



# 1980 TURF DISEASE REPORT

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The damage done by "Old Man Winter" was bad and "Lady Summer" was not kind to some of you. Some fairways in July and August performed poorly and many greens were slow to recover last spring. I was set up to study Pythium, Resistant Dollar Spot, disease/fertility interaction last summer and snow mold plots at multiple locations in the state.

Neither Pythium or Resistant Dollar Spot developed as desired on my part but the cooperating superintendents were pleased.

The 1979-80 snow mold plots in Minnesota were located at the following towns: Rochester, Hopkins, Mendota, Detroit Lakes, Bemidji, Roseau, International Falls and Duluth. Disease pressure was too low at Rochester, Hopkins, Mendota and Bemidji to adequately evaluate chemical effectiveness. The experimental product BFN8090 (25 fl. oz. per 100 sq. ft.) was phytotoxic at several locations. Disease data is presented in Table 1 from the plot at Detroit Lakes and Duluth, Minnesota. Fertilizer, soluble types such as Urea, Ammonium Sulfate, Ammonium Nitrate did not increase disease severity but did increase the spring color and growth response of the turf. Even several weeks after the snow had melted the plots with the late season fertility looked better and were damaged less by the early spring frosts. The BFN product was withdrawn from the development process while Ciba Geigy 64251 is moving toward full label in the summer of 1981. Initially, the Ciba Geigy product performed poorly in snow mold trials, but the rates were increased and in 1979-80 the results suggest it has a future. Combinations Ciba Geigy with Daconil, PCNB and/or Mercury should be examined in 1980-81.

The recommended fungicide program is Caloclor plus Tersan SP or Caloclor plus Terraclor. The other two way combination, Tersan SP or Terraclor is the weaker set and should be used only if Mercury is not available. The State Department of Agriculture recently labeled PCNB (Terraclor and Turfcide) as a snow mold fungicide in Minnesota. This is called a "24C" or a special local needs-state label. The request came from the supplier of the product and data developed in Minnesota was used to support the request. Research data shows effective economical control in combination treatments.

The use of late season fertility, 1 lb. of nitrogen in a soluble form, (Urea, Ammonium Nitrate, Ammonium Sulfate) at the time of the last fungicide application provided good results in plots under low nitrogen fertility programs. If you have good growth in the fall season you may not notice the benefit, but if your greens are slow to green up in the spring or do so only after an application of spring nitrogen you should consider a late season fertilizer application on at least part of your course. The use of milo-ganite late in the year is also recommended, not so much as a fertilizer but as a top dressing. Several superintendents have reported good results from late season top dressing. I also suspect good fertility levels exist on greens top dressed late in the fall.

I am also happy to report that we can now successfully kill the three grass species (Merion, Penncross and Poa annua) in the laboratory with the two species of Typhula. We expect to define infection conditions and then test the effect of grass nutrition, (NP + K) and fungicides.

The field trial with Resistant Dollar Spot did not provide meaningful data, however, the resistant isolate from Somerset Country Club was screened in the laboratory. The use of Bayleton experimental at this stage, 26019 or Daconil 4F is recommended in locations where you have Resistant Dollar Spot or suspect you have it or plan to keep Resistant Dollar Spot from developing. Clearly the systemic fungicide types have a laboratory ad-

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vantage in that they not only stop the fungus growth on the site of application but also create an inhibition zone around the application site. The inhibition zone does not occur with Daconil 4F but it's cost is considerably lower. Dollar Spot data from campus is presented in Table 2. The summer fairway problems at Interlachen and Minikahda appeared to center on the Helminthosporium (Drechslera)/Pyrenophora story. The fungus consistently isolated in late August and early September and was keyed to the Pyrenophora trichostoma (confirmation needed). At the present time it appears that applications of 26019 or the flowable form of Daconil are the best choices to deal with this fungus problem.

Snow mold test plots at Duluth, International Falls, Roseau, Detroit Lakes, Mendota, Rochester and Hopkins will be observed this spring.

1980 CAMPUS DOLLAR SPOT RESULTS

TABLE 2.

PRODUCT	RATE PER 1000 SQ. FT	AVERAGE NUMBER OF INFECTIONS PER PLOT (44 SQ FT)								
		7/29 <sup>T</sup>	8/6	8/11 <sup>T</sup>	8/18	8/27	9/2	9/8 <sup>T</sup>	9/25	
ACTIDIONE TGF	1 oz	15	1	26	36	40	53	49	23	
ACTIDIONE TGF	2 oz	15	2	12	30	29	74	78	23	
DACONIL 2787 (75W)	1 oz	36	14	56	49	54	101	72	65	
DACONIL 2787 (75W)	2 oz	20	3	17	24	24	71	67	37	
ACTIDIONE TGF PLUS DACONIL 2787 (75W)	1 oz + /A	11	3	6	7	8	31	46	26	
BAYLETON	0.125 oz AI	7	5	3	1	2	26	21	7	
ACTIDIONE TGF PLUS BAYLETON	1 oz + 0.125 oz AI	3	3	2	0	1	15	16	2	
TERSAN 1991	1 oz	11	5	1	0	2	10	25	1	
RP26019	2 oz	4	1	4	12	14	47	56	21	
DACONIL 4F	3 F oz	8	3	7	5	6	24	36	14	
DACONIL 4F	6 F oz	4	4	2	3	2	16	20	6	
CIBA GEIGY 64251	2 GMS AI	9	5	0	0	0	6	5	2	
CIBA GEIGY 64251	4 GMS AI	10	3	2	0	1	2	6	0	
FORE	4 oz	13	4	6	13	13	45	43	42	
CLEARY 3336	2 oz	13	2	0	1	1	22	23	2	
CHECK		31	17	37	43	47	74	86	72	

# FUNGICIDE TREATMENTS 79 - 80

TABLE 1.

Treatment	Rate Formulation oz/1000	% Area Disease Free	
		Detroit Lakes	Duluth
Caloclor	3	99.25	82.5
Caloclor	5	100.0	74.5
Tersan SP	5	80.75	81.25
Tersan SP	9	92.75	92.25
Terraclor	8	77.5	51.25
Terraclor	12	86.25	70.0
Terraclor	16	90.25	73.75
Tersan 1991	2	70.0	37.5
BFN 8099	12.5 fl. oz.	-----	45.0
BFN 8099	25. fl oz	-----	68.25
CG 64251	8 grams ai	94.25	46.25
CG 64251	16 grams ai	94.25	86.25
CG 64251	24 grams ai	98.25	74.0
Caloclor + Tersan SP	3 + 5	99.0	97.25
Caloclor + Terraclor	3 + 8	97.25	96.75
Tersan SP + Terraclor	5 + 8	77.5	86.25
Caloclor + Tersan SP + Terraclor	3 + 5 + 8	96.25	100.0
Tersan SP + Tersan 1991	5 + 2	77.75	88.75
Daconil 4F	8 fl. oz.	92.75	97.0
Daconil 4F	16 fl. oz.	81.0	88.75
Calogran	6 lbs.	94.5	95.0
Calogran	10 lbs.	99.25	82.5
Fungicide II	N(6)	75.5	87.5
Fungicide II	D(8)	82.0	97.0
Turfcide	5 lbs.	99.0	93.5
Turfcide	10 lbs.	98.0	97.0
Lawn Disease Preventer	N(7)	-----	97.0
Lawn Disease Preventer	D(10.5)	-----	99.0
Calogran + Fungicide II	6 + N	98.25	97.75
Calogran + Turfcide	6 + 5	99.5	98.25
Fungicide II + Turfcide	N + 5	100.0	99.25
Calogran + Fungicide II + Turfcide	6 + n + 5	99.5	94.5
CHECK		52.0	26.0

\*100 = No Disease