

# SNOW MOLD CONTROL IN A MIXED CREEPING BENTGRASS/ANNUAL BLUEGRASS PUTTING GREEN WITH VARIOUS FUNGICIDES, 2013-2014

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## INTRODUCTION

Gray (*Typhula incarnata*) and Pink (*Microdochium nivale*) snow molds are common winter disease in Pennsylvania and the surrounding regions. Depending on snow cover, damage from these diseases may be apparent in the spring following snow melt. Since the length of snow cover is not predictable with any certainty prior to winter, golf course superintendents must rely on preventive applications of single or tank-mixed fungicides for the suppression of the disease. The objective of this field study was to determine the efficacy of various commercially available and experimental fungicides on snow mold.

## MATERIALS & METHODS

A field trial was initiated at Yahnundasis Golf Club in New Hartford, NY. The trial was located on a practice putting green. The turf sward consisted of a mixed stand of creeping bentgrass (*Agrostis stolonifera*) and annual bluegrass (*Poa annua*). The site were selected due to the potential prolonged period of snow cover from extensive shade provided by large plantings of pine trees (*Pinus* spp.) to the south of the study. The study area was not treated with any fungicide as part of the golf course's preventative fungicide applications for snow mold management.

All treatments were applied with a CO<sub>2</sub> pressurized (40 psi) sprayer equipped with a flat-fan nozzle (AI9508E) that was calibrated to deliver 2.0 gal of water per 1000 ft<sup>2</sup>. Treatments were applied once on 23 November 2013. Air and soil temperatures at application were 42.5F and 42F, respectively. Soil moisture was adequate and precipitation occurred within 4hrs of the application. Cloud cover was at 100% and the wind speed was 5 mph out of the west.

Plots measured 3 x 6 ft and were arranged in a randomized complete block with four replications. Percent plot area blighted by *Microdochium nivale* was visually assessed on a linear 0 to 100 scale where 0 = entire plot area green and healthy, and 100 = entire plot area blighted. Injury was rated on a on a 0 to 5 scale where 0 = no injury present and 5 = entire plot area brown or dead. Turfgrass color was assessed on a 1 to 9 scale where 1 = entire plot brown or dead, 6 = minimal acceptable color for a bentgrass putting green and 9 = optimum greenness.

## RESULTS & DISCUSSION

A total 12 treatments were included in this study. Snow cover began in mid-December and lasted until mid-March with the exception of approximately 1 week of bare ground in January.

Disease pressure at the putting green site was minimal with only trace levels of *Microdochium* patch present and no differences among treatments. Injury to the turfgrass was observed. Injury was likely the result of windburn and manifested as leaf tip bronzing. The

untreated plots exhibited injury of 1.3 to 2.3. Unacceptable injury was also observed within plots treated with Instrata at rates  $\geq 9.3$  fl oz. Minimum to no injury was observed on turf treated with Interface.

Unfortunately, the short lapse in snow cover in January resulted in little snow mold pressure. Although some minor injury was observed in the putting green trial, it is likely that this was the result of environmental conditions (wind burn) since untreated plots exhibited turfgrass injury. It should be pointed out, however, that treatments in which StressGard was included (e.g., Interface) generally had little to no signs of injury and therefore higher color ratings than most treatments.

### **ACKNOWLEDGEMENTS**

We thank Matthew Wolf and the Yahnundasis Golf Club for allowing us to conduct our research at their facility. We also thank Bayer for their financial support of this study.

Table 1. Percent *Microdochium* patch on a golf course putting green following a single application of various fungicides on 23 November 2013.

No. Treatment and rate per 1000 sq ft <sup>z</sup>	Percent PSM <sup>y</sup>	Injury <sup>x</sup>	Color <sup>x</sup>
	%	0-5	0-9
1 INTERFACE 4.0 fl oz MIRAGE 2.0 fl oz	0.0 a <sup>v</sup>	0.3 b	7.3 abc
2 INTERFACE 5.0 fl oz MIRAGE 2.0 fl oz	0.0 a	0.3 b	7.8 ab
3 INSTRATA 9.3 fl oz	0.0 a	2.5 a	5.0 d
4 INTERFACE 6.0 fl oz	0.0 a	0.0 b	7.3 abc
5 INSTRATA 7.0 fl oz	0.0 a	1.8 ab	5.5 d
6 TARTAN 2.0 fl oz	0.0 a	1.3 ab	6.0 cd
7 INTERFACE 6.0 fl oz MIRAGE 1.5 fl oz	0.0 a	0.3 b	7.0 abc
8 INTERFACE 6.0 fl oz MIRAGE 2.0 fl oz	0.8 a	0.0 b	8.3 a
9 INSTRATA 11.0 fl oz	0.0 a	2.5 a	5.3 d
10 UNTREATED	0.0 a	2.0 a	5.5 d
11 UNTREATED	0.5 a	1.3 ab	6.5 bcd
12 UNTREATED	0.0 a	2.3 a	5.5 d

<sup>z</sup> Treatments were applied on 23 November 2013.

<sup>y</sup> Percent of plot area blighted by *Microdochium nivale* was assessed visually on a linear 0 to 100% scale where 0 = entire plot area green and healthy, and 100 = entire plot area blighted.

<sup>x</sup> Turfgrass injury was rated on a 0 to 5 scale where 0 = no injury, 2 = maximum acceptable injury for a golf course putting green and 5 = turf brown or dead.

<sup>x</sup> Putting green color was rated on a 1 to 9 scale where 1 = entire blot area brown or dead, 6 = minimum acceptable turfgrass color for a golf course putting green and 9 = dark green color.

<sup>v</sup> Means in a column followed by the same letter are not significantly different at  $P \leq 0.05$  level according to the Fisher's protected least significant difference t-test.