



## 2013-2014 Snow Mold Control Evaluation Silver Bay CC – Silver Bay, MN



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### OBJECTIVES

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

### MATERIALS AND METHODS

This evaluation was conducted at Silver Bay CC in Silver Bay, MN on a creeping bentgrass (*Agrostis stolonifera*) and annual bluegrass (*Poa annua*) golf course fairway maintained at a height of 0.5 inch. 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>. All fungicides were agitated by hand and applied in the equivalent of 2 gallons of water per 1000 ft<sup>2</sup>. All applications were made on October 25<sup>th</sup>, 2013. The experimental plot area was not inoculated. There was consistent snow cover on the experimental area from late November until mid-April, a total of over 120 days. Disease severity, turf quality, and color were recorded on May 6<sup>th</sup>, 2014. 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 a GreenSeeker NDVI Turf Color Meter® from NTech Industries (Ukiah, CA). Treatment means were analyzed using the Waller Duncan method and are presented in Table 1.

### RESULTS AND DISCUSSION

Disease pressure was moderate at Silver Bay CC in 2013-2014, with non-treated controls averaging 32.5% disease. Extremely cold temperatures throughout the winter likely resulted in less snow mold than is typically observed at this location. Both snow scald and speckled snow mold (*T. ishikariensis*) were observed in the experimental area. All treatments with the exception of treatment 24 provided suppression of snow mold relative to the non-treated control. The low disease pressure resulted in relatively little separation of products, with 21 of the 24 treatments providing excellent suppression (<6.3%). Most of the effective treatments contained at least three active ingredients, with some treatments containing four or even five active ingredients.

**Table 1: Mean snow mold severity, turf quality, and turf color assessed on May 6<sup>th</sup>, 2014 at Silver Bay CC in Silver Bay, MN.**

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		32.5a	4.3e	0.355c	
2	Instrata	11.0 fl oz/1000 ft <sup>2</sup>	Late	0.0d	7.0bc	0.450abc
3	Interface	6.0 fl oz/1000 ft <sup>2</sup>	Late	0.0d	7.3abc	0.510ab
	Mirage	1.5 fl oz/1000 ft <sup>2</sup>	Late			
4	Interface	6.0 fl oz/1000 ft <sup>2</sup>	Late	0.0d	7.5ab	0.527a
	Mirage	2.0 fl oz/1000 ft <sup>2</sup>	Late			
5	SP28296	5.0 fl oz/1000 ft <sup>2</sup>	Late	0.0d	7.0bc	0.457abc
	Mirage	2.0 fl oz/1000 ft <sup>2</sup>	Late			
6	SP28296	6.0 fl oz/1000 ft <sup>2</sup>	Late	0.0d	7.0bc	0.462ab
	Mirage	2.0 fl oz/1000 ft <sup>2</sup>	Late			
7	SP28296	8.0 fl oz/1000 ft <sup>2</sup>	Late	0.0d	7.3abc	0.435abc
	Mirage	2.0 fl oz/1000 ft <sup>2</sup>	Late			
8	SP28297	3.816 fl oz/1000 ft <sup>2</sup>	Late	0.5d	6.8bc	0.460ab
	Mirage	2.0 fl oz/1000 ft <sup>2</sup>	Late			
9	SP28297	4.77 fl oz/1000 ft <sup>2</sup>	Late	0.0d	7.3abc	0.467ab
	Mirage	2.0 fl oz/1000 ft <sup>2</sup>	Late			
10	SP28297	5.724 fl oz/1000 ft <sup>2</sup>	Late	0.0d	7.3abc	0.455abc
	Mirage	2.0 fl oz/1000 ft <sup>2</sup>	Late			
11	Tartan	2.0 fl oz/1000 ft <sup>2</sup>	Late	0.0d	7.3abc	0.417bc
	Mirage	2.0 fl oz/1000 ft <sup>2</sup>	Late			
12	Tartan	1.0 fl oz/1000 ft <sup>2</sup>	Late	0.5d	7.0bc	0.490ab
	Mirage	1.0 fl oz/1000 ft <sup>2</sup>	Late			
	Chipco 26GT	3.0 fl oz/1000 ft <sup>2</sup>	Late			
13	Tartan	1.0 fl oz/1000 ft <sup>2</sup>	Late	0.0d	7.3abc	0.517ab
	Mirage	2.0 fl oz/1000 ft <sup>2</sup>	Late			
	Chipco 26GT	3.0 fl oz/1000 ft <sup>2</sup>	Late			
14	Interface	3.0 fl oz/1000 ft <sup>2</sup>	Late	6.3cd	6.5c	0.480ab
	Triton FLO	0.55 fl oz/1000 ft <sup>2</sup>	Late			
	Droplex	10.0 fl oz/a	Late			
15	Instrata	5.5 fl oz/1000 ft <sup>2</sup>	Late	1.3cd	6.5c	0.450abc
	Droplex	10.0 fl oz/a	Late			
	Banner MAXX II	1.0 fl oz/1000 ft <sup>2</sup>	Late			
16	Civitas	8.0 fl oz/1000 ft <sup>2</sup>	Late	13.8bc	5.0de	0.472ab
	Harmonizer	0.5 fl oz/1000 ft <sup>2</sup>	Late			
	Droplex	10.0 fl oz/a	Late			
	QP TM/C	6.0 oz/1000 ft <sup>2</sup>	Late			
17	QP Iprodione	4.0 fl oz/1000 ft <sup>2</sup>	Late	2.5cd	7.3abc	0.512ab
	QP Propiconazole	2.0 fl oz/1000 ft <sup>2</sup>	Late			
	Foursome	0.5 fl oz/1000 ft <sup>2</sup>	Late			
	QP TM/C	6.0 oz/1000 ft <sup>2</sup>	Late			
18	QP Iprodione	4.0 fl oz/1000 ft <sup>2</sup>	Late	0.0d	8.0a	0.502ab
	QP Tebuconazole	0.6 fl oz/1000 ft <sup>2</sup>	Late			
	Foursome	0.5 fl oz/1000 ft <sup>2</sup>	Late			
	Foursome	0.5 fl oz/1000 ft <sup>2</sup>	Late			

<sup>a</sup>Fungicide treatments were applied on Oct. 25<sup>th</sup>, 2013.

<sup>b</sup>Mean percent diseased area assessed on May 6<sup>th</sup>, 2014.

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

<sup>d</sup>Color was assessed using a Greenseeker NDVI Turf Color Meter from NTech Industries®.

**Table 1 (cont): Mean snow mold severity, turf quality, and turf color assessed on May 6<sup>th</sup>, 2014 at Silver Bay CC in Silver Bay, MN.**

Treatment	Rate	Application Timing <sup>a</sup>	Disease Severity <sup>b</sup>	Turf Quality <sup>c</sup>	Turf Color <sup>d</sup>	
19	QP Iprodione	4.0 fl oz/1000 ft <sup>2</sup>	Late			
	QP Tebuconazole	1.1 fl oz/1000 ft <sup>2</sup>	Late	0.0d	8.0a	0.487ab
	Foursome	0.5 fl oz/1000 ft <sup>2</sup>	Late			
20	QP Enclave	8.0 fl oz/1000 ft <sup>2</sup>	Late	0.0d	8.0a	0.517ab
	Foursome	0.5 fl oz/1000 ft <sup>2</sup>	Late			
21	Torque	0.75 fl oz/1000 ft <sup>2</sup>	Late			
	26/36	4.0 fl oz/1000 ft <sup>2</sup>	Late	0.0d	7.0bc	0.495ab
22	Torque	0.75 fl oz/1000 ft <sup>2</sup>	Late			
	26/36	4.0 fl oz/1000 ft <sup>2</sup>	Late	0.0d	7.0bc	0.477ab
	Legend	5.0 fl oz/1000 ft <sup>2</sup>	Late			
23	Torque	0.6 fl oz/1000 ft <sup>2</sup>	Late			
	26/36	4.0 fl oz/1000 ft <sup>2</sup>	Late	0.0d	7.0bc	0.522a
	Heritage TL	1.0 fl oz/1000 ft <sup>2</sup>	Late			
24	Chipco 26GT	4.0 fl oz/1000 ft <sup>2</sup>	Late	20.0ab	5.3d	0.447abc
	Daconil Weatherstik	5.5 fl oz/1000 ft <sup>2</sup>	Late			

<sup>a</sup>Fungicide treatments were applied on Oct. 25<sup>th</sup>, 2013.

<sup>b</sup>Mean percent diseased area assessed on May 6<sup>th</sup>, 2014.

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