

1998-99 FUNGICIDE REPORT
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Melting Out Fungicide Trial, 1999

The 1999 melting out (*Dreschlera poae*) fungicide trial was conducted at the Hancock Turfgrass Research Center on the MSU campus in E. Lansing, MI on irrigated Kenblue Kentucky bluegrass (*Poa pratensis*) turf maintained at 1 ½ " height of cut. The study area was fertilized in late 1998 at 1 lb nitrogen per 1000 sq ft and on May 31, 1999 and June 9 at 0.125 lb nitrogen per 1000 sq ft.

Treatments were applied to 4 replicate plots in a random complete block design using a CO powered backpack small plot sprayer operating at 32 PSI and a volume of 48 GPA. We utilized a double nozzle boom with 8002E flat fan nozzles. Preventive applications were made initially on May 9, with subsequent applications being made at the intervals cited in the data table.

At the time of the rating (June 17, 1999), the 10 day treatment had been applied four times (5/9, 5/20, 5/29, 6/8), the 14 day treatments had been applied three times (5/9, 5/23, 6/5), and the 21 day treatments had been applied twice (5/9, 5/29).

As the data indicates (table 1), all treatments gave statistically significant control of melting out when compared to the untreated controls. Disease pressure was moderate this year due to a warm, relatively dry spring. Therefore, treatment separation related to subtle rate and interval differences was not evident.

No quality differences were evident, nor was any phytotoxicity observed at any time during the study duration.

Table 1. Melting Out Ratings – 1999

Rating Scale: 1 = less than 10% of leaves infected, with no thinning or discoloration, 10 = 100%of leaves infected with severe thinning and browning.

Rating Date: June 17, 1999

<u>Treatment</u>	<u>Rate per 1000 ft^{2b}</u>	<u>Interval (days)</u>	<u>Mean (LSD - .05)^a</u>
Ch. 26GT	4 fl oz	21	1.3 A
Polyoxorim-Zn	4 oz	14	1.3 A
Polyoxorim-Zn	8 oz	14	1.3 A
Daconil Ultrex	3.7 oz	10	1.5 A
Polyoxorim-Zn	8 oz	21	2.0 A
Polyoxorim-Zn + non-ionic surfactant	4 oz + 0.25%v/v	14	2.0 A
Compass	0.15 oz	14	2.0 A
Compass	0.1 oz	14	2.0 A
Control	—	—	4.5 B

^aTreatments followed by the same letter are not significantly different from each other (Least Significant Differences Test - .05).

^bR.ates are formulated product.

TAKE-ALL PATCH FUNGICIDE TRIALS, 1999

The 1999 take-all (*Gaeumannomyces graminis*) fungicide studies were established on irrigated creeping bentgrass (*Agrostis palustris* Huds.) fairways on the Whittaker Woods Golf Course in New Buffalo, MI, and on the Lynx Golf Course in Otsego, MI. The duplicate studies were laid out in a randomized complete block design with 4 replications, and a plot size of 6' x 18'. This larger plot size was

Summer Stress Syndrome in Annual Bluegrass

This trial was conducted on a *Poa annua* fairway at the Hancock Turfgrass Research Center, E. Lansing, MI. The plot area was mowed at 1.5" and fertility was as listed below with all fertilizer applications being made on a 30-day schedule. The study was set up in a randomized complete block design with four replications of each treatment. Plots measured 2' x 4.5' with 1' alleys. Treatments were applied at 34 psi in a 48 GPA spray volume using a CO backpack sprayer and a single 8002E tee-jet flat fan nozzle. All treatments were applied beginning on June 9, 1999 and were reapplied on June 23, July 7, July 22, August 4, August 19, and September 1. Fertilizer applications were made on July 7, August 4, and September 2. Chipco 26GT was applied to the entire plot area on June 23 (2 oz), July 7 (2 oz), July 23 (2 oz), and August 5 (4 oz) to prevent severe loss in our control plots due to dollar spot outbreaks. Quality ratings were visually estimated using a 0 to 10 scale, where 0 = poor, 10 = excellent, and 7 = acceptable. Data are presented in tables 10 – 11. Data were analyzed using ANOVA and means separated with LSD (p=0.05)

The Chipco Alette Signature + Daconil Ultrex + fertilizer combination provided good turf quality all season long and, for most of the season, this was significantly better quality than all of the other treatments in this test. The Nutri-Grow P + K + Daconil Ultrex combination did not receive nitrogen during the trial. The Nutri-Grow P + K + Daconil Ultrex provided good quality turf (July 27 – August 11) during the most stressful period of the summer when the control plots showed the poorest quality.

Table 10. Quality Rating (0-10, 7 acceptable)

<u>Treatment</u>	<u>Rate/1000ft²</u>	<u>Interval (Days)</u>	<u>Quality^a</u>			
			<u>29-Jun</u>	<u>14-Jul</u>	<u>20-Jul</u>	<u>27-Jul</u>
Ch. Alette Signature + Daconil Ultrex + Terra Fert. (22-4-7)	4 oz + 3.8 oz + 0.5# N	14+ 30	7.3 AB	7.0 A	7.5 A	6.5 A
Nutri-Grow P+K + Dac. Ultrex	5 fl oz + 3.8 oz	14	6.5 AB	6.0 BC	6.3 B	6.0 AB
Unfertilized Control	—	—	6.3 B	5.8 BC	5.8 BC	5.8 BC
Terra Fert. (22-4-7) Control	0.5# N	30	6.0 B	5.3 C	5.3 C	5.3 C

Table 11. Quality Rating (0-10, 7 acceptable)

<u>Treatment</u>	<u>Rate/1000ft²</u>	<u>Interval (Days)</u>	<u>Quality^a</u>			
			<u>3-Aug</u>	<u>11-Aug</u>	<u>17-Aug</u>	<u>24-Aug</u>
Ch. Alette Signature + Daconil Ultrex + Terra Fert. (22-4-7)	4 oz + 3.8 oz + 0.5# N	14+ 30	7.8 A	8.5 A	8.5 A	9.0 A
Nutri-Grow P+K + Dac. Ultrex	5 fl oz + 3.8 oz	14	6.5 B	7.3 B	6.8 B	7.5 B
Unfertilized Control	—	—	4.5 C	6.0 C	6.0 BC	7.0 BC
Terra Fert. (22-4-7) Control	0.5# N	30	4.0 C	5.0 D	5.3 C	5.8 C

^aMeans followed by the same letter are not significantly different (LSD, p=0.05).

1998-99 Snow Mold Fungicide Studies A and B

Two corporation-sponsored snow mold fungicide field studies were conducted during the fall and winter of 1998-99. Study A was applied on the Boyne Highlands Resort in Harbor Springs, MI on 28 Oct, 1998 (except where noted in Tables 12-13), and study B was applied on the Treetops/Sylvan Resort in Gaylord, MI on 30 Oct, 1998 (except as noted in Tables 1 - 4). Treatments were applied preventively to three replicate 6' x 9' (Boyne Highlands) or 3' x 9' (Treetops) creeping bentgrass (*Agrostis palustris*)/annual bluegrass (*Poa annua*) fairway plots where the turf was maintained at approximately 1/2" height of cut. Liquid treatments were applied with a CO backpack sprayer at a pressure of 36 psi and a volume of 100 GPA (except where noted in Tables 12-13). Granular products were pre-weighed and hand-applied.

Studies A and B were rated on 31 March 1999 immediately following snow cover melt off. The predominant snow mold species was *Typhula incarnata* at Boyne Highlands and *Typhula ishkariensis* at

Treetops. Microdochium patch (*Microdochium nivale*) was observed in some plots as indicated in Tables 12 and 13.

As indicated in the data tables, disease pressure was moderate at Boyne Highlands and severe at Treetops. Under the moderate disease conditions at Boyne Highlands, many treatments provided adequate disease control. Under the severe disease conditions at Treetops, most treatments, including some standards, failed to provide adequate disease control.

Table 12. 1998-99 Snow Mold Disease Data

Location: Boyne Highlands Resort, Harbor Springs, MI
 Rating date: 1 April, 1999
 Rating scale: percent plot area infected with *T. incarnata*

<u>Treatment and rate/1000 sq ft</u>	<u>Mean (LSD)</u>
Heritage 0.4 oz + Daconil Weather Stik 5.5 fl oz + Turfcide 400 12 fl oz	0.0 g
Ch 26GT 8 fl oz + Daconil Weather Stik 5.5 fl oz + Turfcide 400 12 fl oz	0.0 g
Ch 26GT 4 fl oz + Daconil Ultrex 4 oz + Turfcide 400 6 fl oz	0.0 g
Heritage 0.4 oz + Daconil Weather Stik 5.5 fl oz	0.3 fg
Heritage 0.4 oz + Daconil Weather Stik 2.25 fl oz + Turfcide 400 6 fl oz	0.3 fg
Heritage 0.4 oz + Daconil Weather Stik 2.25 fl oz + Turfcide 400 6 fl oz ^f	0.3 fg
Thalonil 4L 6.4 fl oz + Ch 26GT 4 fl oz + Turfcide 400 6 fl oz	0.7 fg
Turfcide 400 12 fl oz	1.7 fg
Heritage 0.4 oz + Turfcide 400 12 fl oz	1.7 fg
Fore 80W 8 oz + PCNB 8 oz	2.7 fg
Ch 26GT 4 fl oz + Turfcide 400 8 fl oz ^c	3.0 fg
Scotts FFII 103.8 oz	4.3 fg
Parflo 4F 8 fl oz + Banner Maxx 2 fl oz	5.0 fg
Daconil Weather Stik 5.5 fl oz	6.3 fg
Heritage 0.4 oz	6.3 fg
Compass 50 WG 0.3 oz + Banner Maxx 3 fl oz ^b	7.7 fg
Amvac PCNB 10G 5 lbs	8.3 fg
Ch 26GT 4 fl oz + Turfcide 400 8 fl oz + Signature 4 oz ^c	10.7 fg
Parflo 4F 12 fl oz	12.3 g
CGA BMP (47.3WP) 1 oz + Banner Maxx 1.5 fl oz ^b	12.7 fg
Spectro 6 oz ^a + Defend 75WP 8 oz	13.0 fg
Spectro 10 oz ^a + Defend 75WP 8 oz	13.3 fg
Spectro 4 oz ^a + Defend 75WP 8 oz	13.3 fg
AMV88-2 5 lbs	13.3 fg
Spectro 8 oz ^a + Defend 75WP 8 oz	15.0 fg
Penstar 15G 106.7 oz	15.0 fg
Compass 50 WG 0.15 oz + Banner Maxx 3 fl oz ^b	16.7 e-g
Fore 80W 8 oz + PCNB 6 oz	16.7 e-g
PCNB 10 Granular 120 oz	16.7 e-g
PCNB 20WDG 2.5 lbs	16.7 e-g
Compass 50 WG 0.3 oz + Banner Maxx 2 fl oz ^b	17.3 e-g
Turfcide 10G 160 oz	18.3 d-g
ANDFG 209-98 6.66 lb ^e	19.3 d-g
Turfcide 10G 120 oz	21.7 c-g
Penstar 15G 53.3 oz	23.3 b-g
Penstar 15G 80 oz	24.0 b-f
QST 713 10 #/A	40.0 a-e
Control	41.7 a-d
QST 713 20 #/A	43.3 a-c
Fore 80W 8 oz	43.3 a-c
ANDFG 209-98 6.66 lb ^d	43.3 a-c
Junction 4 oz	43.3 a-c
Compass 50 WG 0.3 oz ^b	45.0 a-c

Treatment and rate/1000 sq ft

QST 713 5#/A

Junction 8 oz

^a Treatments applied on 2 Oct.^b Treatments applied at 3 gal/1000 sq ft spray rate^c First application made 2 Oct and second made 30 Oct.^d Treatment applied to dry turf^e Treatment applied to wet turf^f Applied with Lesco non-ionic surfactant (0.25% v/v)^g Plot also infected with pink snow mold (*Microdochium nivale*)**Mean**

46.7 ab

51.7 a

Table 13. 1998-99 Snow Mold Disease Data

Location: Treetops/Sylvan Resort, Gaylord, MI

Rating date: 31 March, 1999

Rating scale: percent plot area infected with *T. ishikariensis***Treatment and rate/1000 sq ft**

Heritage 0.4 oz + Daconil Weather Stik 5.5 fl oz + Turfcide 400 12 fl oz

Ch 26GT 8 fl oz + Daconil Weather Stik 5.5 fl oz + Turfcide 400 12 fl oz

Ch 26GT 4 fl oz + Daconil Ultrex 4 oz + Turfcide 400 6 fl oz

Thalonil 4L 6.4 fl oz + Ch 26GT 4 fl oz + Turfcide 400 6 fl oz

Compass 50 WG 0.3 oz + Banner Maxx 3 fl oz^b

Heritage 0.4 oz + Daconil Weather Stik 5.5 fl oz

Scotts FFII 103.8 oz

Heritage 0.4 oz + Daconil Weather Stik 2.25 fl oz + Turfcide 400 6 fl oz^f

Heritage 0.4 oz + Daconil Weather Stik 2.25 fl oz + Turfcide 400 6 fl oz

Spectro 10 oz^a + Defend 75WP 8 oz

Heritage 0.4 oz + Turfcide 400 12 fl oz

Fore 80W 8 oz + PCNB 6 oz

Fore 80W 8 oz + PCNB 8 oz

Compass 50 WG 0.3 oz + Banner Maxx 2 fl oz^bCGA BMP (47.3WP) 1 oz + Banner Maxx 1.5 fl oz^bCompass 50 WG 0.15 oz + Banner Maxx 3 fl oz^b

Parflo 4F 8 fl oz + Banner Maxx 2 fl oz

Daconil Weather Stik 5.5 fl oz

ANDFG 209-98 6.66 lb^d

Parflo 4F 12 fl oz

Turfcide 10G 160 oz

Penstar 15G 53.3 oz

Penstar 15G 106.7 oz

Heritage 0.4 oz

Ch 26GT 4 fl oz + Turfcide 400 8 fl oz + Signature 4 oz^c

Turfcide 400 12 fl oz

Compass 50 WG 0.3 oz^b

Turfcide 10G 120 oz

AMV88-2 5 lbs

QST 713 5#/A

PCNB 10 Granular 120 oz

ANDFG 209-98 6.66 lb^e**Mean**

0.3

0.3

2.7

7.0

14.7

15.0

16.7

17.3

18.0

18.3

20.7

23.3

24.0

27.7

30.0

34.0

35.0

36.7

50.0

51.7

55.0

63.3

63.3

65.0

65.3

66.7

67.7

68.3

70.0

73.3

75.0

75.0

LSD

m

m

m

lm

lm

lm

lm

lm

lm

lm

k-m

k-m

j-m

j-m

j-m

il

h-l

g-l

f-k

e-k

d-j

c-l

c-i

b-l

b-h

a-g

a-g

a-f

a-f

a-f

a-f

a-f

<u>Treatment and rate/1000 sq ft</u>	<u>Mean</u>	<u>LSD</u>
Junction 8 oz	75.0	a-f
Amvac PCNB 10G 5 lbs	75.0	a-f
Penstar 15G 80 oz	80.0	a-f
PCNB 20WDG 2.5 lbs	81.7	a-e
Ch 26GT 4 fl oz + Turfcide 400 8 fl oz ^c	83.3	a-d
Control	85.3	a-d
QST 713 10 #/A	93.7	a-c
Fore 80W 8 oz	95.0	ab
Junction 4 oz	96.0	ab
QST 713 20 #/A	97.0	a

^a Treatments applied on 2 Oct.

^b Treatments applied at 3 gal/1000 sq ft spray rate

^c First application made 2 Oct and second made 30 Oct.

^d Treatment applied to dry turf

^e Treatment applied to wet turf

^f Applied with Lesco non-ionic surfactant (0.25% v/v)

^g Plot also infected with pink snow mold (*Microdochium nivale*)