gal/A. The plots were rated for disease on September 25, at which time the 7 day treatments had been applied five times, the 14 day treatments had been applied three times and the 21 and 28 day treatments had been applied twice.

Disease pressure was late in developing and remained relatively light in the plot area this year which might explain why most of the treatments worked so well. As in previous years, the Tersan 1991 treatment was ineffective due to benzimidazole-resistant dollar spot strains which predominate in the plot area. As the data table shows (Table 6), many of the newer, experimental fungicides which looked promising in our summer patch trials also show promise as dollar spot controls (SDS 66533, Spotless, ICIA523, H6573, etc.). All the products tested (except T1991) gave significant disease control when compared to the control.

Phytotoxicity was observed as indicated on the data tables.

Curative Study

The 1988 curative dollar spot (Lanzia sp., Moellerodiscus sp.) fungicide study was conducted at the same location and under the same conditions described above except that it was located on a heavily diseased turf area. The duration of the study was limited somewhat by late development of disease pressure and an unusually early fall. Initial applications were made on September 10 with all subsequent applications being made at the intervals indicated on the data table. The rating was taken on October 3, 1988.

At the time of the rating (Table 7), the 7 day treatments had been applied 3 times, the 14 day treatments had been applied twice and the 21 and 28 day treatments had been applied once. The study was terminated after the October 3 rating because disease pressure in the controls and the plot area in general was abating. This decline in disease pressure occurred before recovery was complete in some treated plots. Had we been able to continue the study for two additional weeks, some of the treatments (CH 26019 + LS 84.606, H6573 + T1991, etc.) would probably have shown 100% recovery from initial disease damage. As the statistics show, however, all treatments gave a significant reduction in the disease levels, compared to the untreated controls.

Phytotoxicity was observed as indicated on the data tables.

NECROTIC RING SPOT FUNGICIDE TRIALS #1 AND #2 - 1988

Glen Haven Condominiums, Novi,MI

The 1988 necrotic ring spot (Leptosphaeria korrae) fungicide trials #1 and #2 were conducted on an irrigated, moderately fertilized (1/3 #N/mo) Kentucky bluegrass residential turf area at the Glen Haven Condominium complex in Novi, Mi. Two preventive studies were initiated in May 1988, one study utilizing the same treatments and rates used in our summer patch fungicide trials, and a second study which used corporate contract treatments and rates. These studies will be referred to as study #1 and study #2, respectively.

Both studies were laid out in three replications (6' x 9' plots) of a random block design in areas which showed evidence of severe and uniform disease pressure in previous seasons. All sprayable formulations were applied

with a CO_2 small-plot sprayer at 30 PSI and 48 gal/A. All granular materials were pre-weighed and applied by hand. The non-fertilizer based treatments were given supplemental fertilizer at the rate of .33 lb N/1000 ft^2/mo in order to provide sufficient fertility to promote recovery. No other fertilizer or fungicide applications were made to the overall plot area during the season.

Applications were made to study #1 on May 12 and June 13 and to study #2 on May 19 and June 17 (except as noted on data tables). Numerous patches from the previous season were present in all plots at the time of treatment, although the disease was not active.

Turf recovery as a result of fungicide treatment was somewhat disappointing this year. The turf entered a slow growth stage during the May-July heat and drought with minimal regrowth occurring in treated disease patches. When natural rainfall returned in August, the fertilizer-based treatments promoted rapid regrowth in disease patches but recovery remained poor in the fungicide-treated plots. Soil tests revealed a severe phosphorus deficiency in the plot areas despite the use of a complete maintenance fertilizer (18-5-9) at 1/3 #N/1000 ft^2/mo. It is likely that this deficiency, along with the drought, led to diminished recovery in the fungicide plots during the summer period of maximum fungicide efficacy and into the fall when the disease reactivated (Oct.-Nov.) in the plot areas. Reactivation was defined as the formation of new patches or the presence of red leaf tissue in the outer border of existing patches.

Two ratings were taken in each study during the active disease period in the fall. Study #1 was rated by the number of patches/plot (Table 8) while study #2 was rated as percent area infected/plot (Table 9) because distinct patches were less discernible in this study. In an effort to report visually obvious differences between treatments in turfgrass color, density and regrowth into old disease patches, we have included a data table (Table 10) which ranks the treatments in trial #2 from highest to lowest quality. This rating ignores disease incidence, although a comparison of Tables 18 and 19 will show a fairly strong correlation between turfgrass quality and disease incidence.

No phytotoxicity was observed in either study #1 or #2 at the times the ratings were taken.

Table 8. Necrotic Ring Spot Study #1 - 1988

Glen Haven Condominiums, Novi, MI

Number of patches per plot

Rating date: 11/3/88

Treatment	Rate/1000 ft^2	Interval	I	II	III	Ave	DMR(.05)[a]
Turf Restore w/o microbes[c]	20 lb, 15 lb, 10 lb	May,June,Sept	2[b]	2	4[b]	2.7	G
Prochloraz + SN99731	4.5 fl oz + 1 oz	May, June	2	2[b]	9	4.3	FG
Fertilizer (10-4-4)[c]	1 lb N	Monthly	2[b]	4[b]	13[b]	6.3	EFG
Dac 2787 + SDS66533	6 fl oz + 4 fl oz	May, June	7	2	10	6.3	EFG
Turf Restore[c]	20 lb, 15 lb, 10 lb	May,June,Sept	6	1[b]	13	6.7	DEFG
H6573	.25 oz ai	May, June	2	9	12	7.7	CDEFG
Flutolanil + SN596	2 oz + 1 oz	May, June	12	5	11	9.3	BCDEFG
H6573 + Tersan 1991	.25 oz ai + 1 oz ai	May, June	6	1	22	9.7	BCDEFG
Bayleton	2 oz	May, June	7	10	13	10.0	BCDEFG
Spotless	1 lb ai/A	May, June	14	0[b]	16	10.0	BCDEFG
Ch26019 + LS84.606	1 oz ai + .05 oz ai	May, June	6	7	17	10.0	BCDEFG
SDS66534	4.3 fl oz	May, June	9	7	15	10.3	BCDEFG
Bayleton + Turf Restore[c]	2 oz + 5 lb	May,June,Monthly	5	17	11	11.0	ABCDEFG
H6573 + Tersan 1991	.125 oz ai + 1 oz ai	May, June	5	13	15	11.0	ABCDEFG
Rubigan	3.75 fl oz	May, June	7	16	11	11.3	ABCDEFG
Rubigan	1.75 fl oz	May, June	23	4	8	11.7	ABCDEFG
Ch26019	2 oz ai	May, June	2	13	20	11.7	ABCDEFG
Banner	4 fl oz	May, June	4	23	8	11.7	ABCDEFG
Spotless	.25 lb ai/A	May, June	8	20	9	12.3	ABCDEFG
Tersan 1991	2 oz	July	12	15	10	12.3	ABCDEFG
Banner	2 fl oz	May, June	5	23	10	12.7	ABCDEFG
Dac 2787 + SDS66533	3 fl oz + 1 fl oz	May, June	9	17	13	13.0	ABCDEFG
Spotless	.5 lb ai/A	May, June	9	11	19	13.0	ABCDEFG
Flutolanil + SN99731	2 oz + 1 oz	May, June	14	13	13	13.3	ABCDEFG
H6573	.125 oz ai	May, June	9	15	16	13.3	ABCDEFG
HWG1608	.5 oz ai	May, June	9	17	15	13.7	ABCDEFG
HWG1608	.25 oz ai	May, June	15	7	20	14.0	ABCDEFG
Flutolanil	4 oz	May, June	15	18	9	14.0	ABCDEFG
Bayleton	1 oz	May	10	13	19	14.0	ABCDEFG
Banner	4 fl oz	May	5	14	23	14.0	ABCDEFG
Tersan 1991	2 oz	June, July	7	18	17	14.0	ABCDEFG
ICIA523 + X-77	8 gm ai + .05% v/v	May, June	3	18	21	14.0	ABCDEFG
ICIA523 + X-77	6 gm ai + .05% v/v	May, June	11	14	18	14.3	ABCDEFG
Prochloraz	4.5 fl oz	May, June	11	19	14	14.7	ABCDEF
Faeriefungin	1000 ppm	Monthly	8	16	20	14.7	ABCDEF
SDS66534	2.1 fl oz	May, June	11	16	18	15.0	ABCDEF
H6573 + Tersan 1991	.06 oz ai + 1 oz ai	May, June	21	10	14	15.0	ABCDEF
H6573	.06 oz ai	May, June	9	18	18	15.0	ABCDEF
Spotless	.125 lb ai/A	May, June	18	15	13	15.3	ABCDEF
Tersan 1991	2 oz	June	16	15	15	15.3	ABCDEF
Tersan 1991	1 oz ai	May, June	11	16	19	15.3	ABCDEF

Table 8. Necrotic Ring Spot Fungicide Study #1 - 1988 (cont.)

Treatment	Rate/1000 ft^2	Interval	I	II	III	Ave	DMR(.05)[a]
Dac 2787 + SDS66533	6 fl oz + 2 fl oz	May, June	21	14	12	15.7	ABCDEF
Rubigan	1.75 fl oz	May	7	21	19	15.7	ABCDEF
DPX 965	1 oz ai	May, June	7	30	10	15.7	ABCDEF
LS84.606	.05 oz ai	May, June	10	19	19	16.0	ABCDEF
Bayleton	1 oz	May, June	9	16	23	16.0	ABCDEF
Lesco Fungicide	6 oz	May, June	16	21	12	16.3	ABCDEF
Faeriefungin	500 ppm	Monthly	8	28	17	17.7	ABCDE
Rubigan	3.75 fl oz	May	18	23	13	18.0	ABCDE
ICIA523 + X-77	4 gm ai + .05% v/v	May, June	11	24	19	18.0	ABCDE
Bayleton	1 oz	June	9	20	25	18.0	ABCDE
H6573 + DPX 965	.125 oz ai + 1 oz ai	May, June	14	18	24	18.7	ABCD
Control	----	----	7	27	22	18.7	ABCD
Bayleton	2 oz	May	13	24	22	19.7	ABC
Rubigan	1.75 fl oz	June	16	28	15	19.7	ABC
Rubigan	3.75 fl oz	June	27	13	19	19.7	ABC
Banner	2 fl oz	May	14	26	19	19.7	ABC
H6573 + DPX 965	.06 oz ai + 1 oz ai	May, June	20	20	20	20.0	AB
Banner	4 fl oz	June	9	24	27	20.0	AB
Bayleton	2 oz	June	12	27	24	21.0	AB
Faeriefungin	1000 ppm	May, June	10	26	28	21.3	AB
Banner	2 fl oz	June	9	23	36	22.7	A

a = treatments followed by the same letter are not significantly different at the 5% level

b = plots exhibiting good color and density

c = no supplemental fertility applied to these treatments,

Table 9. Necrotic Ring Spot Trial #2 - 1988

Glen Haven Condominiums, Novi, MI

Percent plot area infected

Rating date: 11/18/88

Treatment	Rate/1000 ft^2	Interval	I	II	III[e]	Ave	DMR(.05)[a]
Turf Restore w/o microbes[d]	10 lb	Monthly	3[b]	5[b]	5[b]	4.3	M
Turf Restore[d]	10 lb	Monthly	5[b]	10[b]	5[b]	6.7	LM
Sustane[cd]	1 lb N	Monthly	10[b]	15[b]	5[b]	10.0	KLM
Turf Restore[d]	20 lb, 15 lb, 10 lb	May,June,Sept	10	20	5	11.6	JKLM
Rubigan	3.75 fl oz	May, June	30	20	15	21.7	IJKLM
Fertilizer (10-4-4)[d]	1 lb N	Monthly	25	25	20	23.3	HIJKLM
Rubigan	.938 oz ai	July,Aug,Sept	45	15	15	25.0	GHIJKLM
Bayleton	1 oz	June	30	35	10	25.0	GHIJKLM
Ch26019 + LS84.606	.25oz ai + .0125oz ai	May, June	50	10	20	26.7	GHIJKL
Ch26019 + LS84.606	.25oz ai + .0125oz ai	July,Aug,Sept	40	35	7	27.3	FGHIJKL
Biogroundskeeper + Fert. (10-4-4)[d]	2 oz + .5 lb N	Monthly	30	30	25	28.3	FGHIJKL
Ch26019 + LS84.606	.5 oz ai + .025 oz ai	May, June	50	20	25	31.7	EFGHIJK
Rubigan	.938 oz ai	May, June	50	20	25	31.7	EFGHIJK
Rubigan	1.75 fl oz	May	50	35	10	31.7	EFGHIJK
Rubigan	1.75 fl oz	June	55	25	15	31.7	EFGHIJK
HWG1608	.5 oz ai	May, June	40	40	20	33.3	DEFGHIJ
Banner	2 fl oz	June	50	25	25	33.3	DEFGHIJ
Banner	4 fl oz	June	55	20	25	33.3	DEFGHIJ
Rubigan	1.75 fl oz	May, June	35	25	40	33.3	DEFGHIJ
Ch26019 + LS84.606	1 oz ai + .05 oz ai	May, June	55	40	10	35.0	CDEFGHI
Rubigan	3.75 fl oz	June	55	30	20	35.0	CDEFGHI
LS84.606	.025 oz ai	May, June	40	25	45	36.7	CDEFGHI
Ch26019	2 oz ai	May, June	55	40	15	36.7	CDEFGHI
LS84.606	.025 oz ai	July,Aug,Sept	50	35	25	36.7	CDEFGHI
Banner	4 fl oz	May	55	35	20	36.7	CDEFGHI
HWG1608	.25 oz ai	May, June	50	30	35	38.3	BCDEFGHI
Bayleton	2 oz	June	45	50	20	38.3	BCDEFGHI
Ch26019	1 oz ai	July,Aug,Sept	55	30	35	40.0	BCDEFGHI
Tersan 1991	2 oz	June, July	40	45	35	40.0	BCDEFGHI
Control	----	----	45	50	25	40.0	BCDEFGHI
Ch26019 + LS84.606	.5 oz ai + .025 oz ai	July,Aug,Sept	50	40	35	41.7	BCDEFGHI
Ch26019 + LS84.606	1 oz ai + .05 oz ai	July,Aug,Sept	55	15	55	41.7	BCDEFGHI
Banner	2 fl oz	May, June	50	30	45	41.7	BCDEFGHI
Banner	4 fl oz	May, June	65	45	20	43.3	BCDEFGHI
Rubigan	3.75 fl oz	May	65	40	25	43.3	BCDEFGHI
Biogroundskeeper + N[d]	2 oz + .5 lb N	Monthly	50	60	20	43.3	BCDEFGHI
Sustane[cd]	.5 lb N	Monthly	50	35	45	43.3	BCDEFGHI
Banner	2 fl oz	May	45	35	55	45.0	BCDEFGH
Bayleton	2 oz	May	70	15	50	45.0	BCDEFGH
Tersan 1991	2 oz	July	65	30	25	46.7	ABCDEFG

Table 9. Necrotic Ring Spot Trial #2 - 1988 (cont.)

Treatment	Rate/1000 ft^2	Interval	I	II	III	Ave	DMR(.05)
Bayleton	1 oz	May	65	50	35	50.0	ABCDEF
Greenspeed + Biogroundskeeper[d]	8 oz + 2 oz	Monthly	65	45	40	50.0	ABCDEF
Bayleton	2 oz	May, June	65	30	60	51.7	ABCDE
Bayleton	1 oz	May, June	60	45	50	51.7	ABCDE
Tersan 1991	2 oz	June	65	55	40	53.3	ABCDE
Biogroundskeeper[d]	2 oz	Monthly	60	60	45	55.0	ABCD
Greenspeed[d]	8 oz	Monthly	55	55	55	55.0	ABCD
Biogroundskeeper + K[d]	2 oz + .25 lb	Monthly	65	50	55	56.7	ABC
Biogroundskeeper + P + K[d]	2 oz +.25 lb +.25 lb	Monthly	50	65	65	60.0	AB
Greenspeed[d]	4 oz	Monthly	75	70	60	68.3	A
Biogroundskeeper + P[d]	2 oz + ½ lb	Monthly	80	80	45	68.3	A

a = treatments followed by the same letter are not significantly different at the 5% level

b = good turf density and color

c = initial Sustain treatments applied on 6/29/88

d = treatments received no supplemental fertility

e = Rep.III was mistakenly fertilized by condominium maintenance firm resulting in ratings which are better than might otherwise be expected