Treatment	Rate/1000 ft ^{2c}	I	H	Ш	Avg	DMR (.05)
GS/SM 92-17		65	80	75	73.3	В-Н
GS/SM 92-17 + 18-4-10	+ 1 lb N	75	70	85	76.7	A-H
ICIA 5504 (JF12795)	2.5 gm ai	75	65	90	76.7	А-Н
Curalan + D.2787	I oz ai + 3 oz ai	90	60	85	78.3	А-Н
EXP 10364A	3 fl oz	75	85	80	80.0	A-G
Rubigan + D.2787	2 fl oz + 8 fl oz	85	90	80	85.0	A-F
Prostar (NA 313/01)	2.5 oz ai	85	90	80	85.0	A-F
Ch.26019 + D.2787	2 fl oz + 8 fl oz	85	80	90	85.0	A-F
RH 7592	0.5 fl oz	95	95	65	85.0	A-F
UBI 4040	5 lbs	95	80	85	86.7	A-F
D.2787	8 fl oz	75	90	95	86.7	A-F
Bayleton	2 oz	75	95	95	88.3	A-E
Curalan	I oz ai	98	95	75	89.3	A-D
D.2787 + ASC 67106	8 fl oz + 0.33 oz	90	95	90	91.7	ABC
KLM liquid	2x	90	100	95	95.0	AB
KLM compost	2x	98	98	90	95.3	AB
Rubigan	2 fl oz	95	95	98	96.0	A
Terraclor (G)	7.5 lbs	95	95	98	96.0	Α
Phyton 27	2.5 fl oz/5 gal	90	98	100	96.0	A
KLM liquid	lx	98	99	98	98.3	A
Eagle	0.63 oz	98	99	98	98.3	A
Prostar (NA 248/04) + X-77	3 oz ai + 0.1% v/v	100	95	100	98.3	A
Control		98	98	100	98.7	A
Fertilizer (18-4-10)	I lb N	98	98	100	98.7	A
KLM compost	1x	98	100	100	99.3	Α
Prostar (NA 248/04)	3 oz ai	98	100	100	99.3	A

^aTreatments followed by the same letter are not significantly different from each other at the 5% level.

SUMMER PATCH FUNGICIDE STUDIES - 1993

Fungicide studies for the preventive control of summer patch (Magnaporthe poae) on annual bluegrass were initiated when soil temperatures reached 65°F at a 2" depth at the Hancock Turfgrass Research Center in East Lansing, Michigan. Studies were established on irrigated, annual bluegrass (Poa annua) fairways on three golf courses in Michigan where disease was present in previous years. All treatments were applied prior to disease occurrence with reapplication taking place at the intervals listed in the data tables (Tables 4 and 5). Liquid treatments were applied foliarly (unirrigated) while granular treatments were pre-weighed and hand applied. The fairways were maintained at 1/2" height of cut and were fertilized at 1/4-1/2 lb. N/mo. (except treatments which included fertilizer). These areas were treated for insects, however, no general maintenance fungicides were applied to the study areas. Application equipment and procedures were as previously described. Application intervals and frequencies were occasionally altered from contract protocols in order to conform to our standard recommendations for preventive control of summer patch.

No objectional phytotoxicity was observed in the summer patch studies this year, although a number of treatments did produce a greening effect in the turf, as noted in the data tables. These effects were subtle and had largely abated by the September ratings.

^bDue to intermingled infection, separate disease ratings were not feasible.

^cRates listed are formulation, unless listed as active ingredient (ai).

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

The summer patch fungicide study at Dearborn Country Club was initiated preventively on 5/11/93, with most fungicide treatments being reapplied on 6/7/93 and the fertilizer treatments being reapplied bi-weekly throughout the summer (exceptions are noted in the data table). As indicated in Table 4, a few fungicide treatments were applied initially when the soil temperature reached 75°F at a 2" depth (6/7/93), with reapplication 30 days later (7/8/93).

Disease pressure was mild this year with symptom development beginning later in the season than normal, which resulted in less extensive turf loss than usual by seasons end. Disease pressure peaked in this study around 9/1/93, when the data in Table 3 was taken.

As the data indicates, many standard and experimental products gave statistically significant control of summer patch in this study when compared to the untreated control. Because overall disease pressure in this study was relatively low this year, some products were more effective in controlling the disease than might be expected under greater disease pressure. Nevertheless, the commonly used standard summer patch controls (Rubigan, Banner, Bayleton) performed very well again this year. Sentinel, RH 7592 and EXP 10064C also looked very good in this trial, suggesting that promising new products for the control of this disease are under development.

Summer Patch Fungicide Study #2, Twin Beach Golf Club, West Bloomfield, Michigan

The summer patch fungicide study at Twin Beach Golf Club was initiated preventively on 5/14/93, with most fungicide treatments being reapplied on 6/11/93, while the fertilizer treatments were reapplied bi-weekly throughout the summer (exceptions are noted in the data table). As Table 4 indicates, a few fungicide treatments were initiated when the soil temperature reached 75°F at a 2" depth (6/11/93) with reapplication 30 days later (7/9/93).

As at Dearborn, disease pressure in the Twin Beach study was moderate this year with symptoms appearing almost a month later than normal and abating earlier then expected. Because the period of disease development was short, turf loss was limited to about 25% in the controls. As in the Dearborn study, relatively low disease presence resulted in limited statistical differentiation between most treatments, however, most treatments gave statistically significant disease control compared to the untreated controls.

Table 3. Summer Patch Fungicide Study #1 - 1993

Dearborn Country Club Dearborn, Michigan

Rating Scale: Rating Date: Percent plot area infected by Magnaporthe poae.

9/1/93

Treatment ^c	Rate/1000 ft ^{2b}	Application Interval (Date)	I	II	III.	Avg	DMR
Sentinel	0.167 oz	65° + 30 days (5/11, 6/7)	0	0	2	0.7	Н
Sentinel	0.25 oz	65° + 30 days	e ₃	e ₀	e ₀	1.0	H
Rubigan	4 fl oz	75° + 30 days (6/7, 7/8)	0	2	1	1.0	Н
Banner	4 fl oz	75° + 30 days	3	1	0	1.3	H
EXP 10307A	4 fl oz	65° + 30 days	3	2	0	1.7	GH

Treatment ^c	Rate/1000 ft ^{2b}	Application Interval (Date)	I	II	III	Avg	DMR ^a
Bayleton & FP 0492 +	2 oz & 1 fl oz + 1/4	65° + 30 days	5	1	0	2.0	GH
Urea	lb N (nitrogen)	& 14 days					
Banner & Panasea Plus	4 fl oz & 4 fl oz	65° + 30 days & monthly	3	3	0	2.0	GH
RH 7592 + Latron B1956	0.5 fl oz & 0.06% v/v	65° + 30 days	7	0	0	2.3	FGH
Bayleton & Urea	2 oz + ¼ lb N	65° + 30 days & 14 days	2	3	3	2.7	FGH
Bayleton & Astron Plus +	1 fl oz & 1 fl oz +	65° + 30 days	1	7	0	2.7	FGH
Urea	¼ lb N	& 14 days		ħ)			1011
EXP 10064C	2 fl oz	65° + 30 days	5	2	1	2.7	FGH
EXP 10307A + EXP 02164B	3 fl oz + 2.4 fl oz	65° + 30 days	5	3	0	2.7	FGH
Banner	4 fl oz	65° + 30 days	7	1	0	2.7	FGH
EXP 10307A + EXP 02164B	4 fl oz + 3.2 fl oz	65° + 30 days	e ₅	e ₅	e0	3.3	Е-Н
Banner & Panasea Plus	2 fl oz & 4 fl oz	65° + 30 days	5	5	0	3.3	E-H
		& monthly					
Bayleton & Urea	0.5 oz & ¼ lb N	65° + 30 days	10	2	2	4.7	D-H
Banner	1 fl oz	& 14 days 65° + 30 days	1	10	5	5.3	D-H
Bayleton	2 oz	65° + 30 days	15	1	0	5.3	D-H
Rubigan	4 fl oz	65° + 30 days	15	2	0	5.3	D-H
Bayleton & Astron Plus +	1/2 oz & 1 fl oz + 1/4	65° + 30 days	10	7	2	6.3	В-Н
Urea	Ib N	& 14 days	10		-	0.5	D-11
Banner & Panasea Plus	1 fl oz & 4 fl oz	65° + 30 days & monthly	10	10	0	6.7	В-Н
D 2787 + ASC 67135	4 fl oz + 2 fl oz	65° + 30 days	7	10	3	6.7	В-Н
EXP 10307A	3 fl oz	65° + 30 days	10	10	0	6.7	B-H
Bayleton & Panasea Plus	1 oz & 4 fl oz	65° + 30 days	0	15	7	7.3	В-Н
Dayleton te Tanabea Tras	1 02 02 11 02	& monthly	U			7.5	Dir
Bayleton & Panasea Plus	2 oz & 4 fl oz	65° + 30 days	15	7	0	7.3	В-Н
च्यानमध्ये 🎜 १९ वर्षा २००० - १ वर्षा २०० व्याच्या १ वर्षा		& monthly					
Bayleton	1 oz	65° + 30 days	5	7	10	7.3	В-Н
Bayleton & Astron Plus +	2 oz & 4 fl oz + 1/4	65° + 30 days	20	5	0	8.3	В-Н
Urea	lb N	& 14 days					
Eagle	0.6 oz	65° + 30 days	15	10	0	8.3	В-Н
Bayleton & Panasea Plus	0.5 oz & 4 fl oz	65° + 30 days	15	10	1	8.7	В-Н
D.2787 + ASC 67103	6 fl oz + 16 ml	65° + 30 days	25	1	1	9.0	В-Н
Fluazinam	1 fl oz	65° + 30 days	20	7	1	9.3	В-Н
FP 0492 + Urea	1 fl oz + 1/4 lb N	14 days (5/11)	25	2	1	9.3	В-Н
Bayleton & FP 0492 + Urea	1 oz & 1 fl oz + ¼ lb N	65° + 30 days & 14 days	25	2	2	9.7	В-Н
Astron Plus + Urea	1 fl oz + 1/4 lb N	14 days	20	10	0	10.0	В-Н
FP 0492 + Urea	1 fl oz	14 days	10	20	0	10.0	В-Н
RH 0611	6 oz	65° + 30 days	15	15	0	10.0	В-Н
Fluazinam	2 fl oz	65° + 30 days	5	25	1	10.3	В-Н
Bayleton	2 oz	75° + 30 days	10	20	1	10.3	В-Н
Turf Restore(10-2-6) ^d	1/2 lb N	30 days	10	7	15	10.7	В-Н
Thatch X Blank	3 lbs	6/28, 7/30	25	3	7	11.7	В-Н

Treatment ^c	Rate/1000 ft ^{2b}	Application Interval (Date)	I	П	Ш	Avg	DMR
Herbruck Fertilizer	1/2 lb N	30 days	20	7	10	12.3	В-Н
Bayleton	0.5 oz	65° + 30 days	25	10	3	12.7	В-Н
ASC 67098X	6 oz	65° + 30 days	35	5	3	14.3	A-G
Thatch X	3 lbs	6/28, 7/30	30	10	5	15.0	A-F
E.I. DS (Strain #16)	3 lbs	6/28, 7/30	15	20	10	15.0	A-F
Bayleton & FP 0492 +	.5 oz & 1 fl oz + 1/4	65° + 30 days	35	10	2	15.7	A-E
Urea	lb N	& 14 days					
Panasea Plus	4 fl oz	30 days	35	10	2	15.7	A-E
Bayleton & Urea	1 oz & ¼ lb N	65° + 30 days & 14 days	25	25	0	16.7	A-D
E.I. DS (Strain #5)	3 lbs	6/28 only	7	20	25	17.3	A-D
Turf Restored	14 lb N	30 days	15	20	20	18.3	ABC
Ch.26019 (WDG)	4 oz	65° + 30 days	15	40	1	18.7	AB
Control		••	25	25	25	25.0	A

^aTreatments followed by the same letter are not significantly different from each other at the 10% level.

Table 4. Summer Patch Fungicide Study #2 - 1993

Twin Beach Golf Club West Bloomfield, Michigan

Rating Scale:

Percent plot area infected by Magnaporthe poae.

Rating Date:

9/4/93

Treatment ^c	Rate/1000 ft ^{2b}	Application Interval (Date)	1	11	Ш	Avg	DMR
EXP 10064C	2 fl oz	65° + 30 days	0	0	0	0	F
		(5/14, 6/11)					
EXP 10307A + EXP	4 fl oz + 3.2 fl oz	65° + 30 days	e ₁	e0	e ₀	0.3	F
02164B		(5/14, 6/11)					
EXP 10307A	3 fl oz	65° + 30 days	2	0	0	0.7	F
EXP 10307A	4 fl oz	65° + 30 days	0	0	2	0.7	F
Banner	4 fl oz	75° + 30 days	2	0	0	0.7	F
		(6/11, 7/9)					
Bayleton & Urea	2 oz & ¼ 1b N	65° + 30 days	3	0	0	1.0	F
	(nitrogen)	& 14 days					
RH 7592 + Latron B1956	0.5 fl oz + 0.06% v/v	65° + 30 days	1	0	2	1.0	F
Banner & Panasea Plus	4 fl oz & 4 fl oz	65° + 30 days	0	5	0	1.7	EF
		& 28 days					
Sentinel	0.25 oz	65° + 30 days	e1	e2	e2	1.7	EF
ASC 67098-X	6 oz	65° + 30 days	1	2	3	2.0	EF
Eagle	0.6 oz	65° + 30 days	2	2	2	2.0	EF
Banner & Panasea Plus	2 fl oz & 4 fl oz	65° + 30 days	2	2	3	2.3	EF
		& monthly					
Sentinel	0.167 oz	65° + 30 days	1	5	1	2.3	EF
Bayleton	2 oz	65° + 30 days	3	3	1	2.3	EF

^bRates are formulation.

^cDeleted treatments are proprietary.

^dApplied initially on 6/7/93.

^eMild greening observed, especially earlier in season.

Treatment ^c	Rate/1000 ft ^{2b}	Application Interval (Date)	Ī	II	Ш	Ava	DMR ^a
Rubigan	4 fl oz	65° + 30 days	5	2	1	Avg 2.7	DEF
Ruoigan	411 02	05 · 50 days	3	2		2.7	DLI
Banner	4 fl oz	65° + 30 days	5	2	1	2.7	DEF
Turf Restore (10-2-6)d	1/2 lb N	monthly	3	5	0	2.7	DEF
D. 1 8 FD 0402	2 8 1 8 1	(50 : 20 1	2	2	•	2.0	DEE
Bayleton & FP 0492 +	2 oz & 1 fl oz + ¼ lb N	65° + 30 days	2	5	2	3.0	DEF
Urea Banner	1 fl oz	& 14 days 65° + 30 days	7	0	2	3.0	DEF
Banner	1 II OZ	65° + 30 days	1	U	2	3.0	DEF
Bayleton & Astron Plus +	0.5 oz & 1 fl oz + 1/4	65° + 30 days	0	0	10	3.3	DEF
Urea	lb N	& 14 days					
Bayleton & Panasea Plus	2 oz & 4 fl oz	65° + 30 days	0	3	10	4.3	C-F
		& monthly					
Bayleton	2 oz	75° + 30 days	10	3	1	4.7	C-F
Bayleton & Panasea Plus	1 oz & 4 fl oz	65° + 30 days	0	5	10	5.0	C-F
		& monthly					
Bayleton & Urea	1 oz & ¼ lb N	65° + 30 days	5	7	5	5.7	C-F
		& 14 days					
D 0 D DI	10 010	/ CO . 20 1	-	~			O.F.
Banner & Panasea Plus	1 fl oz & 4 fl oz	65° + 30 days & monthly	7	7	3	5.7	C-F
Ch.26019 (WDG)	4 oz	65° + 30 days	5	10	5	6.7	C-F
D.2787 + ASC 67103	6 fl oz + 16 ml	65° + 30 days	10	5	5	6.7	C-F
	4 fl oz	75° + 30 days	3	3	15	7.0	C-F
Rubigan Astron Plus + Urea	1 fl oz + ¼ lb N		2	10	10	7.0	C-F
Asuon Flus + Olea	1 11 02 + % 10 N	14 days	2	10	10	7.3	C-F
EXP 10307A + EXP	3 fl oz + 2.4 fl oz	65° + 30 days	0	3	20	7.7	C-F
02164B							
Bayleton & Astron Plus +	2 oz & 1 fl oz + 1/4	65° + 30 days	15	5	3	7.7	C-F
Urea	Ib N	& 14 days					
Herbruck Fertilizer	1/2 lb N	monthly	10	3	10	7.7	C-F
Bayleton & Panasea Plus	0.5 oz & 4 fl oz	65° + 30 days	5	5	15	8.3	B-F
		& monthly					
Bayleton & Astron Plus +	1 oz & 1 fl oz + 1/4	65° + 30 days	7	10	10	9.0	B-F
Urea	Ib N	& 14 days					
Bayleton & FP 0492 +	1 oz & 1 fl oz + 1/4	65° + 30 days	10	7	10	9.0	B-F
Urea	lb N	& 14 days					
ASC 67098X	6 oz	65° + 30 days	5	7	15	9.0	B-F
Turf Restored	14 lb N	monthly	25	0	3	9.3	B-F
E.I. DS (Strain #5)	3 lbs	5/28, 6/28	1	3	25	9.7	B-F
Panasea Plus	4 fl oz	monthly	2	3	25	10.0	B-F
Thatch X	3 lbs	5/28, 6/28, 8/6	15	5	10	10.0	B-F
RH-0611	6 oz	65° + 30 days	0	2	30	10.7	B-F
Bayleton & FP 0492 +	0.5 oz & 1 fl oz + 1/4	65° + 30 days	25	5	3	11.0	B-F
Urea	lb N	& 14 days	23	5	3	11.0	D-1
Fluazinam	I fl oz	65° + 30 days	20	3	10	11.0	B-F
r iuazmam	1 11 02	05 · 50 days	20	5	10	11.0	DI
FP 0492 + Urea	I fl oz + 1/4 lb N	14 days	7	3	25	11.7	B-F
Bayleton & Urea	0.5 oz & 1/4 lb N	65° + 30 days	10	3	25	12.7	A-F
CONTROL MEDIC TABLES		& 14 days					
Banner	2 fl oz	65° + 30 days	0	20	20	13.3	A-F
Bayleton	0.5 oz	65° + 30 days	20	20	2	14.0	A-F
E.I. DS (Strain #16)	3 lbs	5/28, 6/28, 8/6	10	2	35	15.7	A-E
E.I. Do (Suum #10)							
Fluazinam	2 fl oz	65° + 30 days	20	10	20	16.7	A-D

Treatment ^c	Rate/1000 ft ^{2b}	Application Interval (Date)	I	II	Ш	Avg	DMR ^a
Bayleton	1 oz	65° + 30 days	25	15	25	21.7	AB
Control			15	25	35	25.0	Α

^aTreatments followed by same letter are not significantly different from each other at the 5% level.

DOLLAR SPOT FUNGICIDE TRIAL - 1993

Hancock Turfgrass Research Center, Michigan State University, East Lansing, Michigan

The 1993 dollar spot (Sclerotinia homoeocarpa) fungicide trial was conducted on an irrigated Emerald creeping bentgrass/annual bluegrass putting green at the Hancock Turfgrass Research Center on the Michigan State University campus in East Lansing, Michigan. The green was maintained at ¼" height of cut and was fertilized at ¼ # N/mo. Treatments were applied curatively to 2' x 9' plots in three replications of a random block design on 7, 10, 14, 21, or 28 day schedule as indicated in the data tables (Table 5), beginning on 8/4/93. By the date of the last rating (10/11/93) the weekly treatments had been applied 10 times, the 10-day treatments had been applied 7 times, the 14-day treatments were applied 5 times, the 21-day treatments were applied 3 times, and the 28-day treatments were applied 3 times.

Disease pressure was moderate this year and developed somewhat unevenly in the study. As the data in Table 5 indicates, however, most treatments gave statistically significant control of dollar spot when compared to the untreated controls. The Anderson 373-376 treatments were initially applied curatively on 9/3 and failed to perform as well as expected due to the early onset of turf dormancy. The dollar spot strains in this plot area are benzimidazole-resistant and have also traditionally exhibited low-level resistance to the dicarboximide fungicides (Chipco 26019, Curalan, etc.)

Table 5. Dollar Spot Fungicide Study - 1993

Hancock Turfgrass Research Center Michigan State University East Lansing, Michigan

Rating Scale:

0 = no disease, 10 = 100% of plot diseased

Rating Date:

10/11/93

Treatment ^c	Rate/1000 ft ^{2b}	Interval	I	II	Ш	Avg	DMR (.05) ^a
Fluazinam	1 fl oz	21 days	0	0	0	0	H
ASC 67098Z	6 oz	28 days	0	0	0	0	H
ASC 67098X	3 oz	14 days	0	0	0	0	H
D.2787 + ASC 67135	4 fl oz + 2 fl oz	21 days	0	0	0	0	H
Rubigan	1.5 fl oz	14 days	0	0	0	0	H
Thalonil	3 oz	10 days	0	0	0	0	H
TRA 0028	5.4 fl oz	10 days	0	0	0	0	H

^bRates are formulation.

^cDeleted treatments are proprietary.

dApplied initially on 6/11/93.

^eMild greening of turf observed, especially earlier in season.

Treatment	Rate/1000 ft ²	1	II	III	IV	Avg	DMR (.1) ^a
RH 7592 + Latron B	0.5 fl oz + 0.06% v/v	100	66.7	75	50	72.9	А-Н
1956							
RH 0611	6 oz	80	100	60	50	72.5	А-Н
E.I. DS (Strain #16)	3 lbs/mo	87.5	66.7	37.5	83.3	68.8	A-I
EXP 10307A	4 fl oz	50	50	66.7	100	66.7	B-I
EXP 10307A + EXP	4 fl oz + 3.2 fl oz	33.3	37.5	90	100	65.2	C-I
02164B							
Fluazinam	2 fl oz	20	75	65	100	65.0	C-I
Banner	4 fl oz	40	100	75	40	63.8	D-I
EXP 10064C	2 fl oz	100	75	20	50	61.3	E-I
Banner	2 fl oz	28.6	37.5	100	60	56.5	F-I
Rubigan	4 fl oz	14.3	66.7	86.7	50	54.4	F-J
EXP 10307A	3 fl oz	25	46.7	60	85	54.2	F-J
Control (fertilized)	-	57.1	33.3	25	53.3	42.2	H-J
Fluazinam	1 fl oz	42.9	60	20	42.9	41.5	H-J
Herbruck Fertilizer	1 lb N/mo	41.7	6.7	50	60	39.6	IJ
Ch.26019 (WDG)	4 oz	16.7	50	33.3	0	25.0	J
Control (unfertilized)	11 222	0	0	-20	0	-5.0	K

^aTreatments followed by the same letter are not significantly different from each other at the 10% level.

COMPOUNDS TESTED IN 1992-93 SEASON

Product	Formulation	Manufacturer
AND. 373 - AND. 376	N/A	The Andersons
ASC 67098-X	N/A	ISK Biotech
ASC 67098-Z	N/A	ISK Biotech
ASC 67103	N/A	ISK Biotech
ASC 67106	N/A	ISK Biotech
ASC 67135	N/A	ISK Biotech
Astron Plus	N/A	Floratine Products
Banner	1.1 EC	Ciba Geigy Corp
Bayleton	25 DF	Miles Corp
Calo Clor	90 W	Grace Sierra
Calo Gran	2.7 G	Grace Sierra
CGA 173506	75 WG	Ciba Geigy Corp
Chipco 26019	25 F	Rhone Poulenc
Chipco 26019 (WDG)	50 WDG	Rhone Poulenc
Cleary PCNB	75 WP	W.A. Cleary Chemical Corp
Curalan (DF)	50 DF	BASF Corp
Curalan	4.17 F	BASF Corp
Daconil 2787	40.4 F	ISK Biotech
Daconil SDG	N/A	ISK Biotech
Eagle	40 W	Rohm & Haas
E.I. DS (Strain #5)	N/A	Emerald Isle/Ocean Organics
E.I. DS (Strain #16)	N/A	Emerald Isle/Ocean Organics
EXP 02164B	45 C	Rhone Poulenc
EXP 10064C	1.67 SC	Rhone Poulenc
EXP 10307A	0.84 SC	Rhone Poulenc