0 OZ/M	Late	16.3 j-r	5.5 a-d	0.475 o-w
Segway	0.45 FL OZ/M	Late			

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

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