

**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<sup>2b</sup></u>	<u>Interval (days)</u>	<u>Mean (LSD - .05)<sup>a</sup></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

<sup>a</sup>Treatments followed by the same letter are not significantly different from each other (Least Significant Differences Test - .05).

<sup>b</sup>R.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

## Pythium Blight Fungicide Trial, 1999

This study was conducted at the Hancock Turfgrass Research Center on the MSU campus, E. Lansing, MI on a stand of perennial ryegrass. The turf was mowed at 1.5 inches, heavily irrigated beginning in mid-June and for the duration of the study, and fertilized monthly with 1# nitrogen 1000 sq ft<sup>-1</sup> beginning in May. The study was set up in a randomized complete block design with plots measuring 2' x 4.5' with 0.5' alleys. Four replications of each treatment were included. Fungicide treatments were applied beginning on July 2 and were reapplied according to the intervals listed in the table below with 7 day treatments being applied 6 times and 14 day treatments 3 times between July 2 and August 6. Applications were made using a hand held CO<sub>2</sub>-powered backpack sprayer at 36 psi with a single 8002E flat fan TeeJet nozzle at a rate of 48 GPA. The test area was inoculated with *Pythium* sp. growing on a sand/cornmeal mixture on July 15, 21, and 27 using a drop spreader at a rate of 2.5# 1000 sq ft<sup>-1</sup>. Plots were covered with a blue vinyl tarp and/or opaque plastic trays during periods when the weather was conducive for disease development. On July 24, Prostar was applied over the entire study area for the control of brown patch. Ratings were taken of the % area blighted of the covered portion of each plot and were recorded. Data were subjected to analysis of variance and LSD test at the 5% level.

Disease pressure was quite severe this year with our control plots approaching a 90% disease average in the covered portion of the plots. Chipco Aliette Signature 80 WG provided significant disease control during the study compared to the control. Other treatments which provided significant control compared to the control plots at one or the other rating dates include Koban, Heritage, WAC 90 + Protect T/O, and WAC 90 alone. It is unclear why some standard fungicide treatments failed in this trial.

Table 5. 1999 *Pythium* Blight Ratings

<u>Treatment</u>	<u>Rate/1000 ft<sup>2</sup></u>	<u>Interval<sup>b</sup></u> <u>(Days)</u>	<u>% Pythium blight<sup>a</sup></u>	
			<u>29-Jul</u>	<u>2-Aug</u>
Koban <sup>d</sup>	5 oz	14	13.8 C <sup>c</sup>	78.8 A-C
Ch. Al. Sig.	4 oz	14	17.5 C	50 E
WAC 90 + Protect t/o	2 fl oz + 8 oz	14	23.8 BC	68.8 A-E
WAC 90	2 fl oz	14	27.8 A-C	58.8 C-E
Heritage	0.4 oz	14	31.3 A-C	58.8 C-E
Junction + Subdue Maxx <sup>e</sup>	4 oz + 0.5 fl oz	7	37.5 A-C	80 A-C
Junction	6 oz	7	42.5 A-C	85 AB
Banol	2 oz	14	45 A-C	77.5 A-C
Junction + Subdue Maxx <sup>e</sup>	6 oz + 0.5 fl oz	7	51.3 AB	76.3 A-D
Subdue Maxx	1 fl oz	14	51.3 AB	77.5 A-C
Junction 61.1 WDG	4 oz	7	56.8 A	87.5 AB
Junction	8 oz	7	58.8 A	92.5 A
Control	—	—	58.8 A	87 AB

<sup>a</sup>Numbers represent estimated % disease area of the covered portion of each plot. Means of four replications.

<sup>b</sup>Seven day interval treatments were applied on 7/2, 7/8, 7/15, 7/23, 7/30, 8/6 and 14 day treatments were applied on 7/2, 7/15, and 7/30.

<sup>c</sup>Means followed by the same letter do not significantly differ (LSD, p=0.05).

<sup>d</sup>Applied on 7/15 and 7/30 only.

<sup>e</sup>Received Subdue Maxx 4 days late (on 7/27) for 4<sup>th</sup> tank mix application only.

## Preventive Brown Patch Fungicide Trial, 1999

This was a preventive brown patch study conducted at the Hancock Turfgrass Research Center on the MSU campus, E. Lansing, MI on a stand of colonial bentgrass (*Agrostis tenuis*). The turf mowed at 1.5", irrigated heavily to encourage disease development, and fertilized monthly with 1# nitrogen 1000 ft<sup>2</sup>.

The study was set up in a randomized complete block design with four replications. Plots measured 2' x 4.5' with 0.5' alleys. Fungicide treatments were applied beginning on July 2 with subsequent applications made at intervals specified below. Seven day interval treatments were applied 6 times, 14 day treatments 3 times, and 21 and 28 day treatments were applied twice each. Fungicide applications were made using a CO - powered backpack sprayer with a single 8002E flat fan TeeJet nozzle at 36 psi and a rate of 48 GPA. The entire plot area was inoculated with *Rhizoctonia solani* growing on sand/cornmeal inoculum at 2.5# 1000 ft<sup>-2</sup> on June 22 and July 15 and 21. Plots were covered with a blue vinyl tarp and/or opaque plastic trays during periods when weather was conducive to disease development. On July 30, Koban was applied over the entire study area for the control of Pythium blight. Data collected were visual estimations of % plot area blighted. Data were analyzed using ANOVA and means separated with LSD (p=0.05.)

As can be seen in the table below, there were no significant differences between the control and any treatments on the 29 July rating date. However, on the 3 August rating date, many standards including Heritage, Fore, Compass and a Compass + Banner Maxx tankmix performed well. This study exhibited poor disease distribution with strong disease development in some areas and little pressure in others resulting in large amounts of disease variability.

Table 6. Preventive Brown Patch Ratings.

<u>Treatment</u>	<u>Rate/1000ft<sup>2</sup></u>	<u>Interval (Days)<sup>b</sup></u>	<u>% Brown patch<sup>a</sup></u>	
			<u>29-Jul<sup>c</sup></u>	<u>3-Aug</u>
Heritage	0.2 oz	14	0.6 b	1.0 h
Heritage	0.4 oz	28	1.6 b	2.0 gh
Compass 50 WG + Banner Maxx 50 WG	0.15 oz + 1 fl oz	21	2.6 b	5.8 f-h
Fore	4 oz	7	6.3 b	5.8 f-h
Eminent 125 SL	2 fl oz	14	8.5 b	6.0 e-h
Compass 50 WG	0.15 oz	14	11.0 ab	9.0 d-h
Compass 0.7 MEC	0.85 fl oz	14	4.9 b	9.3 d-h
Eminent 125 SL	4 fl oz	21	11.3 ab	10.3 c-g
3336 WP + Compass	2 oz + 0.1 oz	14	10.5 ab	10.5 c-g
Eminent 125 SL	4 fl oz	14	10.5 ab	11.8 b-f
RH-0611 (Maximum)	10 oz	14	6.4 b	13.5 a-f
3336 WP alternating w/ Compass	4 oz alt. 0.2 oz	14 alt 14	6.8 b	13.8 a-f
Dac. Ultrex	3.8 oz	14	10.5 ab	13.8 a-f
WAC 74 + 3336 WP	2 oz + 4 oz	14	9.3 b	15.0 a-e
Echo 75 WDG	4.2 oz	14	5.5 b	16.3 a-d
Control			11.8 ab	19.3 a-c
WAC 74	2 oz	14	21.3 a	20.0 ab
Spectro 90 WDG	4 oz	14	21.3 a	22.5 a

<sup>a</sup>Numbers represent the % plot area blighted. Mean of 4 replications.

<sup>b</sup>Seven day treatments were applied on 7/2, 7/8, 7/15, 7/23, 7/30, and 8/6, 14 day treatments on 7/2, 7/15, and 7/30, 21 day treatments on 7/2 and 7/23, and 28 day treatments on 7/2 and 7/30.

<sup>c</sup>Means followed by the same letter do not significantly differ (LSD, p=0.05.)

#### Curative Brown Patch Fungicide Trial, 1999

This study was a curative brown patch study conducted at the Hancock Turfgrass Research Center on the campus of MSU, E. Lansing, MI on a Pennlinks creeping bentgrass research green. The disease developed naturally without artificial inoculation. The green was mowed at 0.157", fertilized monthly with 0.5 lbs nitrogen 1000 ft<sup>-2</sup>, and watered as needed to maintain turf vigor. The study was set up in a randomized complete block design with 4 replications and plots which measured 2' x 4.5' with 6" alleys. Fungicide treatments were applied using a CO -powered backpack sprayer with a single 8002E flat fan nozzle at 36 psi at a rate of 48 GPA. Treatments were applied beginning on 24 July with subsequent applications made according to the intervals listed below. The final applications were made on 3 September. Seven-day treatments were applied 6 times, 14-day treatments 4 times, 21-day treatments 3