Treatments were initiated preventively on May 13, with subsequent treatments being applied on 14, 21, and 28 day schedules as noted on the data tables. The plots were rated on June 20, at which time the 14 day treatments had been applied three times (5/13,5/27,6/10), the 21 day treatments had been applied twice (5/13,6/5) and the 28 day treatments had been applied twice (5/13,6/10). Disease pressure was moderately severe this year with the controls exhibiting approximately 60% of maximum disease levels.

As the data table (Table 2) shows, the standard fungicides (Daconil 2787, Chipco 26019, Vorlan) continued to perform well against melting-out disease in comparison to the untreated controls. The experimental fungicides (CGA-455, SDS 66518, EXP 10069A, EXP 10072A, etc) also gave significant control of this disease at the 5% level of significance.

No phytotoxicity or "greening effect" was noted during the course of this study or at the time of data collection.

Summer Patch Fungicide Studies - 1989

As a result of our previous (1987-88) research, as well as information being generated at other universities, we again decided to attempt preventive control of summer patch (*Magnaporthe poae*) in our fungicide field trials for the 1989 season. Preventive studies were established on irrigated, annual bluegrass (*Poa annua*) fairways on two golf courses in Michigan where disease was present in previous years. All treatments were applied prior to disease occurrence in three replications of a random block design utilizing a 6'x9' plot size. The fairways were maintained at ½" cutting height and were fertilized at ½# N/Mo (except as noted on the data tables). These areas were treated for weed and insect pests, however, no fungicides, other than those being tested, were applied to the studies.

Applications were made foliarly using a CO_2 small-plot sprayer at 30 PSI and a volume of 48 gal/A. Application intervals and frequencies were altered from contract protocols when necessary to conform to a preventive, two-application format.

In general, summer patch disease pressure was only moderately severe this year. Temperatures were quite mild and we received timely rainfall which, along with irrigation, prevented severe drought stress in summer patch-infested areas. Standard treatments applied in May and June generally gave good control of summer patch through August, in contrast to last summer when the extreme heat and drought led to greater disease pressure and a mild loss of control of summer patch by July.

Summer Patch Fungicide Study #1, Dearborn Country Club, Dearborn, MI

The summer patch fungicide study at Dearborn Country Club was initiated preventively on May 1 (except as noted on data tables) when the soil temperature reached 65 F at a 2" soil depth. A second application was made on May 31, or 30 days after the initial application (except as noted on data tables).

The disease developed slowly on this site with the only rating being taken as disease pressure peaked on August 18. As the data (Table 3A) shows, Banner, Bayleton, and Rubigan applications gave good control of the disease, as did a number of experimental (numbered) compounds. Of special interest were the SAN 619F and BAS 48000F experimentals which gave good disease control at very low rates relative to the standard treatments.

Phytotoxicity was not observed, although a couple compounds produced a "greening effect" in the turf as noted on the data tables.

We attempted to differentiate between early stage disease development (yellowing) and advanced disease development (yellowing and thinning) by placing a "Y" after plot ratings where yellowing was the only symptom. All other plots exhibited both yellowing and thinning of the turfgrass stand.

Summer Patch Fungicide Study, Grand Rapids Elks Golf Club, Grand Rapids, MI

The summer patch fungicide study at the Grand Rapids Elks Golf Club was established preventively on May 8, 1989, approximately one week after soil temperatures at a 2" depth reached 65 F (except as noted on the data tables). Most of the treatments were re-applied 30 days later on June 5 (except as noted on data tables). This study was identical to the Dearborn study. Disease development peaked at approximately the time of our second rating on August 21 (Table 4A and 4B). Disease pressure in both studies never exceeded 30-35% in the untreated controls, versus disease levels of 60-80% during the unusually hot summer of 1988. Disease pressure was also somewhat unevenly distributed through the study, however, the best performing compounds were consistently effective across all replicates, giving complete control of the disease through August. During the stressful summer of 1988, even our best performing treatments had some disease by August, suggesting that fungicide residues were too low to give "season-long" control of summer patch.

Mild phytotoxicity was observed in association with a few treatments in Table 4A. The treatments in Table 4B were applied later in the season than those in Tables 4A. This phytotoxicity was mild and was probably related to the hot weather we experienced following the application. The primary symptom was stunting of growth and a slight discoloration of the turf.

Table 3A. Summer Patch Fungicide Trial - 1989

Dearborn Country Club
Dearborn, MI
Rated 8/18/89 - Percent plot area infected with summer patch Magnaporthe poae

Treatment	Rate/1000 ft^{2b}	Applic. date	I	II	III	AVE	DMR(.05)[a]
San 619F	3.78 gm ai	5/9,5/31	0	0^{G}	0^{G}	0.0	F
Lynx 2F	1 fl oz	5/1,5/31,6/30,8/1	0	0	0	0.0	F
Banner	4 fl oz	6/30,8/1	0^{G}	1	0^{G}	0.3	F
Lynx 2F	2 fl oz	5/1,5/31	1	0	0	0.3	F
San 619F	1.89 gm ai	5/9,5/31	1	1	0	0.7	F
Lynx 2F	1 fl oz	6/30,8/1	1	0	1	0.7	F
San 619F	2.84 gm ai	5/9,5/31	0	1	2^{Y}	1.0	F
San 832	63.78 gm ai	5/9,5/31	2	1	0	1.0	F
Lynx 2F	1 fl oz	5/1,5/31	2	1	0	1.0	F
Bayleton	4 oz	5/1,5/31	1	2	0	1.0	F
Rubigan	8 fl oz	5/1	2	1	1	1.3	F
Bas 48000F	.25 lb ai/A	5/1,5/31	1	0	3	1.3	F
Banner	4 fl oz	6/30,8/1 (soil 75° + 30 days)	1^{G}	1	2^{Y}	1.3	F
Rubigan	4 fl oz	5/1	1	3	1	1.3	F
Banner	4 fl oz	5/31,6/30	5^{Y}	0	0	1.7	F
Lynx 25 DF	1 fl oz	5/1,5/31	0	3	2	1.7	F
Bayleton	2 oz	5/1,5/31	2	3	1	2.0	F
Lynx 2F	2 fl oz	5/1	0	3	3	2.0	F
Ch 26019 (F)	12 fl oz	5/31,6/30,8/1	1	0	5	2.0	F
Lynx 2 F	1 fl oz	5/1	2	0	5	2.3	F
EXP 10064A	45.36 ml	5/31,6/20	2	0	5	2.3	F
Ch 26019 (F)	12 fl oz	5/1,5/31,6/30	7	1	1	3.0	EF
Bayleton	2 oz	5/1	3	5	2	3.3	EF
BAS 48000F	.12 lb ai/A	5/1,5/31	2	0	10^{Y}	4.0	EF
Rubigan	4 fl oz	5/1,5/31	1	10^{Y}	2	4.3	EF
RH 3866	.25 oz ai	5/1,5/31	5	5	5	5.0	DEF
Lesco 011092	4.4 fl oz	5/1,5/31	3	5	10	6.0	DEF
Ch 26019 (F)	8 fl oz	5/31,6/30,8/1	10^{Y}	10^{Y}	0	6.7	DEF
Lynx 2F	2 fl oz	5/31	20^{Y}	0	0	6.7	DEF
Bayleton	4 oz	5/1	3	5	15	7.7	DEF
Bayleton	2 oz	5/1,5/31,6/30,8/1	0	5	20	8.3	DEF
Banner	4 fl oz	5/1,5/31	0	5	20	11.7	CDEF

Bayleton	4 oz	5/31	10	7	10	9.0	DEF
Fungo	2 oz	5/1,5/31	15	10	5	10.0	CDEF
Ch 26019 (F)	8 fl oz	5/31,6/30	10	10	10	10.0	CDEF
Lesco 011092	8.8 fl oz	5/1,5/31	2	20	10[Y]	10.7	CDEF
Rubigan	2 fl oz	5/1,5/31	2	30	1	11.0	CDEF
San 832	45.52 g ai	5/9,5/31	1	7[Y]	25[Y]	11.0	CDEF
Ch 26019 (F)	12 fl oz	5/31,6/30	10	20	5	11.7	CDEF
Bayleton	2 oz	6/30,8/1	1	35	1	12.3	BCDEF
Prochloraz	2.5 oz ai	5/1,5/31	20	20	2	14.0	BCDEF
Prochloraz	1 oz ai	5/1,5/31	10	35	1	15.3	BCDEF
Bayleton	2 oz	5/31	35	2	10	15.7	ABCDEF
Fungo + Vorlan	2 oz + 2 oz	5/1,5/31	20	0	40	20.0	ABCDE
Vorlan	1 oz	5/1,5/31	10	35	20	21.7	ABCD
Lynx 2F	1 fl oz	5/31	5	25	35	21.7	ABCD
Control	----	----	35	25	20	26,7	ABC
Vorlan	2 oz	5/1,5/31	35	25	25	28.3	AB
Fungo + Vorlan	1 oz + 1 oz	5/1,5/31	25	40	20	28.3	AB
Ch 26019 (F)	8 fl oz	5/1,5/31,6/30	15	35	35	28.3	AB
Fungo	1 oz	5/1,5/31	10	45	40	31.7	A

[a]Treatments followed by the same letter are not significantly different at the 5% level.
[b]Rates listed are formulation unless listed as active ingredient (ai).
[C]Indicates greening effect on turf.
[Y]Disease expression as yellowing only.

Table 3B. Summer Patch Fungicide Trial - 1989

Dearborn Country Club
Dearborn, MI
Rated 8/18/89 - Percent plot area infected with Magnaporthe poae

Treatment[c]	Rate/1000 ft^{2}[b]	Applic. date	I	II	III	AVE	DMR(.05)[a]
Terraguard	4 oz	5/22,6/20	1	0	0	0.3	C
Terraguard	8 oz	5/22,6/20	0	1	0	0.3	C
Rubigan	4 fl oz	5/22,6/20	1	0	2	1.0	C
SDS 66811	.06 oz ai	5/22,6/20	1	10	5	5.3	BC
SDS 66811	.03 oz ai	5/22,6/20	2	10	10	7.3	BC
SDS 66811	.015 oz ai	5/22,6/20	2	20	3	8.3	BC
Ch 26019 (F)	2 oz ai	5/22,6/20	30	3	2	11.7	BC
SDS 66791	6 oz	5/22,6/20	15	15	15	11.7	BC
SDS 66791	3 oz	5/22,6/20	20	30	10	20.0	AB
Control	----	----	35	25	25	28.3	A

[a]Treatments followed by the same letter are not significantly different at the 5% level.
[b]Rates listed are formulation unless listed as active ingredient (ai).
[c]Blanked out treatments are proprietary.

Table 4A. Summer Patch Fungicide Trial - 1989

Grand Rapids Elks Country Club
Grand Rapids, MI
Rated 8/21/89 - Percent plot area infected with summer patch Magnaporthe poae

Treatment	Rate/1000 ft^{2b}	Applic. date	I^{d}	II	III	AVE	DMR(.05)^{a}
Rubigan	4 fl oz	5/8	0	0	0	0.0	C
Rubigan	8 fl oz	5/8	0	0	0	0.0	C
San 619F	1.89 gm ai	5/8,6/5	0	0	0	0.0	C
San 619F	2.84 gm ai	5/8,6/5	0	0	0	0.0	C
San 619F	3.78 gm ai	5/8,6/5	0^{c}	0	0	0.0	C
San 832	45.52 gm ai	5/8,6/5	0	0	0	0.0	C
Bas 48000F	.25 lb ai/A	5/8,6/5	0	0^{c}	0	0.0	C
Banner	4 fl oz	6/5,6/29	0	0	0	0.0	C
Bayleton	2 oz	5/8	0	0	0	0.0	C
Bayleton	2 oz	6/5	0	0	0	0.0	C
Lynx 2F	1 fl oz	6/5	0	0	0	0.0	C
Lynx 2F	1 fl oz	6/29,7/25	0	0	0	0.0	C
Lynx 2F	1 fl oz	5/8,6/5,6/29,7/25	0	0	0	0.0	C
Lynx 25 DF	1 fl oz	5/8,6/5	0	0	0	0.0	C
EXP 10064A	45.36 ml	5/8,6/5	0	0	0	0.0	C
Ch 26019 (F)	8 fl oz	5/8,6/5,6/29	0	1	0	0.3	C
Rubigan	4 fl oz	5/8,6/5	0	1	0	0.3	C
Bas 48000F	.12 lb ai/A	5/8,6/5	1	0	0	0.3	C
Banner	4 fl oz	6/13,7/18 (75° + 30 days)	0	0	1	0.3	C
Bayleton	4 oz	6/5	0	1	0	0.3	C
Lynx 2F	2 fl oz	5/8,6/5	0	1	0	0.3	C
San 832	63.78 gm ai	5/8,6/5	0	2	0	0.7	C
Lynx 2F	2 fl oz	6/5	0	0	2	0.7	C
Ch 26019 (F)	12 fl oz	5/8,6/5,6/29	0	5	0	1.7	C
Rubigan	2 fl oz	5/8,6/5	0	5	0	1.7	C
Bayleton	2 oz	5/8,6/5	0	5	0	1.7	C
Bayleton	2 oz	6/29,7/25	0	0	5	1.7	C
Lesco 011092	8.8 fl oz	5/8,6/5	0	0	7	2.3	C
Lynx 2F	2 fl oz	5/8	0	0	7	2.3	C
Fungo	1 oz	5/8,6/5	0	5	3	2.77	C
Ch 26019 (F)	12 fl oz	6/5,6/29	0	1	7	2.7	C

Bayleton	4 oz	5/8	0	5	3	2.7	C
Banner	4 oz	6/29,7/25	0	10	0	3.3	C
Fungo + Vorlan	2 oz + 2 oz	5/8,6/5	1	10	0	3.7	C
Ch 26019 (F)	8 fl oz	5/8,6/5,6/29	1	1	10	4.0	C
Prochloraz	2.5 oz ai	5/8,6/5	10	3	1	4.7	C
Lynx 2F	1 fl oz	5/8	1	1	15	5.7	C
Bayleton	2 oz	5/8,6/5,6/29,7/25	10	0	10	6/7	C
Ch 26019 (F)	12 fl oz	6/5,6/29,7/25	0	0	20	6.7	C
Ch 26019 (F)	8 fl oz	6/5,6/29	0	20	1	7	C
Lesco 011092	4.4 fl oz	5/8,6/5	5	3	15	7.7	C
Banner	4 fl oz	5/8,6/5	0	0	25	8.3	CB
Bayleton	4 oz	5/8,6/5	0	0	25[Y]	8.3	CB
Lynx 2F	1 fl oz	5/8,6/5	0	0	25[Y]	8.3	CB
Vorlan	2 oz	5/8,6/5	0	2	25	9	CB
RH 3866	.25 oz ai	5/8,6/5	30	2	0	10.7	CB
Prochloraz	1 oz ai	5/8,6/5	50	0	0	16.7	CBA
Fungo + Vorlan	1 oz + 1 oz	5/8,6/5	2	25	25	17.3	CBA
Fungo	2 oz	5/8,6/5	0	45	30	25	BA
Control	----	----	35	15	40	30.0	A
Vorlan	1 oz	5/8,6/5	0	5	45	31.7	A

[a]Treatments followed by the same letter are not significantly different at the 5% level.
[b]Rates listed are formulation unless listed as active ingredient (ai).
[c]Indicates phytotoxicity in sprayer overlap.
[d]Disease ratings not followed by a "Y" exhibited yellowing and thinning.
YYellowing of turf only.

Table 4B. Summer Patch Fungicide Trial - 1989

Grand Rapids Elks Country Club
Grand Rapids, MI
Rated 8/21/89 - Percent plot area infected w/Magnaporthe poae

Treatment[c]	Rate/1000 ft[2b]	Applic. date	I	II	III	AVE	DMR[a]
Terraguard	4 oz	5/23,6/29	0	0	0	0.0	B
Terraguard	8 oz	5/23,6/29	0	0	0	0.0	B
SDS-66791	3 oz	5/23,6,29	0	0	0	0.0	B
SDS-66791	6 oz	5/23,6/29	0	0	0	0.0	B
Rubigan	4 oz	5/23,6/29	0	0	0	0.0	B
SDS66811	.03 oz ai	5/23,6/29	1	2	0	1.0	B
SDS66811	.06 oz ai	5/23,6/27	0	3	0	1.0	B
Ch 26019 (F)	2 oz ai	5/23,6/29	0	0	5	1.7	B
SDS66811	.015 oz ai	5/23,6/29	0	0	5	1.7	B
Control	----	----	2	10	3	5	A

[a]Treatments followed by the same letter are not significantly different at 5% level.
[b]Rates listed are formulation unless listed as active ingredient (ai).
[c]Blanked out treatments are proprietary.