

**2012-2013 PCNB Auxiliary Snow Mold Control Evaluation**  
**Odana Hills Golf Course – Madison, WI**  
**Wawonowin Country Club – Champion, MI**



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## **OBJECTIVES**

To evaluate fungicide treatments containing PCNB for the control of *Microdochium* patch (*Microdochium nivale*) and Typhula blight (*Typhula incarnata*, *T. ishikariensis*) on golf course turfgrass.

## **MATERIALS AND METHODS**

This evaluation was conducted at two locations; Odana Hills GC in Madison, WI on a creeping bentgrass (*Agrostis stolonifera*) and annual bluegrass (*Poa annua*) fairway maintained at 0.5 inches and Wawonowin CC in Champion, MI on a creeping bentgrass (*Agrostis stolonifera*) and annual bluegrass (*Poa annua*) fairway maintained at 0.5 inches. Individual plots measured 3 ft x 10 ft (30 ft<sup>2</sup>), 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<sub>2</sub> 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<sup>2</sup>. Applications were made on October 30<sup>th</sup>, 2012 at Wawonowin CC and December 12<sup>th</sup>, 2012 at Odana Hills GC. The experimental plot area was not inoculated. Disease severity and turf quality were recorded following snow melt in April and early May of 2013 at Odana Hills and Wawonowin, respectively. Disease severity was visually rated as percent area affected, turfgrass quality was visually rated on a 1-9 scale with 6 being acceptable, Normalized Difference Vegetative Index (turfgrass color) was rated using an NDVI Turf Color Meter® from Spectrum Technologies. Data was subjected to an analysis of variance and means were separated using the Waller-Duncan test. Means for disease severity, turf quality and turf color for individual treatments are presented in the following table.

## **RESULTS AND DISCUSSION**

Disease pressure was high at Wawonowin, with non-treated controls averaging 79% disease. The primary pathogen present on the research area was *T. ishikariensis*. All treatments reduced snow mold compared to the non-treated control, though 9 treatments failed to provide acceptable snow mold suppression ( $\leq 5\%$  disease). The most effective treatments were Instrata and mixtures of Turfcide 400 with either Instrata or a DMI fungicide. At Odana Hills, snow mold severity was relatively light with non-treated controls averaging 13.8%. No disease was observed on treated plots.

**Table 1: Mean snow mold severity, turf quality, and turf color assessed on April 8<sup>th</sup>, 2013 at Odana Hills GC in Madison, 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			13.8a	5.3c	0.574ab
2	Turfcide 400	8.0 FL OZ/1000 FT2	Late	0.0b	7.0b	0.553ab
3	Turfcide 400	12.0 FL OZ/1000 FT2	Late	0.0b	7.0b	0.526b
4	Turfcide 400	16.0 FL OZ/1000 FT2	Late	0.0b	7.0b	0.543ab
5	Banner MAXX II	2.0 FL OZ/1000 FT2	Late	0.0b	7.0b	0.554ab
6	Turfcide 400 Banner MAXX II	8.0 FL OZ/1000 FT2 2.0 FL OZ/1000 FT2	Late Late	0.0b	7.0b	0.564ab
7	Turfcide 400 Banner MAXX II	12.0 FL OZ/1000 FT2 2.0 FL OZ/1000 FT2	Late Late	0.0b	7.0b	0.597ab
8	Turfcide 400 Banner MAXX II	16.0 FL OZ/1000 FT2 2.0 FL OZ/1000 FT2	Late Late	0.0b	7.0b	0.533b
9	Turfcide 400 Banner MAXX II Daconil Ultrex	8.0 FL OZ/1000 FT2 2.0 FL OZ/1000 FT2 3.2 OZ/1000 FT2	Late Late Late	0.0b	7.0b	0.525b
10	Daconil Ultrex	3.2 OZ/1000 FT2	Late	0.0b	7.0b	0.620a
11	Turfcide 400 Daconil Ultrex	8.0 FL OZ/1000 FT2 3.2 OZ/1000 FT2	Late Late	0.0b	7.0b	0.565ab
12	Instrata	7.0 FL OZ/1000 FT2	Late	0.0b	7.0b	0.535b
13	Instrata	9.4 FL OZ/1000 FT2	Late	0.0b	7.0b	0.568ab
14	Turfcide 400 Instrata	8.0 FL OZ/1000 FT2 7.0 FL OZ/1000 FT2	Late Late	0.0b	7.0b	0.559ab
15	Turfcide 400 Instrata	12.0 FL OZ/1000 FT2 7.0 FL OZ/1000 FT2	Late Late	0.0b	7.0b	0.536b
16	Interface	3.0 FL OZ/1000 FT2	Late	0.0b	8.0a	0.608ab
17	Interface	6.0 FL OZ/1000 FT2	Late	0.0b	7.8a	0.592ab
18	Turfcide 400 Interface	8.0 FL OZ/1000 FT2 3.0 FL OZ/1000 FT2	Late Late	0.0b	8.0a	0.603ab
19	Turfcide 400 Interface	12.0 FL OZ/1000 FT2 3.0 FL OZ/1000 FT2	Late Late	0.0b	7.8a	0.547ab
20	Interface Triton FLO	3.0 FL OZ/1000 FT2 0.75 FL OZ/1000 FT2	Late Late	0.0b	8.0a	0.621a
21	Triton FLO	0.75 FL OZ/1000 FT2	Late	0.0b	7.8a	0.581ab

<sup>a</sup>Fungicide treatments were applied on December 5<sup>th</sup>, 2012.

<sup>b</sup>Mean percent diseased area assessed on April 8<sup>th</sup>, 2013.

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

<sup>d</sup>Color was assessed using a TCM 500 NDVI Turf Color Meter from Spectrum Technologies®.

**Table 2: Mean snow mold severity, turf quality, and turf color assessed on May 8<sup>th</sup>, 2013 at Wawonowin CC in Champion, MI.**

	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			78.8a	2.0e	0.587a
2	Turfcide 400	8.0 FL OZ/1000 FT2	Late	7.5ef	6.3ab	0.656a
3	Turfcide 400	12.0 FL OZ/1000 FT2	Late	7.5ef	6.3ab	0.675a
4	Turfcide 400	16.0 FL OZ/1000 FT2	Late	10.0ef	5.5bc	0.679a
5	Banner MAXX II	2.0 FL OZ/1000 FT2	Late	42.5b	4.5d	0.651a
6	Turfcide 400 Banner MAXX II	8.0 FL OZ/1000 FT2 2.0 FL OZ/1000 FT2	Late Late	1.3f	6.8a	0.637a
7	Turfcide 400 Banner MAXX II	12.0 FL OZ/1000 FT2 2.0 FL OZ/1000 FT2	Late Late	3.8ef	6.5a	0.652a
8	Turfcide 400 Banner MAXX II	16.0 FL OZ/1000 FT2 2.0 FL OZ/1000 FT2	Late Late	0.0f	7.0a	0.695a
9	Turfcide 400 Banner MAXX II Daconil Ultrex	8.0 FL OZ/1000 FT2 2.0 FL OZ/1000 FT2 3.2 OZ/1000 FT2	Late Late Late	0.0f	7.0a	0.664a
10	Daconil Ultrex	3.2 OZ/1000 FT2	Late	27.5cd	5.0cd	0.686a
11	Turfcide 400 Daconil Ultrex	8.0 FL OZ/1000 FT2 3.2 OZ/1000 FT2	Late Late	0.0f	7.0a	0.666a
12	Instrata	7.0 FL OZ/1000 FT2	Late	0.0f	7.0a	0.689a
13	Instrata	9.4 FL OZ/1000 FT2	Late	0.0f	7.0a	0.644a
14	Turfcide 400 Instrata	8.0 FL OZ/1000 FT2 7.0 FL OZ/1000 FT2	Late Late	1.3f	6.8a	0.701a
15	Turfcide 400 Instrata	12.0 FL OZ/1000 FT2 7.0 FL OZ/1000 FT2	Late Late	0.0f	7.0a	0.655a
16	Interface	3.0 FL OZ/1000 FT2	Late	33.8bc	4.3d	0.661a
17	Interface	6.0 FL OZ/1000 FT2	Late	12.5ef	5.5bc	0.647a
18	Turfcide 400 Interface	8.0 FL OZ/1000 FT2 3.0 FL OZ/1000 FT2	Late Late	2.5ef	6.5a	0.662a
19	Turfcide 400 Interface	12.0 FL OZ/1000 FT2 3.0 FL OZ/1000 FT2	Late Late	6.3ef	6.5a	0.690a
20	Interface Triton FLO	3.0 FL OZ/1000 FT2 0.75 FL OZ/1000 FT2	Late Late	0.0f	7.0a	0.650a
21	Triton FLO	0.75 FL OZ/1000 FT2	Late	15.0de	5.5bc	0.683a

<sup>a</sup>Fungicide treatments were applied on October 30<sup>th</sup>, 2012.

<sup>b</sup>Mean percent diseased area assessed on May 8<sup>th</sup>, 2013.

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

<sup>d</sup>Color was assessed using a TCM 500 NDVI Turf Color Meter from Spectrum Technologies®.