

# PATHOLOGICAL POINTERS



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## "SNOW MOLD 1982-83"

The winter season treatments began on October 21 at Duluth and Gilbert. Detroit Lakes and International Falls were applied 10/26. The metro plot was applied 10/28 and Rochester 10/29. A fairway plot at Oak Ridge was applied 10/28 and also on 11/29. The winter was strange and good for many turf areas yet the open cold weather in north central Minnesota created turf injury unseen for many years in the Bemidji area. The annual bluegrass and thatchy bent was severely injured and considerable damage due to pink snow mold occurred in the wet September and October period last fall.

The first plot observed was Oak Ridge on 3/10 and the last data was collected 4/26. This again was one of the longest coolest springs for turf I can remember. While some had serious problems this spring the slow growth during cool cloudy weather may have made the damaged areas seem worse than they really were.

Brad Klein at Detroit Lakes said in December that the weather looked good for his turf and in March the turf was disease free. I tried one more time to go up to Detroit Lakes, but Brad said he had nothing to show.

At Somerset, G. Murphy averaged 18.25 spots of disease in the untreated checks. None of the plot area was seriously damaged and most of the spots I counted were small. The damage was done by Fusarium, and Typhula ishikariensis. The weakest of the standard three materials was chloroneb

at 5 and 9 oz. per 1000 sq. ft. The products from Mobay, E. L. Lilly + Ciba Geigy; Bayleton Rubigan + Banner performed well but then so did Daconil 4F at 8 Ft. oz. An experimental mercury granule from Mallinckrodt performed as well as the standard Calogran.

At Rochester, observed on April 7, disease pressure was light to nearly none. No significant differences were found due to any treatment. All treatments produced adequate control but several untreated checks had no disease evident. The usual tip burn was evident from Caloclor, alone or in combination.

Duluth was most interesting! After three attempts to view the plot, all blocked by snow storms, the area was observed on 4/25. The untreated areas averaged 85.7% disease mostly Typhula ishikariensis, with a few spots of Sclerotinia borealis and a little Fusarium. The east side of the plot just lost snow cover the morning of the 25th, while the west side was open for about two weeks. There were no real surprises in the standard treatments and combinations; however, several points can be reviewed. One, when disease pressure is high single product treatments at low rates are inadequate, greater than 10% of area diseased. Two, contacts other than the standard three and systemics like 26019, Tersan 1991, do not perform satisfactorily. Three, new products like Bayleton, Banner + Rubigan, while reducing snow mold damage have a rather flat dosage response, (increased concentrations don't improve disease response). Four, any two way combination of Caloclor, Tersan SP and Terraclor or a combo of all three produced the best results. In the 1982-83 test there is no difference between these four treatments. Five, addition of Tersan 1991 to Tersan SP reduced the disease control by 26%. This was observed before and a smaller reduction was also seen when Tersan 1991 combined with Daconil 4F. In past studies when disease pressure was lower treating with Tersan 1991 alone resulted in more disease damage than what was observed in the untreated check areas. Granular formulations of Mercury or Chloroneb performed the same as a spray application, however PCNB granules performed poorly. I believe this was due

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to an application error resulting in less active ingredient when applied as a granule. PCNB applied with a fertilizer acted as the spray formulation. The experimental mercury from Mallinckrodt was equal to the standard Calogran. A complete report on the Duluth Plot in chart form is printed on Page 9.

A new plot location this year-Gilbert Minnesota - Eshquaguma Country Club, observed 4/26 confirmed what I've seen before. The Chloroneb, Turfcide granule combination had more diseases than combining mercury with either Chloroneb or PCNB. All three materials at high rates (10# Calogran plus 6 oz. ai. of Chloroneb and 16 oz. ai. of PCNB) produced nearly 100% disease control on POA. Also a new seeding of Penncross had nearly no disease. That will change as the Penncross matures. Another small plot at International Falls was observed 4/26 also. Snow left the plot on 3/16 and for a change little disease pressure occurred.

A fairway plot at Oak Ridge was observed 3/10 and 4/8 Treatments were applied 10/28 and 11/29 after removing the snow cover. There were five single chemical plots. One - two way combination and one

-three way combination and two - two way combinations for nine treatments. Three chemicals PCNB at 2 + 4 oz, PMA at 1 + 2 Fl. oz. and Thiram at 4 oz. were used.

There was close agreement between the results of chemicals applied 10/28 and 11/29. Late season applications did not improve disease control, however, little moisture fell after 10/28 other than snow. I'd expect more differences if the weather was wet and rain washed the PMA from the foliage.

Overall not much fairway disease was present on the plot. PMA was phytotoxic especially at 2Fl. oz./1000 sq. ft., while adding Thiram reduced burn and disease control.

Thiram plus PCNB was about equal to Thiram and PMA while a three way combination produced the best disease control and had no phytotoxic reactions. After two years of testing the results are not as clear as I had hoped since in both years mild disease pressure existed. However, as an alternate to PMA, PCNB at 2-4 oz/1000 sq. ft. may be a good possibility.

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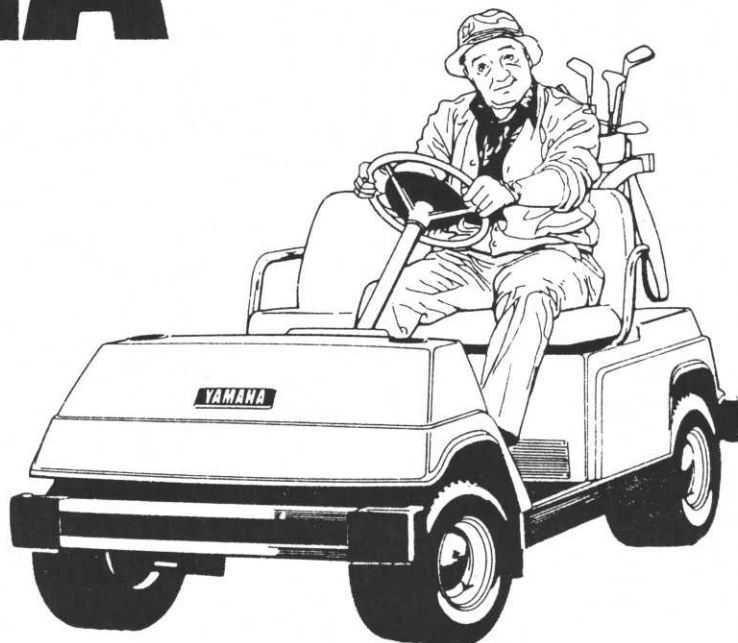
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1982 - 1983 DULUTH PLOT

PRODUCTS	RATE OZ/1000 SQ FT	% DISEASE
A) SPRAY 5 GAL/1000 SQ FT		
Caloclor	3	14.25
Caloclor	5	2.75
Tersan SP	5	16.25
Tersan SP	9	3.5
Terraclor	8	12.5
Terraclor	16	4.75

Tersan 1991	2	65
Bayleton 25 WP	5	13.75
Bayleton	1	12.75
Ciba Geigy 64250 (3.6 E)	32 gms ai	1.25
Ciba Geigy 64250 (3.6 E)	16 gms ai	6.75
Daconil 4F	8 Fl oz	48.75
Daconil 4F	16 Fl oz	19
26019 50 P	4 oz	56.25
Caloclor + Tersan SP	3 + 5	2
Caloclor + Terraclor	3 + 8	1
Tersan SP + Terraclor	5 + 8	.5
Caloclor + Tersan SP + Terraclor	3 + 5 + 8	.25
Tersan SP + Tersan 1991	5 + 2	53.75
Daconil 4F + Tersan 1991	8 Fl oz + 2	42.25
EL 222	2 oz	14.25
EL 222	4 oz	14.0
EL 222	6 oz	15.0
CHECK	0	85.75

B) GRANULES	LBS/1000 SQ FT	% DISEASE
Calogran	6	NA
Calogran	10	0.75
Fungicide II	N	7.5
Fungicide II	D	1.5
Turfcide	5	47.5
Turfcide 10% g	7.5	26.25
FFII	N	5
FFII	D	7.5
Exp. Ag.	6	7.5
Exp. Ag	10	0.5

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