



## Snow Mold Fungicides: Current and Future Choices

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All golf course superintendents in Wisconsin treat their greens with fungicides to protect against snow mold damage, 86% treat tees and 57% of superintendents in the state treat fairways. PCNB and mercury are by far the most common materials used.

These are some results from the recent survey many of you sent back to us last April. Tom Schwab and I sent the survey to 143 WGCSA superintendents, and we received 56 responses (43%) back. Eleven responses were returned from the northern part of Wisconsin, 16 responses from the central part of the state, and 29 superintendents replied from southern Wisconsin. We asked you about your current fungicide choice to treat greens, tees and fairways, and how effective you felt your current practices have been.

Fungicides with PCNB were by far the most common type of material used. In the north, 90% of greens were treated with PCNB this year, mostly in combination with mercury, or with other fungicides. In central Wisconsin, PCNB was used on 69% of greens, also in combination with other fungicides such as mercury, vinclozolin (Touche), chlorothalonil (Daconil), iprodione (Chipco 26019), thiram or chloroneb (Terreneb SP or Scotts Fungicide V). In the south, PCNB was used on 45% of greens, mostly in combination with the same fungicides used in central Wisconsin. A few other fungicide combinations were used in the south, including Chipco + Daconil, Benomyl + Terraneb + Thiram, Thiram + Terraneb, or PMAS + Thiram.

Mercury fungicides are still on the shelf at many courses, and 82% of greens in northern Wisconsin are treated with them. In central Wisconsin, 75% of greens were treated with mercury last year, but only 24% of greens in the south were treated with fungicides containing mercury.

Most superintendents were satisfied with the control of snow mold they achieved with their fungicide choice. "No damage to a few small patches"

was the most common result reported on greens in all parts of the state. No fungicide or fungicide combination failed completely or gave less than adequate control. The most damage occurred on untreated fairways (up to 10-40%) or where spray skips occurred.

When tees were treated, about half of the superintendents treated them similarly to their greens, and the other half with a PCNB combination without mercury. Fairways were treated on 55% of northern courses, all with PCNB fungicides. However, no heavy damage on fairways was reported by northern superintendents who did not treat fairways last winter. It seems the 1994-1995 season was quite moderate in terms of snow mold pressure. A higher percentage of superintendents in central Wisconsin treated fairways (75%) and all of them used PCNB. In southern Wisconsin, 48% treated fairways with fungicides, all of them with PCNB alone or in combination with Terremec, Thiram, Terraneb, or ProStar (flutolanil). One fairway was treated with Chipco + Daconil with good results. Most of the untreated fairways (80%) suffered only "minimal" damage in the south last winter, the other 20% of untreated fairways had up to 20% damage or damage in low-lying areas.

Most superintendents apply snow mold fungicides just once per season. In the north, 55% treated once, 27% treated twice and 18% treated three times, all between late October and mid-November. In central Wisconsin, 50% treat once, 25% treat twice and the other 25% three times, also between late October and mid-November. In the south, 38% of superintendents treat once, 28% treat twice and 24% treated three times. The second or third application this year was done in December when we had unseasonably warm weather and the snow melted off in many parts of the state.

The survey results are a very interesting insight into snow mold control

practices in the state, don't you think? The amount of mercury fungicides still being used tells me that superintendents will be continuing to look for alternatives. PCNB fungicides are very popular, and I have also found them to be effective in our snow mold fungicide evaluations, particularly in the north and particularly in combination with other fungicides. However, we are finding other fungicide materials, especially combinations, to be equally effective. Take a look at some of the combinations listed in Tables 1 and 2, the results of the 1994-1995 evaluations in northern and southern Wisconsin. We do not include any mercury-based fungicides in our trials, but they do

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+

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include most of the available active ingredients, including cyproconazole (Sentinel). This coming year we need to include a material containing chloroneb, since many of you are finding this an effective material.

The 1994-1995 evaluations were conducted on two sites in Wisconsin. The first was a bentgrass/*Poa annua* putting green at the Gateway Golf Club (Todd Renk, Superintendent) in Land O'Lakes, located on the northernmost border of the state, adjacent to the Upper Peninsula of Michigan.

The second site was a bentgrass fairway at the University Ridge Golf Course (Jeff Parks, Superintendent) located in south-central Wisconsin, just west of Madison. The fungicides were applied once in early November before the first snowfall. More details of the application can be found in the 1995 Field Day book for those of you who attended field day this year, and will be included in the 1995 Wisconsin Turfgrass Research Report this winter. Some pink snow mold developed later in the spring, particularly at the north-

ern site and some of the fungicides, including ProStar alone, Sentinel and Fluazinam did not perform as well under those conditions.

Thanks to all of you who participated in the survey. I know many of you will find it useful to see a general picture of current choices of snow mold treatments around the state. We'll do another one in a year or two and see how practices are evolving. Maybe the fungicide evaluations will give you ideas of other things to try! 🌱

**Table 1. Snow mold fungicide evaluation at the Gateway Golf Course, Land O' Lakes, WI**

Active Ingredient	Fungicide	Rate of product/1000 sq ft	No. of snow mold infections
PCNB	ProTurf Fertilizer and Fungicide II	6.32 lbs (16 oz a.i.)	0.0
experimental + chlorothalonil	ICIA5504 50WG + Daconil 2787 4.17F	0.7 oz + 8 fl oz	0.0
experimental + PCNB	ICIA5504 50 WG + PCNB 75 WP	0.7 oz + 8 oz	0.0
cyproconazole + PCNB	Sentinel + PCNB 75 WP	0.33 oz + 4 oz	0.5
fluazinam	Fluazinam 500F	1.0 oz a.i.	0.8
PCNB + chlorothalonil	Turficide 400 + Daconil 2787 4.17SC	8 fl oz + 4 fl oz	0.8
PCNB	Turficide 400	12 oz (6 oz a.i.)	1.0
flutolanil + PCNB	ProStar 50 WP + PCNB 75 WP	6 oz + 4 oz	1.0
PCNB	ProTurf Fertilizer and Fungicide II	3.18 lbs (8 oz a.i.)	1.0
propiconazole + chlorothalonil	Banner 45 WP + Daconil 2787 4.17EG	0.94 oz (3 oz EC) + 8 fl oz	1.3
iprodione + chlorothalonil	Chipco 26019 Flo + Daconil Ultrex 82.5 WG	2 fl oz + 4.8 fl oz	3.3
iprodione + chlorothalonil	Chipco 26019 Flo + Daconil Ultrex 82.5 WG	4 fl oz + 4.8 fl oz	3.5
flutolanil + chlorothalonil	ProStar 50 WP + Daconil 2787 F	6 oz + 6.1 fl oz	4.3
flutolanil	ProStar 50 WP	6 oz	7.7*
cyproconazole	Sentinel	0.33 oz	9.7*
fluazinam	Fluazinam 500F	0.5 oz a.i.	11.8*
	<b>Untreated</b>		<b>34.3*</b>
	LSD		10.8

\*Includes some pink snow mold

**Table 2. Snow mold fungicide evaluation results from University Ridge Golf Course, Verona, WI**

Active Ingredient	Fungicide	Rate of product/1000 sq ft	No. of snow mold infections
flutolanil + triadimefon	ProStar 50 WP + Bayleton 25DF	6 oz + 1.5 oz	0.0
experimental	S4902	8.04 lb (16 oz a.i.)	0.3
fluazinam	Fluazinam 500F	1 oz a.i.	0.5
flutolanil + PCNB	ProStar 50 WP + PCNB 75 WP	6 oz + 4 oz	0.8
experimental + PCNB	ICIA5504 50 WG + PCNB 75 WP	0.7 oz + 8 oz	0.8
propiconazole + chlorothalonil	Banner 45 WP + Daconil 2787 4.17EG	0.94 oz (3 oz EC) + 8 fl oz	0.8
experimental	S4902	4.02 lb (8 oz a.i.)	1.0
flutolanil + chlorothalonil	ProStar 50 WP + Daconil 2787 F	6 oz + 6.1 fl oz	1.3
flutolanil + propiconazole	ProStar 50 WP + Banner 1.1EC	6 oz + 4 fl oz	1.3
PCNB	ProTurf Fertilizer and Fungicide II	6.32 lbs (16 oz a.i.)	1.5
chloroneb + PCNB + chlorothalonil	Terraneb SP 65% + PCNB 75WP + Daconil 4.17	6 oz + 2.7 oz + 4 oz	1.8
experimental + chlorothalonil	ICIA5504 50WG + Daconil 2787 4.17F	0.7 oz + 8 fl oz	2.0
cyproconazole + PCNB	Sentinel + PCNB 75 WP	0.33 oz + 4 oz	2.5
cyproconazole + iprodione	Sentinel + Chipco 26019 50WG	0.33 oz + 2 oz	2.5
iprodione + chlorothalonil	Chipco 26019 Flo + Daconil 4.17 SC	4 fl oz + 8 fl oz	2.8
iprodione + chlorothalonil	Chipco 26019 Flo + Daconil Ultrex 82.5 WG	4 fl oz + 4.8 fl oz	3.5
iprodione + chlorothalonil + PCNB	Chipco26019Flo + PCNB 75WP + Daconil Ultrex 82.5WG	2 fl oz + 2.7 fl oz + 4.8 fl oz	3.5
cyproconazole	Sentinel	0.33 oz	4.0
flutolanil	ProStar 50 WP	6 oz	4.8
PCNB	Turficide 400	12 oz (6 oz a.i.)	5.0
PCNB + chlorothalonil	Turficide 400 + Daconil 2787 4.17SC	8 fl oz + 4 fl oz	5.3
fluazinam	Fluazinam 500F	0.5 oz a.i.	5.8
propiconazole + iprodione	Banner 45 WP + Chipco 26019 2F	0.94 oz (3 oz EC) + 4 fl oz	6.8
iprodione + chlorothalonil	Chipco 26019 Flo + Daconil Ultrex 82.5 WG	2 fl oz + 4.8 fl oz	11.3
PCNB	ProTurf Fertilizer and Fungicide II	3.18 lbs (8 oz a.i.)	14.8
	<b>Untreated</b>		<b>23.8</b>
	LSD		10.6