

## Anthracnose Fungicide Studies-1987

Oak Pointe Golf Course, Brighton, MI and Hancock Turfgrass Research Center, MSU, E. Lansing, MI

Two anthracnose (Colletotrichum graminicola) fungicide studies were conducted this year, one at Oak Pointe Golf Club in Brighton, MI and another at the Hancock Turfgrass Research Center on the MSU campus. Both studies were conducted on moderately fertilized, irrigated annual bluegrass (Poa annua) fairways in three replications of a random block design with 6' x 9' plots. All applications were made with a CO<sub>2</sub> small-plot sprayer at 30 PSI and 48 gal/acre. Both fairway areas were mowed at ½" height of cut.

Initial applications were made preventively on June 25 (Oak Pointe) and June 18 (Hancock Center). Subsequent applications were made at the intervals indicated on the data table. When the disease ratings were taken at the Oak Pointe site (Aug. 28) the 14 day treatments had been applied 5 times (6/25, 7/9, 7/23, 8/6, 8/17) and the 21 day treatments had been applied 3 time (6/25, 7/16, 8/6), except as noted on the data table (Table 3).

Despite the hot, dry weather we experienced this summer, anthracnose pressure was light to moderate in this study. This might be attributable to reduced inoculum levels resulting from fairway fungicide applications in previous years. As the data shows, a number of experimental compounds (DPX-H6573, PP523, HWG1608) look promising for anthracnose control, as Tersan 1991 continues to perform well. Among the other standard fungicides, Rubigan performed moderately well, however, Bayleton proved less effective than anticipated this year.

Following the second 21 day application a mild phytotoxicity (yellowing) was observed in the HWG1608 (14 gm.ai.) treatment. Mild phytotoxicity was also observed on other treatments at the time of the 8/28 disease rating, as indicated on the data table.

As stated previously, this anthracnose study was duplicated on the Hancock Turfgrass Research Center on the MSU campus. Disease levels, however, remained very low in the controls (10% or less) throughout the summer, so no data was available.

## Emerald Creeping Bentgrass Dollar Spot Fungicide Study-1987

Hancock Turfgrass Research Center, MSU, E. Lansing, MI

The 1987 dollar spot (Moellerodiscus spp., Lanzia spp.) fungicide study was conducted on a moderately fertilized, irrigated Emerald creeping bentgrass (Agrostis palustris) green at the Hancock Turfgrass Research Center on the MSU campus. Treatments were applied preventively in three replications of a random block design (3' x 6' plots) using a CO<sub>2</sub> small-plot sprayer at a volume of 48 gal/acre and 30 PSI. Granular treatments were pre-weighed and applied by hand.

Initial treatments were applied preventively on July 10. By the final rating date (9/7), the 14 day treatments had been applied four times (7/10, 7/28, 8/12, 9/1) and the 21 day treatments had been applied three time (7/10, 7/31, 8/20) (Table 4). Exceptions are noted on the data table.

Table 4. Dollar Spot Fungicide Trial-1987

Hancock Turgrass Research Center, MSU, E. Lansing, MI

TREATMENT	RATE/1000 ft <sup>2</sup>	INTERVAL	Number of dollar spots/plot			AVE DMR <sup>1</sup>
			I	II	III	
Rizolex + CH 26019 (W)	2 oz ai + 1 oz ai	21 days	0	0	0	0 A
Baycor (300 EC)	14 gm. ai.	"	0	0	0	0 A
Bayleton (G)	25 oz	"	0*	0*	0*	0 A
Bayleton (G)	50 oz	"	0**	0*	0*	0 A
Bayleton TOF	1 oz	"	0	0	0*	0 A
Bayleton TOF	2 oz	"	0*	0*	0*	0 A
RH-3486	.75 oz	"	0	0	0	0 A
RH-3486	1.5 oz	"	0	0	0	0 A
RH-3486	3 oz	"	0	0	0	0 A
DPX-H6573 + Tersan 1991	.125 oz ai + 1 oz ai	"	0*	0*	0	0 A
DPX-H6573 + Tersan 1991	.25 oz ai + 1 oz ai	"	0*	0*	0	0 A
DPX-H6573	.06 oz ai	"	0	0	0	0 A
DPX-H6573	.25 oz ai	"	0	0	0	0 A
EXP 2185A	.1 oz ai	"	0	0	0	0 A
EXP 2185A	.2 oz ai	"	0	0	0*	0 A
EXP 2185A	.4 oz ai	"	0*	0*	0**	0 A
PP523 (SC) + X-77	2 gm ai + .05% v/v	"	0*	0*	0	0 A
PP523 (SC) + X-77	4 gm ai + .05% v/v	"	0*	0*	0*	0 A
PP523 (SC) + X-77	6 gm ai + .05% v/v	"	0**	0**	0*	0 A
Dac 2787 (F) + SDS 66533	3 fl oz + 1 fl oz	14 days	0	0	0	0 A
Dac 2787 (F) + SDS 66533	6 fl oz + 2 fl oz	21 days	0	0	0	0 A
PP523 (W) + X-77	2 gm ai + .05% v/v	"	0*	0*	0*	0 A
PP523 (W) + X-77	4 gm ai + .05% v/v	"	0	0*	0	0 A
DPX-H6573	.125 oz ai	"	0	0	2	0.6 A
PP523 (W) + X-77	6 gm ai + .05% v/v	"	0**	0**	2*	0.6 A
Rizolex	2 oz ai	"	0	8	0	2.6 A
Baycor (300 EC)	7 gm. ai.	"	0	2	10	3.0 A
HWG 1608 (1.2EC)	14 gm ai	"	0	0	14 <sup>A</sup>	4.6 A
Banner	1 fl oz	"	6	0	12	6.0 A
Rizolex	3 oz ai	"	0	2	20	7.3 A
Rizolex + Ditek	2 oz ai + .5 oz ai	"	15	0	8	7.6 A
DPX-H6573 + Tersan 1991	.06 oz ai + 1 oz ai	"	15	0	9	8.0 A
Chipco 26019 (F)	4 fl oz	"	30	0	0	10.0 A
Rizolex + Ditek	2 oz ai + 1 oz ai	"	27	12	0	13.0 A
Dac 2787 (720F)	2 fl oz	14 days	14	3	33	16.6 AB
Daconil 2787 (F)	6 fl oz	21 days	7	43 <sup>A</sup>	0	16.6 AB
DPX-H6573 + DPX 965	.3 oz ai + 1 oz ai	"	41	20	6	22.3 AB
Rubigan (W)	.4 oz	"	4	27	75	35.3 ABC
HWG 1608 (1.2EC)	7 gm ai	"	22 <sup>B</sup>	2	83	35.6 ABC

Rating date - 9/7/87 (cont.)

TREATMENT	RATE/1000 ft <sup>2</sup>	INTERVAL	I	II	III	AVE	DMR <sup>1</sup>
Daconil 2787 (F)	3 fl oz	14 days	60 <sup>A</sup>	0	65	41.6	ABC
DPX-H6573 + Tersan 1991	.03 oz ai + 1 oz ai	21 days	39	21	90	50.0	ABC
STJ 3762 (250EC)	14 gm. ai.	21 days	125	5	25 <sup>B</sup>	51.6	ABC
SDS 66518 (Dac 90DG)	1.75 oz	14 days	69	40	30	53.0	ABC
SDS 63539 (Dac S)	6 fl oz	"	22	127	36	61.6	ABC
Rizolex	1 oz ai	21 days	49	58	95	67.3	ABC
HWG 1608 (250EC) <sup>C</sup>	14 gm. ai.	"	62	95	85	80.6	BC
Chipco 26019 (F)	.5 oz ai	"	115	47	110	90.6	CD
Chipco 26019 (W)	.5 oz ai	"	130	75	70	91.6	CD
Turfcide (G)	7.5 lbs	"	200 <sup>Y</sup>	80	20 <sup>Y</sup>	100.0	CD
Control			110	56	275	147.0	DE
HWG 1608 (250EC) <sup>C</sup>	7 gm. ai.	"	137	260	95	164.0	E
Tersan 1991	1 oz	"	235	230	136	200.3	EF
Tersan 1991	4 oz	"	300+	225	150	225.0	FG
Turfcide (G)	2 lbs	"	250	160	300+	236.6	FG
Ditek	1 oz ai	"	275	230	300+	268.3	G

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

<sup>A</sup>Small spots representing a new outbreak of disease.

<sup>B</sup>Spots filling in w/disease progression arrested.

<sup>C</sup>These treatments applied 7/10 and 7/31 only due to unavailability of product.

<sup>Y</sup>Turf yellowed.

\*Mild phytotoxicity.

\*\*Moderately severe phytotoxicity.

The weather this summer was very conducive to dollar spot disease and disease pressure in this study was heavy. Bayleton and a number of experimental compounds were quite effective as were Banner and the high rate of Chipco 26019. Tersan 1991 was ineffective because the dollar spot strains on this plot area are benzimidazole-resistant.

A number of treatments produced phytotoxic responses including Bayleton, PP523, Nustar + Ter. 1991, and EXP 2185A at the high rate. Turfcide 2EC burned the turf so severely after one application that its use was discontinued.

### Summer Patch Fungicide Studies

#### Orchard Lake Country Club, Orchard Lake, MI

The weather this summer was ideal for the development of summer patch (*Phialophora graminicola*) disease on annual bluegrass (*Poa annua* L.) fairways and greens. We conducted a curative disease study at Orchard Lake Country Club on an irrigated annual bluegrass fairway which was mowed at  $\frac{1}{2}$ ". The study was set up in 3 replications of a random block design. Treatments were applied as soil drenches at a volume of 28 gal/1000 ft. Granular treatments were pre-weighed and applied by hand.

The initial application was made curatively on July 27 (except as noted on data table). Subsequent treatments were applied on a 14 day schedule (8/14, 8/24) and a 28 day schedule (8/24). It was our original intention to maintain a 21 day (rather than 28 day) schedule, but we mis-marked our calendar. We apologize for this error. By the date of the final rating (9/8), the 14 day treatments had been applied three times and the 28 day treatments had been applied twice.

Disease pressure was extremely heavy when this curative study was initiated. As a result, none of the treatments had promoted complete recovery by the end of the season when disease pressure was abating in the controls and the last rating was taken (Table 7). As the data of August 14 (Table 5) shows, the benzimidazole fungicides (Tersan 1991, Fungo 50) promoted the fastest recovery during the first 18 days after initial treatment. This corresponds with previous research findings from our summer patch field research in 1983. Bayleton and Rubigan were somewhat slower in arresting this disease out-break. By the August 24 rating, (Table 6) however, visual observation and data taken from the study showed that the benzimidazole fungicides were breaking down, with renewed yellowing of the turf and renewed disease activity, while Bayleton-treated plots continued to improve and Rubigan-treated plots remained essentially unchanged. Following re-application of treatments on August 24, the benzimidazole-treated plots began to recover once again (Table 7).

Some phytotoxicity was observed as noted on the data tables. Treatments which severely burned the turf as a result of the 7/27 application were not re-applied. These treatments, however, were applied to new plots at one-half label rates on 8/14 and 8/24 in an attempt to control the fertilizer burn during the hot weather. These plots were then rated for disease control on 9/8.