TURFGRASS DISEASE MANAGEMENT REPORT - 1990-91

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INTRODUCTION

The fungicide field trials conducted this year were established under a standard format of 3 replications/treatment in a randomized block design. Plot size was generally 6' x 9', with the exception of the dollar spot trial on creeping bentgrass and the melting-out fungicide trials on Kentucky bluegrass where a 3' x 6' plot was used.

All sprayable (WP, WDG, FL, EC, etc.) treatments were applied with a CO_2 back-pack sprayer utilizing Tee-jet flat fan nozzles (8002E) producing 48 gal. of spray volume/acre at 30 PSI. Granular (non-sprayable) treatments were pre-weighed and hand-applied.

Data were analyzed using an analysis of variance test and a Duncan's multiple range test at a 5% level of significance.

A list of all compounds tested this season is included at the end of this report, providing formulation and manufacturer information.

SNOW MOLD FUNGICIDE STUDY - 1990-91

Boyne Highland Resort, Harbor Springs, MI

The 1990-91 snow mold (*Typhula incarnata, Typhula ishikariensis*) fungicide study was conducted at the Boyne Highlands Resort in Harbor Springs, MI, on an irrigated, moderately fertilized Penncross (*Agrostis palustris*) creeping bentgrass/annual bluegrass (*Poa annua*) fairway which was mowed at 1/2" height of cut. Treatments were applied preventively on 10/29/91.

The plots were rated as soon as the snow cover melted off on 4/5/91. The predominant gray snow mold organism present this year was *Typhula incarnata*. Disease pressure was moderate this year, but most treatments gave significant control of the disease compared with the untreated control. Among the many effective treatments were traditional standards such as the mercuries, Terraclor, Scotts FFII, and Daconil 2787 with Chipco 26019, Fungo 50, or Tersan 1991, and a number of new experimental materials such as Rizolex, Sentinel and SAN 832.

KENTUCKY BLUEGRASS MELTING-OUT FUNGICIDE STUDY - 1991

Hancock Turfgrass Research Center

The 1991 melting-out (*Dreschlera poae*) fungicide trial was conducted at the Hancock Turfgrass Research Center on the MSU campus at East Lansing, MI, on irrigated Kenblue Kentucky bluegrass (*Poa pratensis*) turf maintained at 1½" height of cut. The plot area was fertilized dormantly in 1990 (fall) at the rate of 1#N/1000 ft^2 and at the rate of ¼# N/1000 ft_2 on April 23, 1991.

Treatments were applied preventively on May 3, with subsequent treatments being applied at 14, 21, or 28 day intervals as indicated in Table 2. Disease pressure was mild this year, with the controls exhibiting approximately 30% of maximum disease levels.

As the data indicates (Table 2), a number of standard fungicides (Vorlan, Daconil 2787, etc.) and experimental fungicides (ASC 66518, ASC 66608, etc.) exhibited excellent disease control this year. Most treatments gave statistically significant disease control compared to the untreated control plots, and no phytotoxicity was noted.

ANTHRACNOSE FUNGICIDE TRIAL - 1991

Oak Pointe Golf Club, Brighton, MI

The 1991 Anthracnose (*Colletotrichum graminicola*) fungicide trial was conducted on an irrigated, annual bluegrass fairway on the Oak Pointe Golf Club in Brighton, MI. Applications were initiated preventively on June 28. Treatments were applied on 14, 21, or 28 day intervals through September 13. Fertility was applied at the rate of ½ lb N/1000 ft^2 throughout the study duration.

Despite establishment on a *Poa annua* fairway which is traditionally not sprayed with fungicides, this study failed to develop significant anthracnose this year. Infection was spotty and rarely affected more that 2-3% of the plot area. Therefore, no anthracnose data was generated this year. Dollar spot (*Sclerotinia homoeocarpa*) did move into the study by August and is reported on the following table (Table 3). As the table indicates, all anthracnose treatments gave statistically significant control of the dollar spot which invaded the study, compared to the untreated controls, and no phytotoxicity was noted.

SUMMER PATCH FUNGICIDE STUDIES - 1991

Fungicide studies for the preventive control of summer patch (*Magnaporthe poae*) disease on annual bluegrass were initiated when soil temperatures reached an afternoon temperature of 65°F at a 2" depth for 2 consecutive days. Studies were established on irrigated, annual bluegrass fairways on two golf courses in Michigan where disease was present in previous years. The fairways were maintained at ½" height of cut and were fertilized at ½ lb. N/Mo (except treatments which included fertilizer). These areas were treated for weed and insect pests and no fungicides, other than those tested, were applied to the studies. Application intervals and frequencies were altered from contract protocols in order to conform to a preventive, 2 application format.

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

The summer patch fungicide study at Dearborn Country Club was initiated preventively on May 11, 1991 (except as noted on data tables). A second application was made on June 7, 1991 (except as noted on data tables). Treatments were foliarly applied.

The disease pressure was moderate this year with turf loss occurring somewhat later than normal and disease pressure abating somewhat earlier than normal, resulting in a relatively short period of actual turf thinning. Disease pressure peaked around the July 26 - August 12 period when the ratings were taken (Tables 4 & 5).

As the 7/26 data indicates, three experimental products (Lynx, Sentinel, EXP 10064 B) gave total and statistically significant control of summer patch through the end of July. The standard preventive fungicide treatments (Rubigan, Banner) also provided good control of the disease, as did Fungo on a 14 day application schedule. Bayleton appeared to be somewhat less effective than expected at the time of this rating, although disease levels were not significantly different from the Rubigan 4 fl oz and Fungo 4.8 oz treatment levels. Most of the other treatments gave levels of disease control which were not significantly different from the untreated control (Table 4).

By the time of the 8/12 rating (Table 5) the Bayleton treatments were inexplicably providing improved disease control despite an overall disease increase in the control plots. Rubigan and Banner were also still controlling the disease, along with the experimental treatments (Sentinel, EXP 10064 B, Lynx) which looked very good in the 7/26 rating.

As the data tables indicate, the effective experimental compounds have a tendency to exhibit plant growth regulation effects on the turf (greening, wider leaves, etc.). With the exception of the Banner + CGA 163935 and the Duosan + 10-30-20 fertilizer treatments, however, no objectionable phytotoxicity was observed.

Summer Patch Fungicide Study #2, Highland Golf Club, Grand Rapids, MI

The summer patch fungicide study at Highland Golf Club was initiated preventively on May 10, 1991 (except as noted on data tables). This treatment coincided with 2 consecutive days when soil temperatures reached 65°F at a 2" depth. A second application was made approximately 30 days later, on June 6. Treatments were applied foliarly.

Disease pressure developed later in this study than at Dearborn, thus the ratings were taken on August 13 and August 30. As the data (Tables 6 & 7) indicates, few treatments were significantly different from the controls on either rating date. When summer patch did finally develop in the study area, it was spotty and inconsistent across the treatment replicates which resulted in statistically insignificant ratings.

DOLLAR SPOT FUNGICIDE TRIAL - 1991

Hancock Turfgrass Research Center, MSU, East Lansing, MI

The 1991 dollar spot (*Sclerotinia homoeocarpa*) fungicide trial was conducted on an irrigated Emerald Creeping bentgrass (*Agrostis palustris* HUDS) putting green at the Hancock Turfgrass Research Center on the MSU campus. The green was maintained at ¼" height of cut and fertilized at 3/8 lb N/Mo. Treatments were applied curatively to 3' x 6' plots in three replications of a random block design on 7, 14, 21 and 28 day schedules as indicated on the data tables. The initial treatments were applied on August 6, 1991. By the end of the study, weekly treatments had been applied 7 times, 14 day treatments were applied 4 times, 21 day treatments were applied 3 times, and 28 day treatments were applied twice.

Disease pressure was moderate this year, reaching a peak for the season around September 24 when the enclosed rating (Table 8) was taken. As the data indicates, all treatments gave significant control of dollar spot, compared to the controls. Many standard and experimental compounds gave complete control of the disease, but Fungo and the fertilizer treatments were least

effective. It should be noted that the dollar spot strain in this plot area is resistant to the benzimidazole fungicides, such as Fungo.

No phytotoxicity was noted in this study, although a "greening effect" was observed in some treatment plots, as noted on data Table 8.

NECROTIC RING SPOT FUNGICIDE STUDIES - 1991

Two necrotic ring spot (*Leptosphaeria korrae*) studies were conducted this year, one on the Hancock Turf Research Center on the MSU campus, and another on the Yankee Springs Golf Course in western Michigan. Both studies were located in previously diseased Kentucky bluegrass turfs which were irrigated, fertilized at 1 lb N/mo (except fertilizer treatments and unfertilized control) and mowed at 1" (Yankee Springs) and 1½" (Hancock Center) height of cut. Both areas were treated for weeds, etc., as necessary, but no general maintenance fungicides were used during the season.

Applications were made as foliar sprays initially on August 1 (Hancock Center) and August 5 (Yankee Springs Golf Course). Second and third applications were made thirty and sixty days later. The goal of these early August applications was to control the new disease outbreaks frequently observed in the September-November period.

Because symptoms of previous disease activity (patches) were present throughout the Hancock plot area, pre-treatment ratings (% plot area infected) were taken with subsequent efficacy ratings being reported as percent disease increase/decrease compared to initial disease levels (Table 9).

No disease activity was apparent on the Yankee Springs plot area at the time of initial treatment, although the area was moderately diseased in previous seasons.

Necrotic Ring Spot Study #1 - Hancock Turfgrass Research Center, MSU, East Lansing, MI

This study was initiated on August 1, 1991 with subsequent applications being made on August 29 and October 3, 1990. At the time of the initial applications, numerous, newly-formed patches were present in the plot area as a result of summer heat and drought stress. The turf that was killed had probably been infected by the necrotic ring spot fungus during the previous fall and spring when the soil temperatures were lower. As Table 9 indicates, most of the fungicide treatments promoted recovery from previous disease incidence by allowing old patches to fill in to various degrees. Because this recovery was not uniform across all treatment replicate plots, however, the treatments were not significantly different from each other. There was also no evidence of a renewed disease outbreak in the fall since the control (unfertilized) plot failed to develop increased disease pressure, and actually improved somewhat during the study duration, and no phytotoxicity was observed during the study duration.

Necrotic Ring Spot Study #2 - Yankee Springs Golf Course

This study was initiated on August 5, 1991 with second and third applications being made on September 3, 1991 and October 9, 1991. Unfortunately, the frequently observed late-season disease outbreak did not occur this year and no data was available from this trial.

No phytotoxicity was observed in the plot area, with the exception of mild phytotoxicity in the EXP 10064 B (3 fl oz) treatment, which persisted through early November.

Table 1. Snow Mold Fungicide Study - 1990-91

Boyne Highlands Resort, Harbor Springs, MI
Percent plot area infected with gray snow mold
(*Typhula incarnata*, *Typhula ishikariensis*) on 4/5/91

Treatment	Rate/1000 ft[2b]	I	II	III	AVE	DMR[a]
Terraclor (F)	.75 lb. ai.	0	1	0	.33	D
Calo-Clor	3 oz	0	1	0	.33	D
D. 2787 + Ch. 26019	8 fl oz + 4 fl oz	0	1	1	.67	D
D. 2787 + Fungo 50 (F)	8 fl oz + 2 fl oz	0	1	2	1.0	D
Rizolex	85.05 gm ai	1	1	1	1.0	D
Terraclor (F)	.375 lb ai	3	1	1	1.67	D
D. 2787 + ASC. 67019	8 fl oz + 1:40 dilution	3	1	3	2.33	D
SAN. 619 F	7.56 gm ai	5	2	0	2.33	D
Terraclor (W)	.375 lb ai	2	1	5	2.67	D
Scts. FFII	1 X	2	3	5	3.33	D
ASC. 66791	8 oz	0[d]	10[e]	0[e]	3.33	D
D. 2787	16 fl oz	0	7	3	3.33	D
Scts. FFII	2X	1	5	5	3.67	D
San 832 F	63.78 gm ai	0	10	1	3.67	D
Terraclor (F) + G-425	.1875lb ai+.1875lb ai	0	1	10	3.67	D
D.2787 + Tersan 1991	8 fl oz + 2 oz	5	1	7	4.33	D
D. 2787 + ASC. 67019	16 fl oz+ 1:40 dilution	1	10	3	4.67	D
San 832 F	85.04 gm ai	0	0	15	5.0	D
Ch. 26019	4 fl oz	10	1	10	7.0	D
D. 2787 + Fungo 50 (F)	4 fl oz + 8 fl oz	15	7	1	7.67	D
Vorlan + Fungo 50 (F)	4 fl oz + 8 fl oz	10	3	10	7.67	D
San 619 F	3.78 gm ai	10	10	3	7.67	D
Vorlan	4 fl oz	7	7	10	8.0	D
D. 2787	8 fl oz	10	7	7	8.0	D
Calo Gran	6 lbs	20	3	1	8.0	D
PCNB (G)	7.5 lbs	25	1	1	9.0	D
D. 2787	8 fl oz	2	5	20	9.0	D
EXP. 10064 B	1.5 fl oz	10	5	15	10.0	D
EXP. 10064 B	3 fl oz	20	3	7	10.0	D

Table 1. Snow Mold Fungicide Study - 1990-91 (cont.)

Treatment	Rate/1000 ft²[b]	I	II	III	AVE	DMR[a]
Ch. 26019 + EXP 10064 B	4 fl oz + 1.5 fl oz	15	10	5	10.0	D
ASC. 66791 + ASC. 67019	8 oz + 1:40 dilution	0	1	30	10.33	D
Ch. 26019	4 fl oz	15	7	10	10.67	D
Vorlan + Fungo 50 (F)	2 fl oz + 2 fl oz	5	7	20	10.67	D
Vorlan	2 fl oz	7	7	20	11.33	D
Terraclor (F) + G-425	.094 lb ai + .094 lb ai	15	5	15	11.67	D
Terraclor (W)	.1875 lb ai	20	7	20	15.67	CD
Terraclor (F)	.1875 lb ai	7	20	20	15.67	CD
PCNB (G)	5 lbs	20	2	30	17.33	BCD
Urea	1 lb N	25	20	10	18.33	BCD
Lesco Elite + PCNB	4 lbs	25	10	20	18.33	BCD
Sustane	½ lb N	30	15	15	20.0	BCD
Lesco Elite + PCNB	6 lbs	25	15	20	20.0	BCD
Control	—	40	40	15	31.67	ABC
Urea	½ lb N	60	15	25	33.33	ABC
ASC 67019	1:40 dilution	35	20	50	35.0	AB
Fungo 50 (F)	8 fl oz	35	40	30	35.0	AB
Fungo 50 (F)	2 fl oz	50	35	35	40.0	A
Turf Restore	½ lb N	40	15	70	41.67	A
Turf Restore	1 lb N	35	20	80	45.0	A
Sustane	1 lb N	75	35	30	46.67	A

[a]Treatments followed by the same letter are not significantly different from each other at the 5% level.
[b]Rates listed are formulation unless listed as "ai" (active ingredient).
[c]Mild phytotoxicity observed.
[d]Moderately severe phytotoxicity observed.

Table 2. Kentucky Bluegrass Melting-Out Fungicide Trial - 1991

Hancock Turfgrass Research Center
Michigan State University, East Lansing, MI
Disease rating scale:
1 (no disease) - 9 (90% or more of leaves infected)
Plots rated 6/24/91

Treatment	Rate/1000 ft[2b]	Interval	I	II	III	AVE	DMR[a]
ASC 66518	1.9 oz	14 day	1	1	1	1.0	E
ASC 66518	3.8 oz	14 day	1	1	1	1.0	E
ASC 66791	5.6 oz	14 day	1	1	1	1.0	E
ASC 66608	3.75 oz	14 day	1	1	1	1.0	E
ASC 66608	7.5 oz	14 day	1	1	1	1.0	E
D. 2787 (WDG)	3.5 oz	14 day	1	1	1	1.0	E
ASC 66825	2.5 oz	21 day	1	1	1	1.0	E
ASC 66900	2.1 fl oz	14 day	1	1	1	1.0	E
D. 2787 (F)	3 fl oz	14 day	1	1	1	1.0	E
D. 2787 (F)	6 fl oz	14 day	1	1	1	1.0	E
Vinclozolin (DF)	2 oz	21 day	1	1	1	1.0	E
Vorlan	2 fl oz	21 day	1	1	1	1.0	E
Broadway	5.25 fl oz	14 day	1	1	1	1.0	E
Vorlan	1 fl oz	21 day	1	1	1	1.0	E
RH-0611	4 oz	7 day	1	1	1	1.0	E
Touché	1 fl oz	14 day	2	1	1	1.33	DE
Fore	6.4 fl oz	14 day	2	1	1	1.33	DE
Duosan	6 oz	21 day	1	2	1	1.33	DE
Fungo/Vorlan Premix	4 oz	21 day	1	1	2	1.33	DE
Touché	2 fl oz	28 day	2	1	1	1.33	DE
Vinclozolin (F)	2 fl oz	21 day	1	2	1	1.33	DE
ASC 66825	4 oz	21 day	1	2	1	1.33	DE
ASC 66825	1.5 oz	21 day	1	1	2	1.33	DE
D. 2787 (WDG)	1.75 oz	14 day	2	1	1	1.33	DE

Table 2. Kentucky Bluegrass Melting-Out Fungicide Trial - 1991 (cont.)

Treatment	Rate/1000 ft²[b]	Interval	I	II	III	AVE	DMR[a]
ASC 66791	2.8 oz	14 day	2	1	1	1.33	DE
Eagle	1.25 oz	21 day	1	1	2	1.33	DE
A-499-10	1 lb N	monthly	1	2	2	1.67	CDE
Terraclor (F)	15 fl oz	1 app (4/23)	2	2	1	1.67	CDE
Terraclor (F)	10 fl oz	1 app (4/23)	3	1	2	2.0	BCD
Terraclor (W)	10 oz	1 app (4/23)	2	2	2	2.0	BCD
Regenerate/Rejuvenate	1 lb N	monthly	2	2	2	2.0	BCD
Lustre Lawn	1 lb N	monthly	2	2	2	2.0	BCD
Duosan	4 oz	21 day	2	2	2	2.0	BCD
Fungo/Vorlan Premix	2 oz	21 day	2	2	2	2.0	BCD
RH-0611	4 oz	14 day	2	2	2	2.0	BCD
Terraclor (F)	5 fl oz	1 app (4/23)	3	2	2	2.33	ABC
PDC (MSU)	1 lb N	monthly	3	3	2	2.67	AB
Control	---	---	4	3	2	3.0	A

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

Table 3. Dollar Spot Rating (Anthracnose Fungicide Trial) - 1991

Oak Pointe Golf Club, Brighton, MI
Rating scale - (0 = no disease, 10 = entire plot diseased)
Rated 8/27/91

TREATMENT	RATE/1000 ft[2b]	INTERVAL	I	II	III	AVE	DMR[a]
Fungo + 28-5-18	4.8 oz + .3 lb N	14 day, beginning 6/28	0	0	0	0	E
Fungo + 27-15-12	4.8 oz + .3 lb N	14 day beginning 6/28	0	0	0	0	E
Fungo + 25-5-20	4.8 oz + .3 lb N	14 day beginning 6/28	0	0	0	0	E
Fungo + 25-0-25	4.8 oz + .3 lb N	14 day beginning 6/28	0	0	0	0	E
Duosan + 30-10-10	6 oz + .3 lb N	14 day beginning 6/28	0	0	0	0	E
Duosan + 20-20-20	6 oz + .3 lb N	14 day beginning 6/28	0	0	0	0	E
Duosan + 10-30-20	6 oz + .3 lb N	14 day beginning 6/28	0	0	0	0	E
Fungo	4.8 oz	14 day beginning 6/28	0	0	0	0	E
Duosan	6 oz	14 day beginning 6/28	0	0	0	0	E
Lynx	.25 oz ai	21 day	0	0	0	0	E
Bayleton	.5 oz ai	21 day	0	0	0	0	E
ASC 66518	1.9 oz	14 day	0	0	0	0	E
ASC 66518	3.89 oz	14 day	0	0	0	0	E
ASC 66791	2.8 oz	14 day	0	0	0	0	E
ASC 66791	5.6 oz	14 day	0	0	0	0	E
ASC 66608	7.5 oz	14 day	0	0	0	0	E
ASC 66825	1.5 oz	21 day	0	0	0	0	E
ASC 66825	2.5 oz	21 day	0	0	0	0	E
ASC 66825	4 oz	21 day	0	0	0	0	E
ASC 66900	4.2 fl oz	14 day	0	0	0	0	E
Dac. 2787	6 fl oz	14 day	0	0	0	0	E
EXP 10064 B + Ch. 26019	1.5 oz + 2 oz	28 day	0	0	0	0	E
EXP 10221 + Ch. 26019	1.5 oz + 1.5 oz	21 day	0	0	0	0	E
Sentinel	.25 oz	28 day	0	0	0	0	E
EXP 10221 + Ch. 26019	2 fl oz + 2 fl oz	21 day	0	0	0	0	E

Table 3. Dollar Spot Rating (Anthracnose Fungicide Trial) - 1991 (cont.)

TREATMENT	RATE/1000 ft²[b]	INTERVAL	I	II	III	AVE	DMR[a]
Broadway	8 fl oz	14 day	0	0	0	0	E
ASC 66900	2.1 fl oz	14 day	1	0	0	.3	DE
EXP 10064 B	3 oz	28 day	0	0	1	.3	DE
Banner	4 fl oz	28 day	1	0	0	.3	DE
Lynx + X-77	.25 oz ai + .04 % v/v	21 day	0	0	1	.3	DE
Sentinel	.33 oz	28 day	0	0	1	.3	DE
SAN 832 F	4 oz	28 day	0	1	0	.3	DE
EXP 10221 + Ch. 26019	2 fl oz + 2 fl oz	28 day	0	1	0	.3	DE
Lynx	.18 oz ai	21 day	0	1	0	.7	DE
ASC 66608	3.75 oz	14 day	0	0	2	.7	DE
Dac. 2787 (WDG)	1.75 oz	14 day	1	0	1	.7	DE
Dac. 2787 (WDG)	3.5 oz	14 day	1	0	1	.7	DE
Dac. 2787	3 fl oz	14 day	1	0	1	.7	DE
Ch. 26019	8 fl oz	28 day	0	2	0	.7	DE
Rubigan	3.5 fl oz	28 day	0	1	1	.7	DE
EXP 10064 B	1.5 oz	28 day	2	1	0	1.0	CDE
Rubigan	4 fl oz	28 day	2	1	0	1.0	CDE
Rizolex	4 oz	28 day	2	0	1	1.0	CDE
Banner	2 fl oz	28 day	1	1	1	1.0	CDE
Ch. 26019	4 oz	28 day	0	4	0	1.3	CDE
Lynx + X-77	.18 oz ai + .04 % v/v	21 day	1	2	1	1.3	CDE
Rizolex	2.67 oz	28 day	2	2	0	1.3	CDE
SAN 832 F	3 oz	28 day	2	2	0	1.3	CDE
Sentinel	.17 oz	28 day	1	4	0	1.7	CD
Rizolex	3.33 oz	28 day	1	4	2	2.3	BC
Rizolex	2 oz	28 day	4	4	2	3.3	B
Control	---	---	6	3	5	4.7	A

[a]Treatments followed by the same letter are not significantly different from each other at the 5% level.
[b]Rates listed are formulation unless listed as "ai" (active ingredient).

Table 4. Summer Patch Fungicide Study #1 - 1991

Dearborn Country Club, Dearborn, MI
Rated 7/26/91 - Percent plot area infected with *Magnaporthe poae.*

Treatment	Rate/1000 ft[2b]	Applic. interval (dates)	I	II	III	AVE	DMR[a]
Lynx	.25 oz	5/11, 6/7 (65° + 30 days)	0	0	0	0	J
Lynx	.33 oz	5/11, 6/7	0	0	0[d]	0	J
Lynx + Bayleton	.25 oz + .5 oz ai	5/11, 6/7	0	0[d]	0[d]	0	J
Sentinel	2.84 gm ai	5/11, 6/7	0[d]	0[d]	0[e]	0	J
Sentinel	3.78 gm ai	5/11, 6/7	0[d]	0[d]	0[e]	0	J
EXP 10064 B	3 fl oz	5/11, 6/7	0[e]	0[e]	0[e]	0	J
Banner	4 fl oz	5/11, 6/7	0[d]	0[d]	2	.7	IJ
Banner	4 fl oz	5/28, 6/27 (75° + 30 days)	2[e]	2[d]	0	1.3	HIJ
Duosan[h]	6 oz	14 day-beginning 5/13	3	2	0	1.7	G-J
Rubigan	4 fl oz	5/11, 6/7	0	3	2	1.7	G-J
Fungo + 25-5-20[h]	4.8 oz + .3 lb N	14 day-beginning 5/13	2	2	2	2.0	G-J
Fungo[h]	4.8 oz	14 day-beginning 5/13	5	2	0	2.3	G-J
EXP 10064 B	1.5 oz	5/11, 6/7	3[e]	2[d]	5[d]	3.3	F-J
ASC 66825	4 oz	5/11, 6/7	0	7	7	4.7	F-J
Fungo + 25-0-25[h]	4.8 oz + .3 lb N	14 day-beginning 5/13	5	10	2	5.7	E-J
Fungo + 28-5-18[h]	4.8 oz + .3 lb N	14 day-beginning 5/13	10	7	3	6.7	D-J
ASC 66791	5.6 oz	5/11, 6/7	10	10	2	7.3	D-J
EXP 10221 + Ch. 26019 (WDG)	2 oz + 2 oz	5/11, 6/7	2	20	2	8.0	D-J
Bayleton	2 oz	5/11, 6/7	3	20	2	8.3	D-J
Bayleton	4 oz	5/11, 6/7	0	10	15	8.3	D-J
D. 2787	6 fl oz	5/11, 6/7	3	20	3	8.7	D-J
Rubigan	2 fl oz	5/11, 6/7	7	20	2	9.7	D-J
Panasea Plus + Rubigan	4 fl oz + 1 fl oz	7/8, 8/2 + 5/11, 6/7	5	10	15	10.0	D-J
ASC 66825	2.5 oz	5/11, 6/7	0	2	30	10.7	C-J
D. 2787	3 fl oz	5/11, 6/7	5	2	25	10.7	C-J
Fungo + 27-15-12[h]	4.8 oz + .3 lb N	14 day-beginning 5/13	20	10	7	12.3	C-J
Duosan + 30-10-10[h]	6 oz + .3 lb N	14 day beginning 5/13	5	10	25	13.3	C-J
EXP 10064 B + Ch. 26019 (WDG)	1.5 fl oz + 2 oz	5/11, 6/7	5	20	15	13.3	C-J
Ch. 26019 (WDG)	4 oz	5/11, 6/7	15	7	20	14.0	C-J
EXP 10221 + Ch 26019 (WDG)	1.5 fl oz + 1.5 oz	5/11, 6/7	3	25	15	14.3	C-J
Rizolex	85.05 gm ai	5/11, 6/7	10	25	10	15.0	C-J
Fungo/ Vorlan Premix	4 oz	5/11, 6/7	20	25	2	15.7	B-J
Duosan	6 oz	5/11, 6/7	20	10	20	16.7	B-J
ASC 66518	3.8 oz	5/11, 6/7	10	5	35	16.7	B-J
Banner +							

Table 4. Summer Patch Fungicide Study #1 - 1991 (cont.)

Treatment	Rate/1000 ft²[b]	Applic. interval (dates)	I	II	III	AVE	DMR[a]
CGA 163935[c]	4 fl oz + .13 oz ai	5/11, 6/7 + 5/11	0[g]	25[g]	30[g]	18.3	B-J
ASC 66900	2.1 fl oz	5/11, 6/7	7	15	35	19.0	B-J
ASC 66608	7.5 oz	5/11, 6/7	20	7	30	19.0	B-J
Ch. 26019	8 fl oz	5/11, 6/7	15	25	20	20.0	B-J
ASC 66608	3.75 oz	5/11, 6/7	15	10	35	20.0	B-J
ASC 66791	2.8 oz	5/11, 6/7	5	20	35	20.0	B-J
ASC 66900	4.2 fl oz	5/11, 6/7	5	20	35	20.0	B-J
EM-3 + Rubigan	4 fl oz + 1 fl oz	7/8, 8/2 + 5/11, 6/7	10	20	35	21.7	A-J
D. 2787 (WDG)	1.75 oz	5/11, 6/7	25	20	20	21.7	A-J
Rubigan	1 fl oz	5/11, 6/7	5	25	35	21.7	A-J
D. 2787 (WDG)	3.5 oz	5/11, 6/7	2	45	20	22.3	A-I
Fungo/ Vorlan Premix	2 oz	5/11, 6/7	55	3	10	22.7	A-H
Duosan + 20-20-20[h]	6 oz + .3 lb N	14 day-beginning 5/13	20	25	25	23.3	A-G
ASC 66518	1.9 oz	5/11, 6/7	10	25	40	25.0	A-F
Panasea Plus	4 fl oz	7/8, 8/2	20	30	25	25.0	A-F
Ch. 26019 (WDG)	2 oz	5/11, 6/7	20	35	25	26.7	A-E
Duosan	4 oz	5/11, 6/7	35	45	0	26.7	A-E
ASC 66825	1.5 oz	5/11, 6/7	10	55	20	28.3	A-D
Control	---	---	25	40	30	31.7	ABC
EM-3	4 fl oz	7/8, 8/2	35	25	50	40.0	AB
Duosan + 10-30-20[h]	6 oz + .3 lb N	14 day-beginning 5/13	45[f]	50[f]	30[f]	41.7	A

[a]Treatments followed by the same letter are not significantly different at the 5% level.
[b]Rates listed are formulation unless listed as "ai" (active ingredient).
[c]Initial and subsequent applications were severely phytotoxic to turf.
[d]Mild greening of turf.
[e]Moderate greening of turf.
[f]Mild phytotoxicity observed.
[g]Moderately severe phytotoxicity.
[h]Applied preventively.

Table 5. Summer Patch Fungicide Study #1 - 1991

Dearborn Country club, Dearborn, MI
Rating date: 8/12/91 - Percent plot area infected

Treatment	Rate/1000 ft[2b]	Applic. interval (dates)	.I	II	III	AVE	DMR[a]
Fungo + 25-0-25[h]	4.8 oz + .3 lb N	14 day-beginning 5/13	0	0	0[d]	0	E
Fungo + 25-5-20[h]	4.8 oz + .3 lb N	14 day-beginning 5/13	0	0	0	0	E
Sentinel	.25 oz	5/11,6/7(65°+30 days)	0[d]	0	0[e]	0	E
Fungo + 28-5-18[i]	4.8 oz + .3 lb N	14 day-beginning 7/26	0	1[d]	0	.3	E
Sentinel	.33 oz	5/11, 6/7	0[d]	1[d]	0[d]	.3	E
Fungo + 28-5-18[h]	4.8 oz + .3 lb N	14 day-beginning 5/13	0	0[d]	1	.3	E
Banner	4 fl oz	5/11, 6/7	0[d]	1[d]	0	.3	E
EXP 10064 B	3 fl oz	5/11, 6/7	0[d]	2[d]	0[e]	.7	E
Duosan[h]	6 oz	14 day-beginning 5/13	0[d]	2	0	.7	E
Fungo[h]	4.8 oz	14 day-beginning 5/13	2	1	0	1.0	E
Lynx + Bayleton	.25 oz ai + .5 oz ai	5/11, 6/7	3	0	0	1.0	E
Lynx	1.33 oz ai	5/11, 6/7	0	2	1	1.0	E
Banner	4 fl oz	5/28, 6/27 (75° + 30 days)	2	2	0	1.3	DE
Fungo + 27-15-12[h]	4.8 oz + .3 lb N	14 day-beginning 5/13	2[d]	0	2	1.3	DE
Lynx	1 oz ai	5/11, 6/7	2	2	0	1.3	DE
Bayleton	4 oz	5/11, 6/7	0	7	1	2.7	DE
Fungo + 25-5-20[i]	4.8 oz + .3 lb N	14 day-beginning 7/26	0[d]	3	5	2.7	DE
Rubigan	4 fl oz	5/11, 6/7	1	0[d]	10	3.7	CDE
Bayleton	2 oz	5/11, 6/7	0	5	7	4.0	CDE
EXP 10064 B	1.5 fl oz	5/11, 6/7	5[e]	2[d]	7	4.7	CDE
ASC 66791	5.6 oz	5/11, 6/7	5	10	0	5.0	CDE
Panasea Plus + Rubigan	4 fl oz + 1 fl oz	7/8, 8/2 + 5/11, 6/7	7	2	7	5.3	CDE
EXP 10221 + Ch. 26019 (WDG)	2 fl oz + 2 oz	5/11, 6/7	0	20	0	6.7	CDE
EXP 10221 + Ch. 26019 (WDG)	1.5 fl oz + 1.5 oz	5/11, 6/7	5	5	10	6.7	CDE
Fungo + 27-15-12[i]	4.8 oz + .3 lb N	14 day-beginning 7/26	0	20	3	7.7	CDE
Ch. 26019 (WDG)	4 oz	5/11, 6/7	20	2	2	8.0	CDE
ASC 66608	7.5 oz	5/11, 6/7	7	2	15	8.0	CDE
ASC 66825	4 oz	5/11, 6/7	5	10	10	8.3	CDE
Fungo/ Vorlan Premix	4 oz	5/11, 6/7	5	20	1	8.7	CDE

Table 5. Summer Patch Fungicide Study #1 - 1991 (cont.)

Treatment	Rate/1000 ft²[b]	Applic. interval (dates)	I	II	III	AVE	DMR[a]
Duosan + 20-20-20[i]	6 oz + .3 lb N	14 day-beginning 7/26	10	15	2	9.0	CDE
Dac 2787	3 fl oz	5/11, 6/7	3	5	20	9.3	CDE
Duosan + 30-10-10[h]	6 oz + .3 lb N	14 day-beginning 5/13	3	10	15	9.3	CDE
Duosan	6 oz	5/11, 6/7	10	20	0	10.0	CDE
Rizolex	85.05 gm ai	5/11, 6/7	15	7	10	10.7	CDE
ASC 66518	3.8 oz	5/11, 6/7	7	2	25	11.3	CDE
ASC 66518	1.9 oz	5/11, 6/7	5	30	0	11.7	CDE
Duosan + 20-20-20[h]	6 oz + .3 lb N	14 day-beginning 5/13	10	20	7	12.3	B-E
Rubigan	1 fl oz	5/11, 6/7	7	20	10	12.3	B-E
ASC 66825	2.5 oz	5/11, 6/7	2	1	35	12.7	B-E
Rubigan	2 fl oz	5/11, 6/7	10	25	5	13.3	B-E
Fungo[i]	4.8 oz	14 day-beginning 7/26	35	5	0	13.3	B-E
EM-3 + Rubigan	4 fl oz + 1 fl oz	7/8, 8/2 + 5/11, 6/7	10	7	25	14.0	A-E
ASC 66608	3.75 oz	5/11, 6/7	20	5	25	16.7	A-E
Fungo + 25-0-25[i]	4.8 oz + .3 lb N	14 day-beginning 7/26	30	2[g]	20	17.3	A-E
ASC 66900	4.2 fl oz	5/11, 6/7	3	20	30	17.7	A-E
Dac 2787 (WDG)	3.5 oz	5/11, 6/7	2	45	7	18.0	A-E
Dac 2787	6 fl oz	5/11, 6/7	3	25	30	19.3	A-E
ASC 66791	2.8 oz	5/11, 6/7	5	20	35	20.0	A-E
Dac 2787 (WDG)	1.75 oz	5/11, 6/7	20	25	15	20.0	A-E
Duosan[i]	6 oz	14 day-beginning 7/26	20	20	20	20.0	A-E
ASC 6690	2.1 fl oz	5/11, 6/7	15	20	30	21.7	A-E
Fungo/ Vorlan Premix	2 oz	5/11, 6/7	15	1	50	22.0	A-E
Banner + CGA 163935	4 fl oz + .13 oz ai	5/11, 6/7 + 5/11	0	60	7	22.3	A-E
Duosan + 10-30-20[i]	6 oz + .3 lb N	14 day-beginning 7/26	20	10	40	23.3	A-E
Ch. 26019	8 fl oz	5/11, 6/7	20	30	20	23.3	A-E
Panasea Plus	4 fl oz	7/8, 8/2	10	30	30	23.3	A-E
ASC 66825	1.5 oz	5/11, 6/7	10	50	10	23.3	A-E
EXP 10064 + Ch. 26019 (WDG)	1.5 fl oz + 2 oz	5/11, 6/7	5	40	25	23.3	A-E
Ch. 26019 (WDG)	2 oz	5/11, 6/7	25	35	15	25.0	A-D
EM-3	4 fl oz	7/8, 8/2	50	30	0	26.7	ABC
Duosan	4 oz	5/11, 6/7	5	35	40	26.7	ABC

Table 5. Summer Patch Fungicide Study #1 - 1991 (cont.)

Treatment	Rate/1000 ft²[b]	Applic. interval (dates)	I	II	III	AVE	DMR[a]
Duosan + 10-30-20[h]	6 oz + .3 lb N	14 day-beginning 5/13	55[f]	40[f]	10[f]	35.0	AB
Control	---	---	35	50	25	36.7	A
Duosan + 30-10-10[i]	6 oz + .3 lb N	14 day-beginning 7/26	45	30	35	36.7	A

[a]Treatments followed by the same letter are not significantly different from each other at the 5% level.
[b]Rates listed are formulation unless listed as "ai" (active ingredient).
[c]Initial and subsequent treatments were severely phytotoxic to turf.
[d]Mild greening effect.
[e]Moderate greening effect.
[f]Moderate phytotoxicity observed.
[g]Mild yellowing.
[h]Applied preventively.
[i]Applied curatively.

Table 6. Summer Patch Fungicide Study #2 - 1991

Highlands Golf Club, Grand Rapids, MI
Rating date: 8/13/91 - Percent plot area infected

Treatment	Rate/1000 ft²[b]	Applic. interval (dates)	I	II	III	AVE	DMR[a]
Sentinel	2.84 gm ai	5/10, 6/6 (65° + 30 days)	0[g]	0[g]	0	0	D
Lynx + Bayleton	.25 oz ai + .5 oz ai	"	0[g]	0	0	0	D
Sentinel	3.78 gm ai	"	1[g]	0[g]	0	.3	D
Lynx	.25 oz ai	"	2	0	0	.7	D
Banner	4 fl oz	"	3	0[g]	0	1.0	D
EXP 10064 B + Ch. 26019 (WDG)	1.5 fl oz + 2 oz	"	1	3	0	1.3	CD
Bayleton	1 oz ai	"	1	2	1	1.3	CD
Bayleton	.5 oz ai	"	3	0	1	1.3	CD
Lynx	.33 oz ai	"	5	0	0	1.7	CD
Banner	4 fl oz	5/29, 6/25 (75° + 30 days)	2	5	0	2.3	CD
Rubigan	2 fl oz	5/10, 6/6	1	7	0	2.7	CD
EXP 10064 B	3 fl oz	"	1[g]	2[g]	5	2.7	CD
BRC 923	8 gm ai	7/16, 8/15	7	2	0	3.0	CD
BRC 923	6 gm ai	7/16, 8/15	7	0	2	3.0	CD
EXP 10064 B	1.5 fl oz	5/10, 6/6	10	2	0	4.0	CD

Table 6. Summer Patch Fungicide Study #2 - 1991 (cont.)

Treatment	Rate/1000 ft²[b]	Applic. interval (dates)	I	II	III	AVE	DMR[a]
EXP 10221 +							
Ch. 26019 (WDG)	2 fl oz + 2 oz	"	0	7	5	4.0	BCD
Ch. 26019 (WDG)	4 oz	"	5	0	10	5.0	BCD
D. 2787 (WDG)	3.5 oz	"	10	1	5	5.3	BCD
Rubigan	4 fl oz	"	7	10	0	5.7	BCD
ASC 66608	3.75 oz	"	10	7	1	6.0	BCD
Duosan	6 oz	"	5	10	5	6.7	BCD
EXP 10221 +							
Ch. 26019 (WDG)	1.5 Fl oz + 1.5 oz	"	3	2	15	6.7	BCD
ASC 66608	7.5 oz	"	7	15	0	7.3	BCD
ASC 66518	3.8 oz	"	0	20	2	7.3	BCD
ASC 66791	2.8 oz	"	15	0	10	8.3	BCD
ASC 66791	5.6 oz	"	3	1	25	9.7	BCD
Panasea Plus +							
Rubigan	4 fl oz + 1 fl oz	7/3, 8/8 + 5/10, 6/6	5	15	10	10.0	BCD
ASC 66825	1.5 oz	5/10, 6/6	15	10	5	10.0	BCD
ASC 66518	1.9 oz	"	7	7	25	13.0	BCD
Panasea Plus	4 fl oz	7/3, 8/8	10	15	15	13.3	BCD
Ch. 26019	8 fl oz	5/10, 6/6	10	25	5	13.3	BCD
Rubigan	1 fl oz	"	5	30	5	13.3	BCD
ASC 66900	4.2 fl oz	"	5	2	35	14.0	BCD
Banner +							
CGA 163935[c]	4 fl oz + .13 oz ai	5/10, 6/6 + 5/10	25	15	2	14.0	BCD
ASC 66825	2.5 oz	5/10, 6/6	20	0	25	15.0	BCD
Duosan	4 oz	"	20	7	20	15.7	BCD
Fungo/							
Vorlan Premix	2 oz	"	25	3	20	16.0	BCD
Ch. 26019 (WDG)	2 oz	"	40	0	10	16.7	BCD
EM-3 + Rubigan	4 fl oz + 1 fl oz	7/3, 8/8 + 5/10, 6/6	0	25	25	16.7	BCD
D. 2787	3 fl oz	5/10, 6/6	20	25	5	16.7	BCD
D. 2787 (WDG)	1.75 oz	"	7	25	25	19.0	BCD
EM-3	4 fl oz	7/3, 8/8	40	20	0	20.0	BCD
Control	---	---	10	15	35	20.0	BCD
ASC 66900	2.1 fl oz	5/10, 6/6	10	7	45	20.7	BCD
Fungo/							
Vorlan Premix	4 oz	"	25	7	30	20.7	BCD

Table 6. Summer Patch Fungicide Study #2 - 1991 (cont.)

Treatment	Rate/1000 ft[2b]	Applic. interval (dates)	I	II	III	AVE	DMR[a]
D. 2787	6 fl oz	"	35	30	1	22.0	BC
ASC 66825	4 oz	"	40	7	25	24.0	B
Rizolex	85.05 gm ai	"	65	40	35	46.7	A

[a]Treatments followed by same letter are not significantly different at 5% level.
[b]Rates listed are formulation unless listed as "ai" (active ingredient).
[c]Treatment of 5/10 was severely phytotoxic.
[g]Mild greening effect.

Table 7. Summer Patch Fungicide Study #2 - 1991

Highlands Golf Club, Grand Rapids, MI
Rating date: 8/30/91 - Percent plot area infected

Treatment	Rate/1000 ft[2b]	Applic. interval (dates)	I	II	III	AVE	DMR[a]
BRC 923	8 gm ai	7/16, 8/15	0	0	0	0	E
Sentinel	2.84 gm ai	5/10, 6/6 (65° + 30 days)	0	0	0[g]	0	E
Lynx + Bayleton	.25 oz ai + .5 oz ai	"	0	0	0	0	E
BRC 923	6 gm ai	7/16, 8/15	1	0	0	.3	E
EXP 10064 B + Ch. 26019 (WDG)	1.5 fl oz + 2 oz	5/10, 6/6	0	1	0	.3	E
Lynx	.33 oz ai	"	1	0	0	.3	E
Bayleton	.5 oz ai	"	1	0	0	.3	E
Lynx	.25 oz ai	"	1	0	0	.3	E
EXP 10064 B	3 fl oz	"	0	2	0	.7	E
Rubigan	2 fl oz	"	1	2	0	1	E
Bayleton	1 oz ai	"	2	1	0	1	E
Banner	4 fl oz	5/29, 6/25 (75° + 30 days)	3	1	0	1.3	DE
Sentinel	3.78 gm ai	5/10, 6/6	5	0	0	1.7	DE
EXP 10221 + Ch. 26019 (WDG)	2 fl oz + 2 oz	"	0	7	0	2.3	DE
EXP 10064 B	1.5 fl oz	"	5	3	0	2.7	DE
Rubigan	4 fl oz	"	2	7	0	3	DE
ASC 66608	7.5 oz	"	5	7	0	4	DE
D. 2787 (WDG)	3.5 oz	"	10	2	0	4	DE
Duosan	6 oz	"	5	7	2	4.7	DE

Table 7. Summer Patch Fungicide Study #2 - 1991 (cont.)

Treatment	Rate/1000 ft²[b]	Applic. interval (dates)	I	II	III	AVE	DMR[a]
Banner	4 fl oz	"	15	0	0	5	DE
Ch. 26019 (WDG)	4 oz	"	5	0	10	5	DE
EXP 10221 +							
Ch. 26019 (WDG)	1.5 fl oz + 1.5 oz	"	5	0	10	5	DE
ASC 66608	3.75 oz	"	10	10	0	6.7	CDE
ASC 66518	3.8 oz	"	1	20	0	7	CDE
Ch. 26019	8 fl oz	"	7	15	2	8	CDE
ASC 66791	5.6 oz	"	0	0	25	8.3	CDE
Panasea Plus	4 fl oz	7/3, 8/8	10	10	7	9	B-E
Panasea Plus +							
Rubigan	4 fl oz + 1 fl oz	7/3, 8/8 + 5/10, 6/6	3	10	15	9.3	B-E
Rubigan	1 fl oz	"	25	2	2	9.7	B-E
ASC 66825	1.5 oz	"	20	10	1	10.3	B-E
ASC 66518	1.9 oz	"	20	3	10	11	B-E
Control	---	---	3	7	25	11.7	B-E
Banner +							
CGA 163935[c]	4 fl oz + .13 oz ai	5/10, 6/6 + 5/10	35	1	0	12	B-E
ASC 66791	2.8 oz	5/10, 6/6	25	0	15	13.3	B-E
Duosan	4 oz	"	20	7	15	14	B-E
Ch. 26019 (WDG)	2 oz	"	35	0	7	14	B-E
D. 2787	3 fl oz	"	25	20	2	15.7	B-E
Fungo/							
Vorlan Premix	2 oz	"	40	3	5	16	B-E
EM-3 + Rubigan	4 fl oz + 1 fl oz	7/3, 8/8 + 5/10, 6/6	35	0	15	16.7	B-E
ASC 66900	2.1 fl oz	5/10, 6/6	15	5	30	16.7	B-E
EM-3	4 fl oz	7/3, 8/8	35	15	0	16.7	B-E
ASC 66900	4.2 fl oz	5/10, 6/6	15	1	35	17	B-E
ASC 66825	2.5 oz	"	30	0	25	18.3	B-E
D. 2787 (WDG)	1.75 oz	"	10	25	25	20	B-E
D. 2787	6 fl oz	"	35	30	0	21.7	BCD
ASC 66825	4 oz	"	50	25	7	27.3	ABC
Fungo/							
Vorlan Premix	4 oz	"	50	3	35	29.3	AB
Rizolex	85.05 gm ai	"	65	40	25	40.3	A

[a]Treatments followed by same letter are not significantly different at 5% level.
[b]Rates listed as formulation unless listed as "ai" (active ingredient).
[c]Severe phytotoxicity observed after 5/10 application.
[g]Mild greening of the turf.

Table 8. Dollar Spot Fungicide Study - 1991

Hancock Turfgrass Research Center
Michigan State University, E. Lansing, MI
Rating scale: 0 (no disease), 10 (plot totally diseased)
Rating date - 9/24/91

Treatment	Rate/1000 ft.[2b]	Interval	I	II	III	AVE	DMR[a]	
Ch. 26019	4 fl oz	28 day	0	0	0	0	I
Banner	2 fl oz	28 day	0[e]	0[e]	0[e]	0	I
Touché	2 fl oz	28 day	0	0	0	0	I
Eagle	1.25 oz	21 day	0	0	0	0	I
Bayleton	2 oz	28 day	0	0	0	0	I
Broadway	4.5 fl oz	14 day	0	0[e]	0[e]	0	I
Rubigan	1.5 fl oz	14 day	0	0[e]	0	0	I
Sentinel	1.42 gm ai	21 day	0	0	0[f]	0	I
ASC 66825	4 oz	21 day	0	0	0	0	I
EXP 10064 B	.75 fl oz	28 day	0	0[d]	0[d]	0	I
Sentinel	2.84 gm ai	28 day	0	0[d]	0[d]	0	I
Sentinel	1.89 gm ai	28 day	0	0[d]	0[d]	0	I
Lynx + Ch. 26019	.125 oz ai + .5 oz ai	21 day	0	0	0	0	I
EXP 10064 B + Ch.26019 (WDG)	.75 fl oz + 1 oz	28 day	0	0[e]	0[d]	0	I
ASC 66825	1.5 oz	21 day	0	0	0	0	I

Table 8. Dollar Spot Fungicide Study - 1991 (cont.)

Treatment	Rate/1000 ft.[2b]	Interval	I	II	III	AVE	DMR[a]
RH 0611	4 oz	7 day	0	0	0[f]	0	I
EXP 10064 B	1.5 fl oz	28 day	0[c]	0[e]	0[e]	0	I
Sentinel	1.89 gm ai	21 day	0	0[d]	0[d]	0	I
ASC 66825	2.5 oz	21 day	0	0	1	.3	I
Lynx + D. 2787	.125 oz ai + 3.12 fl oz	21 day	0	0	1	.3	I
Lynx	.125 oz ai	21 day	0	1	0	.3	I
ASC 66518	3.8 oz	14 day	0	0	1	.3	I
Bayleton	1 oz	28 day	0	1	0	.3	I
ASC 66608	7.5 oz	14 day	0[c]	0[c]	1	.3	I
D. 2787	6 fl oz	7 day	1	0	0	.3	I
Lynx + Dyrene	.125 oz ai + 2 oz ai	21 day	0	0	1	.3	I
Vorlan	2 fl oz	21 day	0	0	1	.3	I
Vinclozolin (DF)	2 oz	21 day	0	1	1	.7	HI
EXP 10221 + Ch. 26019 (WDG)	1 fl oz + 1 oz	21 day	1	0	1	.7	HI
EXP 10221 + Ch. 26019 (WDG)	.75 fl oz + .75 oz	21 day	1	0	1	.7	HI
D. 2787 (WDG)	3.5 oz	14 day	0	1	1	.7	HI
Rubigan	2 fl oz	28 day	1	0	1[c]	.7	HI
D. 2787	3.12 fl oz	14 day	0	1	1	.7	HI
ASC 66791	5.6 oz	14 day	1	0	2	1	GHI
ASC 66900	4.2 fl g	14 day	1	0	2	1	GHI
ASC 66518	1.9 oz	14 day	1	0	2	1	GHI
Ch. 26019 (WDG)	2 oz	28 day	1	1	1	1	GHI
Vinclozolin (F)	2 fl oz	21 day	1	1	1	1	GHI
Twosome	3 fl oz	21 day	0	1	2	1	GHI
Vorlan	1 fl oz	21 day	1	1	1	1	GHI
Fungo/ Vorlan Premix	4 oz	21 day	1	1	2	1.3	GHI
Ch. 26019 (WDG)	1 oz	28 day	1	1	2	1.3	GHI
D. 2787	6 fl oz	14 day	1	0	3	1.3	GHI
RH 0611	4 oz	14 day	1	1	2	1.3	GHI
Ch. 26019	.5 oz ai	21 day	1	1	3	1.7	F-I
D. 2787	3 fl oz	14 day	1	1	3	1.7	F-I
Silbos + X-77	7.5 oz + .25% v/v	28 day	1	1	3	1.7	F-I
ASC 66900	2.1 fl oz	14 day	1	1	3	1.7	F-I
EXP 10221 + Ch. 26019 (WDG)	1 fl oz + 1 oz	28 day	3	1	2	2	E-I
ASC 66791	2.8 oz	14 day	1	2	4	2.3	D-I

Table 8. Dollar Spot Fungicide Study - 1991 (cont.)

Treatment	Rate/1000 ft.[2b]	Interval	I	II	III	AVE	DMR[a]
Fungo/							
Vorlan Premix	2 oz	21 day	1	1	5	2.3	D-I
ASC 66608	3.75 oz	14 day	1	1	5	2.3	D-I
Duosan	6 oz	21 day	1	2	5	2.7	D-H
Duosan + 30-10-10	6 oz + .3 lb N	14 day	2	3	4	3	C-H
Duosan + 10-30-20	6 oz + .3 lb N	14 day	2	3	4	3	C-H
D. 2787 (WDG)	1.75 oz	14 day	1	1	7	3	C-H
Silbos + X-77	5 oz + .25% v/v	28 day	1	2	7	3.3	B-G
Dyrene	2 oz ai	21 day	1	2	7	3.3	B-G
Duosan + 20-20-20	6 oz + .3 lb N	14 day	2	3	6	3.7	A-F
Fungo + 28-5-18	4.8 oz + .3 lb N	14 day	2	3	6	3.7	A-F
Fore	6.4 fl oz	14 day	3	1	8	4	A-E
Silbos + X-77	2.5 oz + .25% v/v	28 day	2	3	7	4	A-E
Fungo + 27-15-12	4.8 oz + .3 lb N	14 day	4	2	6	4	A-E
Duosan	4 oz	21 day	5	2	6	4.3	A-D
Fungo + 25-5-20	4.8 oz + .3 lb N	14 day	3	3	7	4.3	A-D
Fungo + 25-0-25	4.8 oz + .3 lb N	14 day	3	3	7	4.3	A-D
Duosan	6 oz	14 day	3	5	7	5	ABC
Fungo	4.8 oz	14 day	2	5	9	5.3	AB
Control	---	---	3	5	9	5.7	A

[a]Treatments followed by same letter are not significantly different at 5% level.
[b]Rates are formulation unless listed as "ai" (active ingredient).
[c]Mild greening of turf.
[d]Moderate greening of turf.
[d]Severe greening of turf.
[f]Mild phytotoxicity (browning).

Table 9. Necrotic Ring Spot Fungicide Study - 1991

Hancock Turfgrass Research Center, MSU, East Lansing, MI
Percent recovery from pre-treatment disease level/plot
(negative numbers indicate disease increases)
Rated 10/17/91

Treatment[c]	Rate/1000 ft²[b]	Applic. Dates	I	II	III	AVE	DMR[a]
Rubigan	8 fl oz (one appl.only)	8/1	70	88	80	79.3	A
Panasea Plus + Rubigan	4 fl oz + 1 fl oz	8/1, 8/29,/10/3	75	86	68	76.3	A
EXP 10221 + Ch. 26019 (WDG)	2 fl oz + 2 oz	"	80	88	70	79.3	A
EXP 10221 + Ch. 26019 (WDG)	1.5 fl oz + 1.5 fl oz	"	64	71	80	71.7	A
EXP 10064 B	1.5 fl oz	"	60	85	60	68.3	A
ASC 66925	2.5 oz	"	65	100	40	68.3	A
A 499 10 (10-2-5)	1 lb N	"	75	33	80	62.7	A
Banner	4 fl oz	"	61	50	75	62	A
EXP 10064 B + Ch. 26019 (WDG)	1.5 fl oz + 2 oz	"	67	40	75	60.7	A
Panasea Plus	4 fl oz	"	57	53	65	58.3	A
Lustre Lawn (21-0-10)	1 lb N	"	58	50	60	56	A
Ch. 26019 (WDG)	4 oz	"	22	72	72	55.3	A
Rubigan	2 fl oz	"	100	0	57	52.3	A
ASC 66825	1.5 oz	"	75	14	63	50.7	A
Ch. 26019	8 fl oz	"	25	50	75	50	A
EXP 10064 B	3 fl oz	"	43	50	50	49	A
Regenerate/Rejuvenate	1 lb N	"	44	40	44	42.7	A
Rubigan	1 fl oz	8/1,8/29,10/3	58	0	50	36	A
Rubigan	4 fl oz	"	60	0	44	34.7	A
ASC 66825	4 oz	"	75	71	-43	34.3	A
EM-3	4 fl oz	"	0	0	70	23.3	A
Urea (46-0-0)	1 lb N	"	33	-67	86	17.3	A
Control (unfertilized)	---	"	20	-50	71	13.7	A

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