

MICHIGAN  
TURFGRASS RESEARCH  
REPORT

1975

Department of Crop and Soil Sciences  
Department of Botany and Plant Pathology  
Michigan Agricultural Experiment Station

Michigan State University

East Lansing, Michigan 48824

Table 1a Bluegrass Cultivar Evaluations I  
Michigan State University (NRT)  
East Lansing 1969-75  
Area F-4

Cultivar	Spring Greenup	Leafspot	Snowmold	Appearance	
	1969,72 (6)	1969,71,72 (9)	% infected 4/8/73	1975 (6)	Wtd. Avg. 1969-75 (87)
NJE P-56	2.3	1.0	7	1.5	1.5
NJE P-114	2.1	3.2	5	1.7	2.1
Sodco	2.7	2.4	15	1.9	2.1
Nugget	3.9	1.7	5	3.4	2.3
Belturf	2.7	3.6	95	3.2	2.5
WK 412 (Weibull's)	2.1	2.4	23	1.9	2.5
A-34 (Warren 13)	3.5	2.7	53	1.7	2.5
Merion	2.5	2.6	15	2.3	<del>2.6</del>
Sydsport	2.7	2.8	78	2.9	2.7
Ba 6124 (Scott's)	2.3	4.0	42	2.8	3.0
WK-411 (Weibull's)	1.9	2.0	45	2.4	3.0
Pennstar	3.0	2.7	90	2.8	3.3
Fylking	3.0	3.3	75	4.7	3.6
K-162 (PSU)	3.5	3.7	43	4.0	3.6
PPI (R.I.)	2.2	2.0	10	5.6	3.7
K-107 (PSU)	3.5	2.4	75	5.3	3.9
Campus	5.1	3.7	100	6.6	4.2
S-21 (Jacklin)	5.8	5.7	72	4.7	4.9

(Plots of following cultivars viable only through 1974)

Cultivar	Spring Greenup	Leafspot	Snowmold	1974	Wtd. Ave.
	1969,72 (6)	1969,71,72 (9)	% infected 4/8/73	Ave. (6)	1969-74 (81)
Newport	4.0	3.8	62	5.0	3.5
Primo	4.2	3.7	88	5.7	3.7
Cougar	5.1	4.0	87	5.5	3.9
Zwartberg	3.1	3.0	50	5.9	4.2
Arista	4.8	3.5	100	5.7	4.2
Windsor	3.5	4.4	40	5.2	4.2
Prato	5.6	3.7	97	5.4	4.3
Kenblue	4.2	5.1	83	3.9	4.4
Geary	4.5	5.7	87	5.2	4.6
Park	5.5	5.7	63	5.7	4.8
WK-408 (Weibull's)	5.4	5.3	77	5.5	5.0
Minn-6	4.7	5.1	82	4.9	5.1
Delta	5.0	5.3	27	5.5	5.2
Palouse	5.2	5.6	52	6.4	5.3
South Dakota Cert.	4.8	5.8	47	5.5	6.1

1 - ( ) = No. of observations in average

2 - 1 = Best 9 = Poorest

Table 2a. Bluegrass Cultivar Evaluations III  
 Michigan State University  
 East Lansing  
 1968-1975  
 Area G3-b

Cultivar	Fall Seedling Vigor	Seedling Appearance	Percent Cover	Spring Green up		1975 Appearance	Wtd. Ave.		
	(ht in inches) 10/21/68	Oct. 1968 (6)	4/24/69 (3)	1969 (3)	1972 (3)				
NJE P-108 FS 170	1.2	2.8	95	2.0	3.0	1.0	27%	2.0	2.1
NJE P-101 FS 301	1.5	3.4	98	1.0	2.0	1.0	5	1.0	2.3
NJE P-84 FS 191	1.3	3.7	90	1.0	3.0	1.0	20	1.3	2.4
NJE P-106 FS 293	1.5	4.3	87	2.3	3.3	1.0	5	2.0	2.4
NJE P-74 FS 313	1.0	5.4	77	1.3	1.7	2.0	7	1.3	2.4
NJE P-111 FG 480	1.0	5.0	90	1.3	3.0	1.0	30	1.7	2.5
NJE P-57 FS 48	1.3	4.7	92	3.0	5.0	2.0	90	3.0	2.8
NJE P-72 FS 303	.8	5.7	73	1.3	3.0	1.0	5	1.3	2.8
FC-39071 (B 117-26-6)	.7	4.9	83	3.7	5.7	1.7	40	1.3	2.9
NJE P-44	1.0	4.8	83	1.3	3.7	1.7	20	2.3	3.0
NJE P-107-135	1.5	3.7	95	3.0	1.3	2.0	8	2.0	3.1

1 - ( ) = No. of observations in average.

2 - 1 = Best 9 = Poorest

- NOT FOR PUBLICATION -

Table 3a.

KENTUCKY BLUEGRASS VARIETY TEST-ORGANIC SOIL  
 Established 1975  
 North Test

<u>Variety</u>	<u>Establishment Vigor*</u>
Newport	1.3
Delta	1.7
Park	2.0
Delft	2.0
Kimono	2.7
Mosa	3.0
Glade	3.0
Galaxy	4.0
Tivoli	4.0
Olymprisp	4.3
Gardi	4.7
Orna	5.0
Birka	5.0
Fylking	5.3
Touchdown	5.3
Baron	5.3
Sydsport	5.7
Bonnieblue	5.7
Nugget	6.0
Merion	6.0
Cheri	6.0
Plush	6.0
Majestic	6.3
A-20	7.0
A-34	7.3
Adelphi	8.0
A-20b	8.0

\* 1 = vigorous            9 = non vigorous

Plots seeded 9-23-75, MSU Muck Farm  
 5' x 7' - 3 replications

- NOT FOR PUBLICATION -

Table 4a.

## KENTUCKY BLUEGRASS VARIETY TEST-ORGANIC SOIL

Established 1975  
South Test

<u>Variety</u>	<u>Establishment Vigor*</u>
Ram I	2.7
Victa	3.0
EVB 3702	3.0
Evtensa (EVB 216)	3.3
Evtopper (EVB 307)	3.3
EVB 2481	3.3
EVB 2461	3.7
Aquila	3.7
EVB 5585	4.0
EVB 2453	4.0
WWAg 452	4.0
WWAg 436	4.3
Campina	4.7
N-1214	4.7
Parade	4.7
Bristol	5.0
Vantage	5.0
P-66	5.0
KI-155	6.0
RI 143	6.0
WWAg 401	6.0
P-141	6.3
Brunswick (P-57)	6.7
NJEP-56	6.7
Pennstar	7.0
Merion	7.0
Windsor	8.0

\*Establishment Vigor (1 = vigorous; 9 = non vigorous).

- NOT FOR PUBLICATION -

Table 5a.

KENTUCKY BLUEGRASS BLENDS EVALUATION IV  
Michigan State University  
East Lansing  
1975  
Area E-2

		Appearance			Appearance
% Blend		1975 (3)	% Blend		1975 (3)
25	Baron		25	Fylking	
25	Merion		25	Merion	
25	Sodco		25	Nugget	
25	Sydsport	2.0	25	Pennstar	3.0
33	Baron		33	Merion	
33	Nugget		33	Nugget	
33	Park	2.3	33	Sodco	3.3
33	Baron		33	Merion	
33	Fylking		33	Nugget	
33	Sodco	2.7	33	Park	3.3
25	Fylking		25	Baron	
25	Merion		25	Park	
25	Nugget		25	Pennstar	
25	Park	2.7	25	Sodco	3.3
25	Baron		33	Merion	
25	Pennstar		33	Sodco	
25	Sodco		33	Sydsport	3.7
25	Sydsport	2.7	33	Baron	
33	Merion		33	Sodco	
33	Nugget		33	Sydsport	3.7
33	Sydsport	3.0	33	Fylking	
33	Pennstar		33	Park	
33	Sodco		33	Pennstar	4.3
33	Sydsport	3.0	33	Fylking	
33	Baron		33	Merion	
33	Pennstar		33	Nugget	4.7
33	Sodco	3.0	33	Fylking	
25	Fylking		33	Nugget	
25	Nugget		33	Park	4.7
25	Park				
25	Sydsport	3.0			

Seeded September 1971

\* 1 = Excellent 9 = Poor

- NOT FOR PUBLICATION -

Table 6a. Fairway Bluegrass Cultivar  
Evaluations  
Michigan State University  
East Lansing, Michigan  
1974-1975  
Area C-1

Cultivar	Appearance		Wtd. Ave. (6)
	1974 (3)	1975 (3)	
Nugget	1.0	1.0	1.0
Baron	1.7	1.7	1.7
Sydsport	2.0	2.7	2.4
Prato	3.0	2.0	2.5
Pennstar	2.3	3.0	2.7
Merion	2.7	2.7	2.7
Sodco	2.3	3.7	3.0
Fylking	2.3	4.0	3.2
NJE P-69 (Adelphi)	3.3	3.0	3.2
Windsor	4.7	4.3	4.5

Mowed .5 inch, 3 times per week.

Established September, 1971.

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Table 7a. Experimental Kentucky Bluegrass Evaluations  
 Michigan State University  
 East Lansing  
 1971-1975  
 Area F5-a

Cultivar	Percent Snowmold	Appearance	
	Infected 4/8/73 (3)	1975 (3)	Wtd. Ave. 1971-75 (12)
EVB 305	37%	1.0	2.0
EVB 307	18	3.0	2.2
EVB 391	67	2.5	2.6
EVB 202	5	3.0	2.8

(Plots of following cultivars viable only through 1974)

Cultivar	Percent Snowmold	Appearance	
	Infected 4/8/73 (3)	1974 (3)	Wtd. Ave. 1971-74 (9)
EVB 195	95	5.7	4.2
EVB 154	90	6.7	4.7
KO 173	95	8.3	5.3
EVB 118	93	9.0	6.1
KO 172	100	8.0	6.9

1 - ( ) = No. of observations in average  
 2 - 1 = Best      9 = Poorest

- NOT FOR PUBLICATION -



Table 8a.

Fescue-Bluegrass-Ryegrass Mixtures  
Evaluations  
Michigan State University  
East Lansing, Michigan  
1975  
Area F-2b

% Mixture	Appearance		Wtd. Avg. (9)
	1974 (6)	1975 (3)	
50 Merion Kentucky Bluegrass 50 MSU Meadow Fescue	1.7	1.3	1.6
50 Dawson Chewings Fescue 50 Merion Kentucky Bluegrass	1.5	3.0	2.0
50 Pennfine Ryegrass 50 Merion Kentucky Bluegrass	2.2	2.3	2.2
50 Merion Kentucky Bluegrass 50 Manhattan Ryegrass	2.4	2.0	2.3
50 Jamestown Chewings Fescue 50 Merion Kentucky Bluegrass	2.7	1.7	2.4
50 Merion Kentucky Bluegrass 50 Wintergreen Chewings Fescue	2.7	2.0	2.5
50 C-26 Hard Fescue 50 Merion Kentucky Bluegrass	2.9	2.0	2.6
33 Pennlawn Red Fescue 33 Merion Kentucky Bluegrass 33 Manhattan Ryegrass	3.0	2.0	2.7
50 Highlight Chewings Fescue 50 Merion Kentucky Bluegrass	3.4	2.0	2.9
50 Norlea Ryegrass 50 Merion Kentucky Bluegrass	3.4	2.3	3.0
50 Pennlawn Red Fescue 50 Merion Kentucky Bluegrass	3.7	3.0	3.5
50 Alta Tall Fescue 50 Merion Kentucky Bluegrass	4.2	4.3	4.2

- NOT FOR PUBLICATION -

Table 9a.

FINE LEAFED FESCUE CULTIVAR EVALUATIONS - II  
 Michigan State University  
 East Lansing, 1968-75  
 Area E-4

Cultivar	Leafspot Rating		Appearance	
	1969 (3)	1974 (3)	1975 (3)	Wtd. Ave. (78)
Dawson	1.3	3.3	2.3	2.3
Oregon K	2.3	6.3	2.0	2.5
MSU-63-FR	2.3	5.0	2.3	2.7
Brabantia	2.3	6.5	3.0	2.8
Polar	2.3	5.7	4.0	3.0
Oregon D	2.0	7.0	2.0	3.2
N2-65	2.3	5.3	2.7	3.6
Reptans	3.3	5.7	3.3	3.7
MSU-13-FE	4.0	4.5	2.5	3.7
Rainier	4.0	6.5	3.5	4.7

Established 1973  
 Area E-4

Cultivar	Leafspot Rating	Appearance	
	1974 (3)	1975 (3)	Wtd. Ave. (15)
Erika	3.5	2.5	1.9
50% Jamestown			
50% Wintergreen	6.0	2.0	2.2
Arctred	2.0	4.5	2.3
Highlight	7.0	1.3	2.8
Golfrood	4.0	5.0	3.0
Barfalla	5.7	2.3	3.1
Oasis	4.0	2.5	3.2
50% Jamestown			
50% Pennlawn	7.3	3.0	3.5
C-26	4.5	4.0	3.7
Tjelvar	4.3	4.7	4.0

- 1 = Best      9 = Poorest
- ( ) = Number of Observations in Average

- NOT FOR PUBLICATION -

Table 10a.

FINE LEAFED FESCUE CULTIVAR  
EVALUATIONS-III (NRT)  
Michigan State University  
East Lansing  
1973-75  
Area E-3

Cultivar	Leafspot		Appearance	Wtd. Ave. (18)
	1974 (3)	1975 (6)		
Dawson	2.0	2.5		1.9
Scarlet (HF-9)	4.3	1.0		1.9
S-59	3.3	1.7		2.4
Ru 45-C	4.3	2.7		2.5
Menuet (Fallox)	3.7	1.4		2.5
ERb 11	4.3	3.0		2.7
Oregon K	3.3	2.4		2.7
Oregon D	5.0	3.4		2.7
Wintergreen	5.0	3.2		2.9
Jamestown	4.7	3.5		3.0
Highlight	5.0	3.2		3.0
Horritine	4.7	3.0		3.0
Koket	6.3	2.5		3.2
Waldorf	5.0	4.7		3.4
Encota	6.0	3.5		3.7
Polar	5.7	4.2		3.7
C-26	3.3	4.9		3.8
Boreal	3.7	4.4		3.8
Barfalla	6.0	4.3		4.1
Flavo	6.7	4.9		4.5
Duraturf	5.0	5.7		4.6
Scaldis	6.0	7.4		4.7
Roda	5.0	5.9		4.8
MLM 1512	4.7	6.0		5.0
Pennlawn	5.3	5.0		5.0
MLM 15001	7.7	8.0		5.3
Cebeco II2 71-4	6.0	8.0		6.3

Seeded 1972

Table 11a.

## FINE LEAFED FESCUE MIXTURE EVALUATIONS

Michigan State University

East Lansing, Michigan

1975

Area F-2a

%	Blend	Appearance*
		1975 (3)
25	Jamestown Chewings Fescue	1.3
25	Highlight Chewings Fescue	
25	Wintergreen Chewings Fescue	
25	Dawson Chewings Fescue	
25	Highlight Chewings Fescue	1.7
25	Wintergreen Chewings Fescue	
25	Pennlawn Red Fescue	
25	Dawson Chewings Fescue	
25	C-26 Hard Fescue	2.0
25	Jamestown Chewings Fescue	
25	Highlight Chewings Fescue	
25	Wintergreen Chewings Fescue	
25	C-26 Hard Fescue	2.0
25	Jamestown Chewings Fescue	
25	Pennlawn Red Fescue	
25	Dawson Chewings Fescue	
25	C-26 Hard Fescue	2.3
25	Jamestown Chewings Fescue	
25	Wintergreen Chewings Fescue	
25	Pennlawn Red Fescue	
33	C-26 Hard Fescue	2.3
33	Wintergreen Chewings Fescue	
33	Pennlawn Red Fescue	
25	Jamestown Chewings Fescue	2.7
25	Highlight Chewings Fescue	
25	Wintergreen Chewings Fescue	
25	Pennlawn Red Fescue	
33	Jamestown Chewings Fescue	2.7
33	Highlight Chewings Fescue	
33	Wintergreen Chewings Fescue	
33	Jamestown Chewings Fescue	2.7
33	Wintergreen Chewings Fescue	
33	Pennlawn Red Fescue	

\*Establishment Vigor (1 = Excellent 9 = Poor)

- NOT FOR PUBLICATION -

Table 12 a. NORTHERN MICHIGAN RED FESCUE CULTIVAR EVALUATIONS  
 Michigan State University  
 Traverse City - 1970 - 1975

Cultivar	Appearance*	
	1975 (3)	Wtd. Ave. (27)
Menuet (Fallax)	1.7	1.8
Oregon K	2.3	2.5
Dawson	1.0	2.7
Barfella Chewings	3.0	2.8
C-26 (Biljart)	4.3	2.9
Arctared	3.7	2.9
Brabantia	2.3	2.9
Sceempter	4.0	3.0
Sceempter Chewings	3.3	3.0
BL-127 Chewings	4.0	3.1
Pennlawn	4.7	3.2
Tjelvar	3.3	3.2
Oregon D	2.3	3.2
Boreal	4.3	3.3
Oasis	2.3	3.3
S.-59	2.0	3.3
Illahee	4.7	3.4
Golfrood	4.3	3.4
N <sub>2</sub> -65 (Ruby)	3.0	3.4
Jamestown	3.0	3.4
Ranier	3.7	3.4
Wintergreen	2.0	3.4
Reptans	4.3	3.7
Duraturf	3.7	3.7
S.-59	3.0	3.7
Bargena	3.3	3.7
Highlight	4.0	3.8
Erika	3.7	3.8
Steinacher*	3.7	4.0
Rubin	5.3	4.1
Echo	5.0	4.1
Ruby	5.7	4.2
Common Chewings	4.7	4.3
Cascade Chewings	5.3	4.4
Olds	6.3	5.0
Rapid (Nr-42-8)	5.3	5.0
Cottage	6.7	6.3

1. 1 = Best 9 = Poorest
2. ( ) = Number of observations in average

- NOT FOR PUBLICATION -

Table 13a.

FINE LEAFED FESCUE CULTIVAR EVALUATION III  
 Michigan State University  
 East Lansing  
 Area E5-b  
 1968-1975

Cultivar	Seedling	Percent	Leafspot	Appearance	
	Appearance Fall, 1968 (6)*	Cover 5/12/69 (3)	Rating 1969 (3)	1975 (3)	Wtd. Ave. (69)
K8-149 (Haifax)	2.7	78%	2.0	1.3	1.8
K8-151 (Atlanta)	2.4	87	2.7	1.0	2.2
K8-148	3.5	60	1.7	1.3	2.4
K8-152	4.5	62	3.3	4.7	3.6
Pennlawn	2.2	75	3.0	4.0	3.7
K8-147	6.0	7	4.0	2.0	4.0

(Plots of following cultivars viable only through 1974)

				Wtd. Ave. 1968-1974 (66)
Elco	4.0	60	2.7	5.2
Bargena	5.5	35	2.3	5.8
NFG	3.4	78	3.7	5.8
Bergere	4.0	57	3.7	5.8
Turf	5.0	29	3.7	6.0

\* ( ) = Number of observations in each average figure.

Table 14a.

EXPERIMENTAL FINE LEAFED FESCUE  
 EVALUATION  
 Michigan State University  
 East Lansing  
 1973-75  
 Area F5C

Selection	Appearance	
	1975 (3)	Wtd. Ave. (12)
C-26	2.3	2.2
Jamestown	2.3	2.5
Ambaise	2.7	2.6
Wintergreen	2.7	2.9
E 8-2	4.0	3.1
Pennlawn	2.7	3.2
Veddome	4.0	3.3
E 7-3	3.7	3.3
West 5F	3.0	3.3
E 5-5	3.3	3.4
West 7F	3.0	3.8
E 1-5	3.0	3.8
E 7-5	4.3	4.2
E 1-3	3.7	4.5
E 2-1	3.7	4.7
Blare @ 17 g.	8.0	6.8

- NOT FOR PUBLICATION -

Table 15a.

KENTUCKY BLUEGRASS CULTIVAR EVALUATIONS II  
Michigan State University  
East Lansing, 1968-75  
G-4

Cultivar	Spring Color <sup>1</sup>	Leafspot Rating	Snowmold	Appearance	
	1969,72 Wtd. Ave. (6) <sup>2</sup>	1969,71,72 Wtd. Ave. (9)	% infected 4/8/73	1975 (6)	Wtd. Ave. (100)
Adelphi	2.4	2.7	5	1.7	2.1
Galaxy (NJE P-27)	1.6	2.7	5	1.9	2.1
A-20	3.7	2.0	10	1.2	2.1
NJE P-35	1.7	4.7	13	1.9	2.2
Baron	2.4	4.0	67	1.9	2.3
NJE P-5	2.1	1.7	10	2.2	2.3
NG 129	2.7	3.0	43	2.0	2.3
Golf	2.7	5.3	58	2.0	2.5
NJE P-115	2.7	4.0	7	1.7	2.5
K-103	2.4	4.0	5	1.8	2.6
K-106	3.6	5.3	92	3.0	2.7
Monopoly (59)	2.6	3.7	8	2.9	3.2
NG-101	5.1	8.0	100	4.5	3.4
A-10	3.7	8.3	87	4.2	3.7
76 G22-986	3.7	8.7	88	3.7	3.9
Delft	3.6	6.7	57	3.9	4.1
Atlas	4.1	7.0	88	2.8	4.6
Skandia II	5.0	7.0	87	2.9	4.7

(Plots of following cultivars viable only through 1974)

				Appearance	
				1974 (9)	Wtd. Ave. (94)
Silverblu	4.5	7.3	73	5.3	3.7
Spaths	4.9	6.7	97	5.5	3.9
K-109	4.7	9.0	93	5.6	4.1
Captan	3.3	7.0	83	6.8	4.3
Bar 643	5.3	7.7	85	5.0	4.7
Hunsballe Soma	4.5	9.0	85	4.6	4.7
Troy	4.5	8.3	80	6.4	4.8
66 G22-982	5.4	9.0	93	6.2	4.8

1. 1 = Best 9 = Poorest

2. ( ) = Number of observations in average



Table 16a.

NORTHERN BLUEGRASS CULTIVAR EVALUATIONS  
Michigan State University  
Traverse City  
1969-1975

Cultivar	Percentage		Leafspot	Appearance	
	Snowmold 1971 (3)	Infected 1972 (3)	Rating 6/27/74 (3)	1975 (3)	Wtd. Ave. (27)
A-20	55%	33%	1.3	2.0	1.9
Adorno	13	15	1.7	2.3	2.0
A-34 (Warren)	83	63	1.3	1.0	2.0
NJE P-27	42	17	1.3	2.0	2.1
Southport	83	68	2.3	1.3	2.1
PP-I	68	27	2.3	3.0	2.4
NJE P-57	62	40	2.7	2.0	2.4
Baron	52	23	2.3	1.7	2.4
WK-411	75	27	2.7	2.0	2.6
NJE P-106	40	22	1.7	2.7	2.7
NJE P-35	62	13	2.0	2.7	2.7
Nugget	72	42	1.0	1.3	2.7
Adelphi (NJE P-69)	47	25	2.3	3.0	2.8
Monopoly (59)	23	5	2.7	4.3	2.9
Fylking	87	50	2.7	3.3	2.9
Campus	88	73	4.3	2.0	2.9
Belturf	80	70	4.7	1.7	2.9
NJE P-56	62	8	1.0	1.0	2.9
NJE P-111	52	22	1.7	4.7	3.0
A-10 (Warren)	70	50	5.0	3.0	3.0
Merion	70	23	1.7	2.3	3.0
Sodco	60	15	2.0	2.3	3.0
NJE P-114	38	5	1.3	2.7	3.1
K-107	87	60	3.0	3.0	3.3
Pennstar	88	30	2.3	3.7	3.4
Cougar	65	83	3.3	2.7	3.4
NJE P-5	30	12	2.3	3.7	3.5
Arista	85	57	3.7	2.3	3.6
Prato	93	92	3.7	2.7	3.7
Primo	55	32	4.7	5.0	3.8

1 = Best 9 = Poorest

( ) = No. of observations in average

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(Table 16a cont'd)

Cultivar	Percentage		Leafspot	Appearance	Wtd. Ave. (27)
	<u>Snowmold</u> 1971 (3)	<u>Infected</u> 1972 (3)	<u>Rating</u> 6/27/74 (3)	1975 (3)	
Windsor	82%	40	4.0	2.3	3.8
Newport	77	57	4.3	4.3	3.9
Captan	70	40	5.7	3.3	3.9
76 G22-986	57	55	7.0	3.3	3.9
Zwartberg	63	18	3.3	5.7	4.2
BA 6124	60	23	4.3	4.7	4.3
Kenblue	83	83	6.7	4.3	4.3
Atlas	65	90	4.7	3.0	4.3
66-G22-982	77	60	7.3	5.3	4.4
Palouse	80	83	7.7	3.7	4.4
Troy	83	87	4.7	2.7	4.4
X-162	85	60	7.3	5.3	4.5
S-21	85	92	7.7	4.7	4.5
Nike	80	85	7.0	4.0	4.5
Park	70	77	8.7	3.7	4.6
Arboretum	85	92	3.3	5.3	4.7
WK-408	80	92	7.3	4.0	4.7
Delft	65	57	4.0	6.0	4.8
Geary	78	93	7.7	4.7	4.8
SK-46	72	93	8.7	5.0	4.9
Delta	63	55	7.0	4.7	4.9
Minn 6	87	93	8.0	4.7	5.0
Bar 643	93	77	5.7	2.0	5.0
Skandia II	85	97	7.7	4.7	5.1
Hunsballe Soma	80	72	6.3	3.7	5.2
S. Dakota Cert.	90	98	6.3	5.3	6.0

1 - 1 = Best            9 = Poorest

2 - ( ) = No. of observations in average.

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Year	Month	Day	Time	Location	Remarks
1950	Jan	1	10:00	...	...
1950	Jan	2	10:00	...	...
1950	Jan	3	10:00	...	...
1950	Jan	4	10:00	...	...
1950	Jan	5	10:00	...	...
1950	Jan	6	10:00	...	...
1950	Jan	7	10:00	...	...
1950	Jan	8	10:00	...	...
1950	Jan	9	10:00	...	...
1950	Jan	10	10:00	...	...
1950	Jan	11	10:00	...	...
1950	Jan	12	10:00	...	...
1950	Jan	13	10:00	...	...
1950	Jan	14	10:00	...	...
1950	Jan	15	10:00	...	...
1950	Jan	16	10:00	...	...
1950	Jan	17	10:00	...	...
1950	Jan	18	10:00	...	...
1950	Jan	19	10:00	...	...
1950	Jan	20	10:00	...	...
1950	Jan	21	10:00	...	...
1950	Jan	22	10:00	...	...
1950	Jan	23	10:00	...	...
1950	Jan	24	10:00	...	...
1950	Jan	25	10:00	...	...
1950	Jan	26	10:00	...	...
1950	Jan	27	10:00	...	...
1950	Jan	28	10:00	...	...
1950	Jan	29	10:00	...	...
1950	Jan	30	10:00	...	...
1950	Jan	31	10:00	...	...

KENTUCKY BLUEGRASS VARIETY TEST  
East Lansing, Michigan  
Established 1975  
Area G-4

<u>Variety</u>	<u>Establishment Vigor*</u>
Entensa (EVB 216)	1.7
EVB 3702	1.7
Entopper (EVB 307)	2.0
Victa	2.3
N-1214	2.3
WW Ag 463	2.3
EVB 2461	2.7
EVB 1916	2.7
WW Ag 436	2.7
WW Ag 452	3.0
EVB 2481	3.3
EVB 532	3.3
EVB 5585	3.7
EVB 1939	3.7
EVB 1942	4.3
WW Ag 401	4.3
EVB 2453	4.7
Vantage	5.0
Bristol	5.3
EVB 3965	5.3
Campina	5.7
Brunswick (P-57)	6.0
P-56	6.7
Pennstar	7.3
Merion	7.3
EVB 1146	7.3
Windsor	8.0

\* Plots seeded 9-15-75, Conover silt loam, 5'0" x 6'3" -  
3 replications.

- NOT FOR PUBLICATION -



KENTUCKY BLUEGRASS VARIETY TEST  
East Lansing, Michigan  
Established 1975  
Area F-4

<u>Variety</u>	<u>Establishment Vigor*</u>
Park	1.0
Newport	1.0
Blade	1.3
Delta	1.3
Delft	2.0
Galaxy	2.7
Adelphi	2.7
Tiuoli	3.0
Mosa	3.3
Nugget	4.3
Olympris	4.3
Gardi	4.3
Kimono	4.3
Orna	4.7
Majestic	5.0
Fylking	5.0
Merion	5.0
A-20 b	5.3
Birka	5.7
Sydsport	5.7
Bonnieblue	5.7
Plush	6.0
Cheri	6.3
A-34	6.3
Touchdown	7.0
Baron	7.3
A-20	8.0

\* Plots seeded 9-10-75, Conover silt loam, 5' x 7' - 3 replications

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## B. Soils and Nutrition

## B.1. Soil physical properties

Cohansey bentgrass was maintained under greens conditions. One half of each plot was compacted about twice weekly. The green was allowed to develop a severe dollarspot infestation. The compacted half of each plot averaged 54% of the plot area infested with dollarspot while the uncompacted side averaged 18%.

## B.3. Soil testing

Applying as high as 6 pounds  $K_2O$  per 1000 sq. ft. did not raise soil K tests above 200 pounds per acre on the sandy soil at Traverse City. Liberal irrigation is apparently leaching the K from this soil.

## B.5. Turfgrass fertilization

Applying ammonium nitrate as a foliar application to Kentucky bluegrass caused much more phytotoxicity than urea (Table B-1). The injury from ammonium nitrate was evident within a few minutes after application evidenced by a grayish green color. Quality ratings taken 3 days after treatment reflected the greater injury from ammonium nitrate. The degree of injury was reduced slightly by applying more water with the treatment. When applied dry there was no visible injury from urea and only slight injury from ammonium nitrate 3 days after treatment.

Table B-1. Nitrogen carrier, rate, and method of application effects on Kentucky bluegrass at Traverse City. Treatments applied 7/30/75.

Treatment			Quality Rating (1=best)		Injury Rating (1=none)	
Carrier	N Rate lbs/M	Method	Aug 2	Oct 20	July 30	Aug 2
--	None	--	6.0	9.0	1.0	1.0
33-0-0	1	3 gal	7.3	6.3	6.8	6.3
45-0-0	1	3 gal	3.0	4.3	1.7	2.0
33-0-0	1	12 gal	5.3	5.0	5.3	4.3
45-0-0	1	12 gal	2.3	3.7	1.0	1.0
33-0-0	2	3 gal	9.0	3.3	8.7	8.0
45-0-0	2	3 gal	4.0	2.7	2.0	3.0
33-0-0	2	12 gal	7.3	3.7	7.0	6.3
45-0-0	2	12 gal	3.7	2.7	1.7	2.3
33-0-0	1	Dry	3.3	5.7	1.0	2.0
33-0-0	2	Dry	3.3	3.0	1.0	2.3
45-0-0	2	Dry	1.7	2.3	1.0	1.0

Returning clippings to Merion Kentucky bluegrass resulted in less response to nitrogen treatments than where clippings were removed. When mowed at 1 inch with clippings returned Poa annua has invaded from 15-25% of the plot area. When clippings were removed at the 1 inch mowing height or when mowed at 2 inches,

whether clippings were returned or removed, there was essentially no Poa annua present. Treatments on these plots were initiated in 1963.

Higher annual N rates have resulted in an increase in the percentage of Poa annua in a mixed Merion Kentucky bluegrass-Poa annua polystand as suggested in Table B-2. Treatments were initiated in 1972. When the N treatments were concentrated in the summer months (May and July) the amount of Poa annua was 38 percent in the plots while when all the N was applied in April Poa annua accounted for 80% of the turf (Table B-3).

Table B-2. Effect of annual nitrogen rate on a Merion-Poa annua polystand at East Lansing N treatments divided into monthly applications.

<u>Annual rate</u> Lbs/1,000 sq. ft.	<u>Percent Poa annua in turf</u>
0	47
2	58
4	63
6	65
8	73
12	72

Table B-2. Effect of time of application of ammonium nitrate on a Merion-Poa annua polystand at East Lansing. N applied at 4 pounds N/1,000 sq. ft. annually.

<u>Time of application</u>	<u>Percent Poa annua in plot</u>
Apr., May, Aug.	55
Apr., Aug., Sept.	50
May, July	38
Apr.	80
Aug.	55
Apr., Aug.	67

Higher nitrogen rates resulted in a higher incidence of stripe smut invasion of Merion Kentucky bluegrass at Traverse City. Applying heavy nitrogen in the spring also appeared to increase the stripe smut susceptibility of the turf.



Ferrous sulfate was applied foliarly every 2 weeks to bentgrass turf mowed at putting green height. Applying 12 ounces of  $\text{FeSO}_4$  per 1,000 square feet resulted in improved turf color, but there was some injury with this treatment (Table B-4). The application of 3 or 6 ounces of  $\text{FeSO}_4$  resulted in correspondingly lower turf quality and injury ratings. The duration of the effects from the iron treatments varied inversely with the growth rate of the turf.

Table B-4. Iron sulfate effects on bentgrass turf at East Lansing. Treatments applied at 2 week intervals beginning 7/3/75. Averages for 5 rating dates.

<u>FeSO<sub>4</sub> Rate</u> oz/1,000 sq. ft.	<u>Quality rating (1=best)</u>	<u>Injury rating (1=none)</u>
None	6.0	1.0
3	3.1	1.3
6	2.0	1.9
12	1.2	2.8

#### B.6. Soil salinity.

A home lawn on clay loam soil received a heavy rate of salt washed from a highway department salt storage site. In June the turf and trees were continuing to show further stress. Table B-5 shows soil tests for various locations in the yard. Soluble salts are determined in an extract from a mixture of 2 parts water to 1 part soil. The quackgrass showed reasonably good salt tolerance by continuing to grow in spite of high soluble salt tests.

Table B-5. Soil tests from salt injured turf. Samples taken June, 1975.

<u>Condition</u>	<u>Soluble salts</u> MHOS/cm x 10 <sup>-5</sup>	<u>Sodium</u> ppm
"Good" turf	84	50
Dying turf	149	160
Dead grass	155	250
Quackgrass	185	300
Bare soil (0-4 in.)	350	500
Bare soil (8-12 in.)	300	300

## B.7. Other-Wetting Agents

Two years after treatment with wetting agents applied to correct a hydrophobic soil condition on sand soil at Boyne Highlands the effect of the treatments has dissipated. Hydro-Wet and Aqua-Gro were the only consistently effective wetting agents among those studied, with Hydro-Wet slightly more effective than Aqua-Gro. This was reflected in both turf quality ratings and soil moisture measurements (Table B-6). One study initiated in 1974 showed no response to wetting agent treatments, while in one other study initiated in 1972 there was limited response. In 5 other studies wetting agent treatments have given positive results ranging from a few months to 3 years. Cultivation by coring has not proven effective in improving turf for more than a few weeks in the studies undertaken, but did prove effective on the greens on the course. Applying water shortly after treatment with wetting agents did not increase the effectiveness of the treatments (Table B-7). Timing of wetting agent application in relation to the development of the hydrophobic condition appears to be a significant factor.

Table B-6. Effect of wetting agents on turfgrass quality as influenced by a hydrophobic soil condition at Boyne Highlands. Treated 8/7/74.

Treatment Chemical	Rate, oz/ 1,000 sq.ft.	Water	Quality rating change from 8/7/74			Soil moisture, %
			10/18/74	7/31/75	10/22/75	7/31/75
None	--	--	-0.8a	1.8a	0.8	3.5a
Aqua-Gro	16	Yes	-2.5b	0.0ab	-2.3	4.2ab
Aqua-Gro	16	No	-2.4b	-0.3ab	-3.8	5.6ac
Aqua-Gro	32	Yes	-3.0bc	-1.8b	-4.5	7.6bd
Aqua-Gro	32	No	-2.9b	-1.8b	-4.0	5.7ac
Hydro-Wet	16	Yes	-2.8b	-2.3bc	-4.5	8.5cd
Hydro-Wet	16	No	-3.8c	-3.3bc	-5.0	8.2cd
Hydro-Wet	32	Yes	-4.4c	-5.3c	-5.5	8.8cd
Hydro-Wet	32	No	-4.4c	-5.5c	-5.5	9.6d

Table B-7. Effect of wetting agents on rewetting a hydrophobic sand at Boyne Highlands. Treated 8/7/74

Treatment	Chemical	Rate, oz/ 1,000 sq. ft.	Quality rating change from 8/7/74				
			9/20/74	10/18/74	5/22/75	7/31/75	10/22/75
Hydro-Wet		16	-2.1c	-2.5bc	-0.5d	0.0b	-2.8
Aqua-Gro		16	-1.4bc	-1.0ac	0.0cf	2.8a	-1.5
Mikroclean		16	-1.4bc	-1.3ac	1.0be	3.3a	1.8
Adjuvant-T		16	-0.8ac	-1.3ac	2.3ab	4.5a	2.3
Chipco		16	-0.5ab	-0.1a	2.5ab	4.0a	2.5
Stevens		32	0.1ab	-0.1a	1.5bd	3.5a	2.0
Wex		16	0.6a	-0.1a	2.3ab	3.8a	1.8
Grozyme		16	0.5a	0.5a	3.8a	4.0a	1.3
National Chem		16	0.9a	0.6a	2.5ab	4.3a	2.0
None		--	0.5a	0.4a	1.8a	2.8a	1.0

Aqua-Gro was slightly more phytotoxic to bentgrass turf than Hydro-Wet at rates of 8 to 16 ounces per 1,000 square feet applied monthly, but Aqua-Gro was considerably more phytotoxic at rates up to 64 ounces. The injury was greater when 7 pounds nitrogen was applied annually than at 4 pounds N per 1,000 square feet. Injury lasted only a day or two with low rates and good environmental conditions but at the highest rates and under environmental stress conditions serious injury and some death of turf occurred. Applying more water (12 gal./1,000 square feet) resulted in slightly less phytotoxicity than with 3 gal. Dew dissipation was evident 3 to 4 days with Aqua-Gro and 2-3 days with Hydro-Wet.

F.2b. Disease control-Snow Mold - J. M. Vargas, Jr., and R. Detweiler

The 1975 snow mold fungicide evaluation trials were conducted at the Boyne Highland Resort, Harbor Springs, Michigan on "Penncross" creeping bentgrass mowed at 1/2 inch. No fungicides were applied to the test area during the growing season. The wettable powder (WP) and flowables (F) were applied with a CO<sub>2</sub> small plot sprayer and the granular fungicide with a 3 foot Scotts spreader. The test was divided into two studies because of the large size. The plots were 6 ft. x 6 ft. and the treatments were replicated 3 times in a random block design for each study.

Study A

The results of Study A can be seen in Table 1. They show that practically all the snow mold present was Typhula blight with only a little Fusarium patch as indicated. In addition to the old standbys, Calo gran and Calo clor, Scotts F + F II, Dow 281, MF 582, Terraclor and Acti-dione RZ all ranked high. With the exception of Calo gran, Calo clor, and Dow 281, all these materials contain PCMB (MF 582 and Acti-dione RZ) or were PCNB (Terraclor and Scotts F + F II with the F + F II also containing fertilizer). On an appearance basis, the Scotts F + F II was the best, mainly due to the effect of the fertilizer on grass color and growth. This is the second season in which good results have been obtained with the PCNB fungicides against Typhula blight.

Study B

Study B had both Typhula blight and Fusarium patch present. They are listed together on Table 2 as % snow mold and broken down in Table 2a to %

2  
Typhula blight and Table 2b to % Fusarium patch. The results in Table 2, 2a, 2b, show that whereas Fusarium patch was present in this study, the predominant snow mold was Typhula blight. Cleary's 4222 and 4223; Daconil 2787 at the 1/4 pt., 1/2 pt., and 1 pt. alone and in combination with Exhalt 800 or Tersan SP 6 oz; Tersan SP 9 oz.; Scotts Fungicide II at the 2X rate; all gave significant control compared to the untreated check, Table 2.

When the results are factored out in tables 2a and 2b, it can be seen that the majority of the snow mold present in the Daconil 2787 and Cleary's 4222 and 4223 plots was due to Fusarium patch, whereas the majority of the snow mold present in the Tersan SP and Scotts Fungicide II plots at the high rate was due to Typhula blight. The untreated control had 43% Typhula blight and 17% Fusarium patch.

Table 1. Percent Typhula blight on Penncross creeping bentgrass, except where otherwise indicated, at the Boyne Highland Resort, Harbor Springs, MI

Chemical & Rate/1000 sq ft	Percent infected area <sup>b</sup>				a	b	c	d	e
	I	II	III	AV					
Calo-gran 2 lbs	0	0	0	0	a				
Scotts F+F II 1 x	1	1	5	2	a				
Calo-clor 4 oz	15 <sup>a</sup>	1	0	5	a	b			
Dow 281 8 oz	2 <sup>a</sup>	3 <sup>a</sup>	10	5	a	b			
MF 582 9 oz	7	7	5	6	a	b			
Terraclor 8 oz	15	10	5	10	a	b			
MF 582 12 oz	5 <sup>a</sup>	10	20	12	a	b	c		
Acti-dione RZ 8 oz	5	5	30	13	a	b	c		
Terraclor 4 oz	20	10	30	20	a	b	c		
MF 594 10 lbs	25 <sup>a</sup>	25	25	25	a	b	c		
MF 594 7 lbs	30	20	30	27	a	b	c		
MF 582 6 oz	45	7	30	27	a	b	c		
Dow 342 8 oz	31	50	40	40		b	c	d	
Dow 263 8 oz	18	80	30 <sup>a</sup>	41		b	c	d	
MF 594 5 lbs	30	50	60	48			c	d	e
Milorganite 2 lbs	70	70	80	73				d	e
IBDU 2 lbs	70	60	90	73				d	e
EL 222 8 oz	70	90	80	80					e
Check	90	70	90	83					
Urea 2 lbs	80	100	95	92					

a - represents the following % Fusarium Patch included in the number:

MF 582 - 2%; Dow 263 - 10%; Dow 281 - 1 and 2% respectively; Calo Clor 5%; MF 594 - 5%.

b - Treatments follow by the same level are not significantly different at the 5% level

Table 2. Percent Typhula blight and Fusarium blight on Penncross creeping bentgrass at the Boyne Highlands Resort, Harbor Springs, MI

Chemical and Rate/1000 sq. ft.		Percent Infected area <sup>a</sup>						
		I	II	III	AVE			
Cleary's 4222	8 lbs	2	2	1	2	a		
Cleary's 4223	8 lbs	2	2	5	3	a		
Daconil 2787	1/2 pt Exhalt 8 oz.	5	2	6	4	a		
Daconil 2787	1 pt + Exhalt 8 oz.	5	7	2	5	a		
Daconil 2787	1/2 pt Tersan sp. 6 oz	8	2	10	7	a		
Daconil 2787	1/2 pt	10	15	1	9	a		
Daconil 2787	1/4 pt + Tersan sp 6 oz	1	30	5	12	a		
Daconil 2787	1 pt + Tersan sp 6 oz	1	5	35	14	a		
Daconil 2787	1 pt	5	10	30	15	a		
Tersan SP	9 oz	15	25	10	17	a	b	
Daconil 2787	1/4 pt	15	30	20	22	a	b	
Scotts Fungicide II	2 x	8	30	30	23	a	b	
Daconil 2787	1/4 pt & Exhalt 8 oz.	7	40	40	29	a	b	
Cleary's 4225	8 lbs	60	40	30	43		b	c
Tersan SP	6 oz	40	60	30	43		b	c
Scotts Fungicide II	1 x	60	40	30	43		b	c
Check		70	80	30	60			c
Exhalt	8 oz.	95	32	90	72			d

a - Treatments followed by the same letter not significantly different at the 5% level

Table 2a. Percent infection of study B due to Typhula blight.

Chemical and Rate/1000 sq. ft.		Percent infected area <sup>a</sup>							
		I	II	III	AVE				
Daconil 2787	1 pt.	0	0	0	0	a			
Daconil 2787	1/4 pt+Exhalt 8oz	0	0	0	0	a			
Daconil 2787	1/2 pt+Exhalt 8oz	0	0	0	0	a			
Daconil 2787	1 pt+Exhalt	0	0	0	0	a			
Daconil 2787	1/4 pt+Tersan SP 6 oz.	0	0	0	0	a			
Daconil 2787	1 pt+Tersan SP 6 oz.	0	0	0	0	a			
Daconil 2787	1/2 pt	5	0	0	2	a			
Clearys 4222	8 lbs	2	2	1	2	a			
Daconil 2787	1/2 pt+Tersan SP 6 oz.	7	1	0	3	a			
Clearys 4223	8 lbs	2	2	5	3	a			
Daconil 2787	1/4 pt	5	30	0	12	a	b		
Tersan SP	9 oz	15	20	9	15	a	b		
Scotts Fungicide II	2X	1	30	30	20	a	b	c	
Tersan SP	6 oz	20	30	20	23	a	b	c	
Clearys 4225	8 lbs	60	20	15	32		b	c	
Scotts Fungicide II	1X	60	40	20	40			c	d
Check		70	50	10	43			c	d
Exhalt	8 oz	95	30	60	62				d

a - Treatments followed by the same letter not significantly different at the 5% level



Table 2b. Percent infection of study B due to Fusarium Patch.

Chemical and Rate/1000 sq. ft.		Percent infected area <sup>a</sup>						
		I	II	III	AV			
Clearys 4222	8 lbs	0	0	0	0	a		
Clearys 4223	8 lbs	0	0	0	0	a		
Tersan SP	9 oz	0	5	1	2	a		
Scotts Fungicide II	2X	7	0	0	2	a		
Scotts Fungicide II	1X	0	0	10	3	a		
Daconil 2787	1/2 pt+Tersan SP 6 oz.	1	1	10	4	a		
Daconil 2787	1/2 pt+Exhalt 8oz	5	2	6	4	a	b	
Daconil 2787	1 pt+Exhalt 8oz	5	7	2	5	a	b	
Daconil 2787	1/2 pt	5	15	1	7	a	b	
Daconil 2787	1/4 pt	10	0	20	10	a	b	c
Exhalt		6	2	30	11	a	b	c
Clearys 4225	8 lbs	0	20	15	12	a	b	c
Daconil 2787	1/4 pt+Tersan SP 6 oz.	1	30	5	12	a	b	c
Daconil 2787	1 pt+Ter. SP 6 oz	1	5	35	14	a	b	c
Daconil 2787	1 pt	5	10	30	15	a	b	c
Check		0	30	20	17	a	b	c
Tersan SP	6 oz	20	30	10	20		b	c
Daconil 2787	1/4 pt+Exhalt 8 oz	7	40	40	29			c

a - Treatments followed by the same letter not significantly different from each other at the 5% level

F2b. Helminthosporium Leaf Spot Study - J. M. Vargas, Jr., and R. Detweiler

The Helminthosporium leaf spot study was conducted at the M.S.U. Soils Farm on Park Kentucky Bluegrass maintained at a 2 inch height of cut. The plots were 6 x 6 ft. and replicated 3 times in a random block design. The liquid applications were made with a CO<sub>2</sub> hand held sprayer and the dry applications were made with a Scotts 3 ft. spreader. The treatments were applied on May 8, 15, 30 and June 12 except for Scotts F + F II which was applied only once on May 8 and Spectro and Cleary's 4223 which were applied twice on May 30 and June 12. The readings were taken on June 19. The plots were rated on a 0-9 scale with a 0 representing no spots present on the leaf blade and 9 representing 90% or more of the leaf blade surface covered with spots.

The results in Table 1 show that most of the fungicides at one or more rates gave significant control when compared to the untreated check. The noticeable exceptions being EL-222, Cleary's 4223, and Fungo. Those ranking highest in the study (giving the best control) were RP 26019, 2 + 4 oz., Dyrene 4, 5, 6, 8 oz., Daconil 2787 4, 6, 8 oz., Daconil 4 + 6 oz., plus Exhalt 800 1 pt/100 gal and Acti-dione RZ, 4 oz.

Table 1. Helminthosporium Leaf Spot Fungicide Trials

Treatment	Rate of 1000 ft <sup>2</sup>	Ratings <sup>2</sup>			Average <sup>1</sup>
		I	II	III	
RP 26019	2 oz.	2	1.5	1.5	1.7 a
RP 26019	4 oz.	1.5	2	1.5	1.7 a
Dyrene	4 oz.	2	2	2	2 a b
Dyrene	5 oz.	2	3	2	2.3 a b c
Dyrene	8 oz.	2	1.5	4	2.5 a b c d
Dyrene	6 oz.	2	3	3	2.7 a b c d
Daconil 2787	4 oz.	2	2	4	2.7 a b c d
Daconil 2787 Exhalt 800	4 oz. 1 pt/100 gal	2	2	4	2.7 a b c d
Daconil 2787 Exhalt 800	6 oz. 1 pt/100 gal	3	3	2	2.7 a b c d
Daconil 2787	6 oz.	3	3	4	3.3 a b c d e
Daconil 2787	8 oz.	2	4	4	3.3 a b c d e
Acti-dione RZ	4 oz.	4	3	3	3.3 a b c d e
Daconil 2787	5 oz.	5	2	4	3.7 b c d e f
DPX 164	4 oz.	3	5	4	4 c d e f g
MF 573	6 oz.	4	3	5	4 c d e f g
Scotts F+F	1x	5	4	4	4.3 d e f g h
Bromosan	6 oz.	3	5	5	4.3 d e f g h
Tersan LSR	4.5 oz.	4	6	5	5 e f g h i
DPX 164	2 oz.	6	5	5	5.3 f g h i j
Terraclor	4 oz.	6	4	6	5.3 f g h i j
MF 573	4 oz.	6	4	6	5.3 f g h i j
Spectro	4 oz.	5	5	7	5.7 g h i j
Terraclor	2 oz.	6	4	7	5.7 g h i j
Actidione-Thiram	2 oz.	5	8	5	6 h i j
Actidione-Thiram	4 oz.	5	6	8	6.3 i j
Cleary's 4223	2 oz.	5	6	8	6.3 i j
EL 222	2 oz.	5	7	7	6.3 i j
Fungo	1.8 oz.	5	7	8	6.7 i j
Tersan LSR	3 oz.	8	5	7	6.7 i j
Actidione-RZ	2 oz.	7	7	7	7 j

Table 1. (cont'd)

Bromosan	3 oz.	8	5	8	7	j k
Cleary's 4223	4 oz.	7	7	7	7	j k
EL 222	4 oz.	7	9	6	7	j k
Spectro	2 oz.	6	7	8	7	j k
Fungo	1.2 oz.	6	8	8	7.3	k
Exhalt 800	1 pt/100 gal	7	7	8	7.3	k
Check	-	8	7	9	8	

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1. Treatments followed by the same letter are not significantly different from each other at the 5% level.
  2. 1-least disease; 9-most disease.

F2b. Sclerotinia Dollar Spot Study - J. M. Vargas, Jr., and R. Detweiler

The regular Sclerotinia dollar spot study was conducted on the M.S.U. Crop Science Farm. The plots were 3 x 6 ft. and the treatments were replicated 3 times in a random block design. All treatments gave significant control compared to the untreated control. The treatments ranking at the top can be seen in Table 2.

Table 2: Control of Sclerotinia dollar spot.

Treatments	Rate/1000 sq.ft.	Reading before 8/26		Reading after 2-9/15		Per cent reduction of dollar spot
		Avg. no. spots/plot	Total number of spots	Avg. no. spots/plot	Total number of spots	
Fungo 50	1 oz.	43.3	130	4.7	14	89.2
Cleary's 3224	2 oz.	49.7	149	6.3	19	87.3
Cleary's 3224	1 oz.	40.7	122	9.3	28	87.1
Scotts 7498	1 oz.	39.3	118	7.0	21	82.2
MF 573	4 oz.	21.3	64	4.0	12	81.3
Tersan 1991	1 oz.	36.3	109	7.3	22	80.6
R.P. 26019	2 oz.	29.3	88	6.0	18	79.6
Dyrene	6 oz.	56.7	170	11.7	35	79.4
Daconil 2787 + Exhalt	8 oz.	40.0	120	8.7	26	78.3
Daconil 2787	5 oz.	16.7	50	4.0	12	76.0
Daconil 2787	4 oz.	54.7	164	14.3	43	73.9
Daconil 2787 + Exhalt	4 oz.	15.0	45	4.0	12	73.4
DPX 164	4 oz.	23.7	71	6.3	19	73.2
Cleary's 3336	1 oz.	30.0	91	8.3	25	72.5
Dyrene	5 oz.	38.7	116	10.7	32	72.4
Dyrene	8 oz.	52.0	156	15.0	45	71.2
Daconil 2787	6 oz.	40.3	121	11.7	35	71.1
Daconil 2787	8 oz.	28.0	84	8.7	26	69.1
DPX 164	2 oz.	32.3	97	10.7	32	67.0
EL 222	1 oz.	37.7	113	17	51	55.9
MF 573	8 oz.	50.3	151	22.3	67	55.6
Dyrene	4 oz.	19.3	58	9.0	27	53.5
Exhalt	1 pt/100 gal	50.0	150	2.6	78	48.0
Form-A-Turf	4 oz.	51.7	155	28	84	45.8
Form-A-Turf	8 oz.	44.0	132	26.3	79	40.2
EL 222	2 oz.	50.3	151	31.3	94	37.8
R.P. 26019	1 oz.	15.0	45	11.3	34	24.5
Check		22.3	67	37	111	-65.7

F2b. Benzimidazole resistant dollar spot study - J. M. Vargas, Jr., & R. Detweiler

The benzimidazole resistant dollar spot study was conducted on the M.S.U. Soil Farm. The treatments in study number 1 were applied on 7/8, 7/23, 8/7, 8/19 and 9/4. The treatments in Study 2 were applied on 8/7 and 8/19. All treatments were applied with a hand held CO<sub>2</sub> sprayer.

#### Study 1

The results show none of the fungicides were effective in controlling the benzimidazole resistant strain of dollar spot Table 3.

#### Study 2

The study was read on 8/26. Table 4 shows Daconil 2787, 6 oz., R.P. 26019 2 oz., Calo Clor 2 oz, R.P. 26019 1 oz, Actidione - Thiram 4 oz., Calo Clor 3 oz., Acti-dione RZ 2 oz., and Dyrene 6 oz. ranked at the top of those giving significant control over the benzimidazole resistant strain of dollar spot. Calo Clor and Acti-dione RZ were phytotoxic. It is obvious for complete control shorter treatment intervals will be required.

TABLE 3: Control of benzimidazole resistant *Sclerotinia dollar* spot.

Treatment <sup>1</sup>	Rate	Ave. Number of spots/plot		
		I (8/26)	II (9/9)	III (9/15)
MF 598	3 oz.	400*	400*	400*
MF 598	4 oz.	"	"	"
MF 598	6 oz.	"	"	"
Dithane M-45	2.25 oz.	"	"	"
Dithane M-45	3 oz.	"	"	"
Dithane M-45	4.5 oz.	"	"	"
Fungo 50	.9 oz.	"	"	"
Fungo 50	1.2 oz.	"	"	"
Fungo 50	1.8 oz.	"	"	"
Check		"	"	"

\* Estimation - spots too numerous to count.

<sup>1</sup> Treatment dates are 7/8, 7/23, 8/23, 8/19.



Table 4. Control of benzimidazole resistant Sclerotinia dollar spot.

Treatment	rate/ 1000 sq.ft.	Number of spots			Average <sup>1</sup>	
		I	II	III		
Daconil 2787	6 oz.	6	3	12	7.0 a	
R.P. 26019	2 oz.	0	0	23	7.7 a	
Calo-Clor <sup>a</sup>	2 oz.	17	20	23	20 a b	
R. P. 26019	1 oz.	17	45	11	24.3 a b	
Actidione-Thiram	4 oz.	25	25	25	25.0 a b	
Calo-Clor <sup>a</sup>	3 oz.	28	35	21	28.0 a b	
Actidione-RZ <sup>a</sup>	2 oz.	37	35	29	33.7 a b	
Dyrene	6 oz.	60	32	85	59.0 a b	
Actidione-Thiram	2 oz.	125	73	40	79.3 b c	
Daconil 2787	3 oz.	65	70	106	80.3 b c	
Actidione-RZ <sup>a</sup>	1 oz.	115	103	153	123.7 c d	
Dyrene	3 oz.	200	150	92	147.3 d	
Tersan 75	3 oz.	75	263	213	183.7 e	
Tersan 1991	1 oz.	400*	400*	400*	400*	f
Cleary's 3224	2 oz.	400*	400*	400*	400*	f
Check		400*	400*	400*	400*	f

<sup>1</sup>Treatment followed by the same letter are not significantly different from each other at the 5% level.

\* Estimation - spots too numerous to count.

<sup>a</sup>Phytotoxic to the turf.

F2b. Anthracnose - J. M. Vargas, Jr., and R. Detweiler

The Anthracnose studies were conducted at the Dearborn C.C. in Dearborn, MI on the fairway which was primarily Poa annua cut a 1/2 inch height. The plots were 6 X 6 ft. and replicated in a random block design. The liquid applications were made with a CO<sub>2</sub> hand held sprayer and the dry formulation with a Scotts 3 ft. drop spreader.

#### Study I

Treatments for Study I were applied on 8/6 and 8/16 except for Tersan 1991 8 oz., Scotts F & F II and Ammonium Nitrate which were only applied once on August 6. The systemic fungicide Tersan 1991, DPX and Scotts Fertilizer plus DSB Fungicide were all drenched in after application. The plots were evaluated on percent thinning due to Anthracnose. The readings were taken on 9/11. The results in Table 1 show that Tersan 1991 at 8 oz., 4 oz., and 1 oz.; DPX at 8 oz., and 4 oz.; and Scott's Fertilizer & DSB Fungicide all gave significant control over the untreated check. Table 5.

#### Study II

The fungicides in Table 2 were applied only once on August 18. Recovery in this study was not as good as in Study I, which is probably due to the fact that the plots only received one treatment and, more importantly, due to the fact that the treatments were made over a month after the initial appearance of the disease. In study II Tersan 1991 2 oz. drench; Cleary's 3336 2 oz. drench and 3 oz. foliar and Fungo 4 oz. drench gave significant control compared to the untreated check Table 6.

Table 5. Control of Anthracnose in Poa annua

Treatment	Rate/1000 ft <sup>2</sup>	Percent infected area			Average <sup>1</sup>	
		I	II	III		
DPX 164	8 oz.	0	0	0	0	a
Tersan 1991 (D <sup>2</sup> )	4 oz.	0	0	0	0	a
Scotts Fertilizer + DSB	1 x	0	5	0	1.7	a b
Tersan 1991	1 oz.	5	0	0	1.7	a b
Tersan 1991 (D)	8 oz.	0	5	0	1.7	a b
DPX 164	4 oz.	0	10	5	5	a b c
Tersan 1991	3 oz.	25	0	0	8.3	a b c d
Scotts F+F	1 x	20	20	30	23.3	a b c d e
Tersan LSR	8 oz.	40	15	20	25	a b c d e
Scotts 10IV	1 X	25	15	40	26.7	a b c d e
Am. Nitrate	1 lb.	30	40	10	26.7	a b c d e
Daconil 2787	4 oz.	50	5	40	31.7	b c d e
Tersan 75	4 oz.	30	10	60	33.3	c d e f
Daconil 2787	8 oz.	60	10	40	36.7	d e f
Tersan LSR	4 oz.	35	30	50	38.3	d e f
Dyrene	4 oz.	70	10	40	40.0	e f
Check		40	20	60	40.0	e f
Dyrene	8 oz.	70	5	50	41.3	e f
Tersan LSR	6 oz.	20	60	50	43.3	e f
Calo-Clor	2 oz.	70	40	50	53.3	e f
Calo-Clor	1 oz.	80	50	60	63.3	f

<sup>1</sup>Treatments followed by the same letter are not significantly different from each other at the 5% level.

<sup>2</sup>Symbol (D) signifies treatment was Drenched in.

Table 6. Control of Anthracnose in Poa annua

Treatments	rate/ 1000 sq. ft.	I	II	III	Average <sup>1</sup>	
Tersan 1991 (D) <sup>Z</sup>	2 oz.	5	5	20	6.7	a
Cleary's 3336 (D)	2 oz.	5	15	5	8.3	a b
Cleary's 3336	3 oz.	10	15	5	10	a b
Fungo 50 (D)	4 oz.	20	20	5	15	a b
Cleary's 3336 (D)	4 oz.	20	20	15	18.3	a b c
Cleary's 3336 (D)	1 oz.	40	10	20	23.3	a b c d
Fungo 50 (D)	1 oz.	20	20	30	23.3	a b c d
Fungo 50 (D)	2 oz.	40	25	10	25	a b c d
Cleary's 3336	1 oz.	30	40	15	28.3	a b c d
Tersan 1991 (D)	1 oz.	10	30	50	30.0	b c d
Fungo 50	1 oz.	35	25	30	30.0	b c d
R.P. 26019	2 oz.	40	35	40	38.3	c d
Check		40	20	60	40.0	c d
Fungo 50	3 oz.	60	30	40	43.3	d

<sup>1</sup>Treatment followed by the same letters are not significantly different from each other at the 5% level.

<sup>2</sup>(D) signifies treatment was drenched in.

F2b. Fusarium Blight Study - J. M. Vargas, Jr., and R. Detweiler

The 1975 Fusarium blight studies were conducted at the Pebble Creek Apartments in Farmington, Michigan and at the Michigan State University Crop and Soil Science field laboratories on Merion Kentucky bluegrass. The plots at Pebble Creek were 5 x 10 feet whereas those at M.S.U. were 5' x 6' both sets of plots were replicated in a random block design. The liquid application was made with a Ortho hose jar applicator and the dry granular applications were made with a 3 foot Scotts drop spreader. All treatments were immediately drenched in after application.

Pebble Creek

The treatments at Pebble Creek were applied on July 2, 16 and August 22. The readings were taken on Sept. 23. The results in Table 7 show that Cleary's 3224, Tersan 1991 8 oz. with and without wetting agent, Aqua Grow 8 oz., R.P. 26019 ranked at the top of the treatments. The study was conducted on a heavy clay soil and the wetting agents apparently helped with the penetration of the fungicide and/or water into the soil.

M.S.U. Soils Field Laboratory

The treatments were applied on August 28 and September 11 and the readings were taken on Oct. 15. The results in Table 8 shows Tersan 1991 8 oz, Tersan 1991 8 oz plus Hydro-wet; Tersan 1991 8 oz plus Aqua-Gro gave significant control of Fusarium blight compared to the untreated check.

Table 7. PEBBLE CREEK Fusarium blight study.  
% area infected

Chemical	Rate	I	II	III	T	AV
Cleary's 3224	8 oz	2	10	0	12	4.0
Tersan 1991 & Aqua-Gro	8 oz	2	2	30	34	11.3
Tersan 1991 & Hydro-Wet	4 oz	0	20	30	50	16.7
Aqua-Gro	8 oz	10	10	30	50	16.7
Tersan 1991 & Hydro-Wet	4 oz	2	30	20	52	17.3
R.P. 26019	8 oz	10	15	30	55	18.3
Tersan 1991	8 oz	40	10	10	60	20.0
Tersan 1991 & Aqua-Gro	4 oz	30	30	5	65	21.7
Tersan 1991	4 oz	40	20	10	70	23.3
Form-A-Turf	8 oz	20	30	20	70	23.3
R.P. 26019	4 oz	50	10	25	85	28.3
Form-A-Turf	4 oz	60	5	20	85	28.3
EL 222	4 oz	70	5	25	100	33.3
EL 222	8 oz	15	60	30	105	35.0
Hydro-Wet	8 oz	50	10	50	110	36.7
Check		60	20	40	120	40.0

TABLE 8. FUSARIUM BLIGHT STUDY SOILS FARM

Treatment	Rate/ 1000 ft <sup>2</sup>	Percent infected area										
		I	II	III	Average <sup>1</sup>							
Tersan 1991	8 oz	2	2	10	4.7	a						
Scotts F 6970	1x	10	5	5	6.7	a	b					
Tersan 1991 & Hydro-Wet	8 oz	15	2	20	12.3	a	b	c				
Tersan 1991 & Aqua-Gro	8 oz	20	15	2	12.3	a	b	c				
Vydate	4.5 lb	2	30	20	17.3	a	b	c	d			
Dasanit	3 lb	20	5	40	21.7	a	b	c	d	e		
Tersan 1991 & Aqua-Gro	4 oz	20	4	50	24.7	a	b	c	d	e	f	
Tersan 1991 & Hydro-Wet	4 oz	20	50	10	26.7	a	b	c	d	e	f	
Nemacur	3 lb	40	30	30	33.3	a	b	c	d	e	f	
Mocap <sup>2</sup>	3 lb	10	60	30	33.3	a	b	c	d	e	f	
Cleary's 3224	8 oz	20	60	30	36.7	a	b	c	d	e	f	
Hydro Wet	8 oz	15	40	60	38.3	a	b	c	d	e	f	
R.P. 26019	4 oz	70	20	30	40.0	a	b	c	d	e	f	g
R.P. 26019	8 oz	70	10	40	40.0	a	b	c	d	e	f	g
Tersan 1991	4 oz	25	60	40	41.7	a	b	c	d	e	f	g
Aqua-Gro	8 oz	25	40	60	41.7	a	b	c	d	e	f	g
Ciba Geigy GA-4-737	3.5 lb	40	40	50	43.3		b	c	d	e	f	g
Form-A-Turf	4 oz	70	50	20	46.7			c	d	e	f	g
CHECK		60	30	70	53.3				d	e	f	g
Form-A-Turf	8 oz	60	70	40	56.7				d	e	f	g
EL 222 <sup>2</sup>	8 oz	80	30	60	56.7					e	f	g
Ciba-Geigy GA-4-737	7 lbs	60	80	40	60						f	g
EL 222 <sup>2</sup>	4 oz	90	70	70	76.7							g

1. Treatments follow by the same letter are not significantly different from each other at the 5% level
2. Phytotoxicity