

# TIRED OF SUMMER?

## Plan Ahead for Snow Mold Control

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It seems rather stupid to start thinking about snow mold with dollar spot, brown patch, and even some Pythium blight wreaking havoc on many area courses, but fortunately or unfortunately we in the Upper Midwest never let snow mold drift too far from our minds. With the dog days of summer upon us, nothing says cooler temperatures are ahead like a snow mold discussion.

The 2009-2010 University of Wisconsin Snow Mold Fungicide Trials were held at Milwaukee Country Club in Milwaukee, WI; Sentryworld Golf Course in Stevens Point, WI; Wawonowin Country Club in Champion, MI; Edina Country Club in Edina; and The Legacy at Cragun's Resort in Brainerd. To see the final results and reports for all these sites, along with pictures of each treatment, please visit the "Research" page at the Turfgrass Diagnostic Lab's website ([www.plantpath.wisc.edu/tdl](http://www.plantpath.wisc.edu/tdl)). Disease pressure was quite low at Milwaukee and Edina so those reports provide little information. Disease pressure was extremely high at Wawonowin, and many products that will provide excellent control in most situations did not perform well at this Upper Peninsula course. The pressure at Sentryworld and the Legacy at Cragun's was more representative of what most golf course superintendents in the region face in a given winter, so I encourage you to look up the reports for those sites. We will focus on the Cragun's trial here.

**The Legacy at Cragun's is located in Brainerd** about two hours north of the Twin Cities. Brainerd has a dense concentration of excellent golf, and Cragun's Resort is among the finest you'll find in the area or region. The primary reason for holding a fungicide trial in the Brainerd area was to test a wide array of products for the control of snow scald, a comparatively rare snow mold disease caused by the fungus *Myriosclerotinia borealis*. Little is known about the biology of the pathogen or its control, except that many standard fungicide combinations don't provide adequate protection. Unfortunately for us, no snow scald developed on the plots or the course as a whole this year, most likely due to the early and persistent snow cover. but *Typhula* blight (*Typhula ishihariensis*) still developed, and we can discuss those results and more below (Figure 1).

**The trial itself was conducted on the Dutch course** on a creeping bentgrass (*Agrostis stolonifera*) and annual bluegrass (*Poa annua*) golf course fairway maintained at a height of 0.5 inch. Either one (late) or two (early and late) fungicide applications were made based on the specifications of the cooperator providing the material. Early applications were made on October 22nd, 2009 and late applications were made on November 23rd, 2009. Disease severity, turf quality and color were recorded on April 1st, 2010. 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 TCM 500 NDVI Turf Color Meter® from Spectrum Technologies. Data was subjected to an analysis of variance and means were separated using Student Newman-Keuls test. Means for disease severity, turf quality and color are presented in the following tables for individual treatments. Thirty-four standard and experimental treatments were tested in the 2009-2010 trials, of which 30 are



**Figure 1:** Though some sort of winter injury made rating the snow mold somewhat difficult and may have affected the statistical significance of the results, significant snow mold did still develop and was controlled effectively by many products.

presented in Table 1. (Page 6)

**Disease pressure at Cragun's was rather high**, though some sort of winter injury was also present in the plots that made rating for snow mold difficult. Non-treated controls averaged 77.5% disease, and *T. ishihariensis* was the predominant snow mold pathogen observed. All treatments with the exception of two experimental granular products (Trt 2 and 3) provided a significant reduction in disease severity compared to the non-treated control. Acceptable disease suppression was established as anything less than 5% disease, and several treatments failed to provide acceptable control (though rating was made difficult by the winter injury). The treatments providing the poorest control were granular products or those with only a single active ingredient (2, 3, 4) with the exception of PCNB applied as Turfcide 400 (33). Most of the treatments providing complete or acceptable control of snow mold had 3 or in some cases four or 5 active ingredients in each treatment. One result observed at Wawonowin CC that is not shown in this trial is that splitting up the applications can increase control under heavy snow mold pressure. That is to say, spraying a lower rate (but not a half rate) at an early and a late timing can increase control over a higher rate made in one application. If you have had trouble with snow mold control in the past despite using what is generally regarded as an effective product, try spraying a lighter rate 3-4 weeks earlier than your normal application timing to knock down initial fungal inoculum earlier in the fall before making your normal fungicide application later in the fall.

**Controlling snow mold is the primary disease objective** for many golf course superintendents in the Upper Midwest. Unfortunately, while every superintendent has the same mission, not all have the same capacity and financial resources at their disposal. There are dozens of different treatments presented in the table on the next page.

(Continued on Page 6)

## Snow Mold-

(Continued from Page 5)

below and in the other reports that can provide excellent or adequate protection at a cost that fits into nearly any budget. If you have any questions regarding the trials or what might work best at your facility, please don't hesitate to email (plkoch@wisc.edu) or call (608-845-2535) Paul Koch at the

Turfgrass Diagnostic Lab to discuss your options.

Thanks to the host superintendents listed below for their willingness to let us perform this valuable service to the turf-grass industry on their property; Matt McKinnon at The Legacy at Craguns, Mike Powers at Edina Country Club, Glen Rochester at Wawonowin Country Club, Pat Sisk at Milwaukee Country Club and Gary Tanko at Sentryworld Golf Course.

(Continued on Page 7)

Treatment	Rate	Timing <sup>a</sup>	Dis severity <sup>b</sup>	Quality <sup>c</sup>	Color <sup>d</sup>
1 Non treated Control			77.5 a	2.0 c	0.437 a
2 BAS 67300F	2.25 LB/M	Late	71.3 ab	2.5 c	0.445 a
3 BAS 67300F	3.0 LB/M	Late	57.5 ab	2.8 c	0.439 a
4 Insignia	0.9 OZ/M	Late	51.3 b	3.3 bc	0.472 a
5 Insignia	0.9 OZ/M	Late	20.0 c	5.0 ab	0.493 a
Trinity	1.0 FL OZ/M	Late			
6 Insignia SC	0.54 FL OZ/M	Late	17.5 c	5.0 ab	0.536 a
Trinity	1.0 FL OZ/M	Late			
Daconil Ultrex	3.2 OZ/M	Late			
7 Insignia SC	0.54 FL OZ/M	Late	12.5 c	5.8 a	0.536 a
Trinity	1.0 FL OZ/M	Late			
Iprodione Pro	4.0 FL OZ/M	Late			
8 Honor	0.83 OZ/M	Late	20.0 c	5.3 ab	0.508 a
Trinity	1.0 FL OZ/M	Late			
Daconil Ultrex	3.2 OZ/M	Late			
9 Curalan EG	1.0 OZ/M	Early	11.3 c	6.3 a	0.482 a
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			
10 Interface	4.0 FL OZ/M	Late	3.8 c	7.0 a	0.544 a
Triton Flo	0.85 FL OZ/M	Late			
11 Interface	5.0 FL OZ/M	Late	10.0 c	6.5 a	0.534 a
Triton Flo	0.85 FL OZ/M	Late			
12 Interface	6.0 FL OZ/M	Late	2.5 c	7.0 a	0.535 a
Triton Flo	0.85 FL OZ/M	Late			
13 Reserve	4.5 FL OZ/M	Late	23.8 c	6.0 a	80.427 a
Compass	0.25 OZ/M	Late			
14 Reserve	5.4 FL OZ/M	Late	5.0 c	7.0 a	0.551 a
Compass	0.25 OZ/M	Late			
15 Tartan	2.0 FL OZ/M	Late	2.5 c	6.8 a	0.541 a
Daconil Ultrex	5.0 OZ/M	Late			
16 Instrata	4.5 FL OZ/M	Early/Late	12.5 c	5.5 a	0.499 a
17 Instrata	9.3 FL OZ/M	Late	0.0 c	7.0 a	0.541 a
18 Instrata	11.0 FL OZ/M	Late	4.5 c	6.8 a	0.552 a
19 Interface	4.0 FL OZ/M	Late	2.5 c	6.8 a	0.522 a
Turfcide 400	8.0 FL OZ/M	Late			
20 Reserve	4.5 FL OZ/M	Late	6.3 c	7.0 a	0.509 a
Compass	0.2 OZ/M	Late			
21 Vitaloni	8.0 FL OZ/M	Late	22.5 c	5.0 ab	0.500 a
Daconil Ultrex	3.2 OZ/M	Late			
22 Tourney	0.37 OZ/M	Late	8.8 c	6.0 a	0.539 a
Chipco 26GT	4.0 FL OZ/M	Late			

Means followed by same letter do not significantly differ (P=.05, Student-Newman-Keuls)

<sup>a</sup>Early and late fungicide treatments were applied on Oct. 22nd, 2009 and Nov. 23rd, 2009, respectively

<sup>b</sup>Mean % diseased area

<sup>c</sup>Quality was visually rated on a scale of 1-9 where 1 = completely dead, 6 = acceptable, 9 = dark green

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

Treatment	Rate	Timing <sup>a</sup>	Dis severity <sup>b</sup>	Quality <sup>c</sup>	Color <sup>d</sup>
27 QP TM/C	6.0 OZ/M	Late	3.8 c	6.5 a	0.522 a
QP Ipro	4.0 FL OZ/M	Late			
QP Propiconazole	2.0 FL OZ/M	Late			
28 QP TM/C	6.0 OZ/M	Late	10.0 c	5.5 a	0.588 a
QP Ipro	4.0 FL OZ/M	Late			
QP Myclobutanil	2.4 FL OZ/M	Late			
29 QP Chlorothalonil	5.5 FL OZ/M	Late	10.0 c	5.5 a	0.515 a
QP Ipro	4.0 FL OZ/M	Late			
QP Propiconazole	2.0 FL OZ/M	Late			
30 QP Chlorothalonil	5.5 FL OZ/M	Late	5.0 c	6.5 a	0.548 a
QP Ipro	4.0 FL OZ/M	Late			
QP Myclobutanil	2.4 FL OZ/M	Late			
31 3336 Plus	3.0 FL OZ/M	Late	10.0 c	5.8 a	0.509 a
Turficide 400	10.0 FL OZ/M	Late			
32 3336 Plus	3.0 FL OZ/M	Late	6.3 c	6.0 a	0.535 a
Turficide 400	10.0 FL OZ/M	Late			
Daconil Ultrex	5.5 OZ/M	Late			
33 Turficide 400	10.0 FL OZ/M	Late	5.0 c	6.5 a	0.585 a
34 Chipco 26GT	4.0 FL OZ/M	Late	12.5 c	5.3 ab	0.550 a
Daconil Ultrex	5.5 OZ/M	Late			

Means followed by same letter do not significantly differ (P=.05, Student-Newman-Keuls)

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