

TABLE 2. Helminthosporium Leaf Spot Plots. Appearance Rating when fungicides were applied once a month.

Treatment	Rate/1000ft <sup>2</sup>	Mean	Duncans Multiple Range (5%)
RP 26019	3 oz	2.7	A
Daconil 2787	6 oz	3.3	AB
RP 26019	6 oz	3.7	ABC
Daconil 2787	9.7 oz	3.7	ABC
RP 26019	12 oz	4.3	ABCD
Acti-dione-Thiram #1	4 oz	5.0	ABCDE
Acti-dione-Thiram #3	4 oz	5.0	ABCDE
Acti-dione-RZ	4 oz	5.0	ABCDE
Daconil 2787	4 oz	5.3	ABCDE
Acti-dione-RZ #1	4 oz	6.0	BCDE
Acti-dione-RZ #4	4 oz	6.0	BCDE
Acti-dione-RZ #3	4 oz	6.7	CDE
Acti-dione-Thiram	4 oz	7.0	DE
Check	-	7.0	DE
Acti-dione-Thiram #4	4 oz	7.3	DE
Acti-dione-Thiram #2	4 oz	8.0	E

NOTE: Upjohn experimentals numbered according to last digit of reference number.

1-9 Scale: 1-Best, 9-Worst

### Results: Helminthosporium Leaf Spot

Every two weeks: The treatments which gave significant control over the untreated check were RP 26019, 3 oz, 4 oz, + 8 oz; Bromosan 6 oz; Daconil 2787 4 oz, + 6 oz; Acti-dione-RZ Experimental \$2, 4 oz; Acti-dione-RZ 2 oz; Captan 6 oz; and Tersan 75 6 oz. The RP 26019 is still the most outstanding fungicide we have ever tested for the control of *Helminthosporium vagans*. It should also be pointed out that Bromosan, which is a combination of a systemic fungicide (thiophanate) and a contact fungicide (Thiram), gave superior control compared to the contact Tersan 75 (active ingredient - Thiram) even though thiophanate by itself tends to increase the amount of *Helminthosporium* disease. Similar results have been observed before. (See 1974 and 1975 research reports.)

Once a month: RP 26019 3 oz + 6 oz and Daconil 2787 6 oz + 9.7 oz gave significant control when compared to the untreated check. The control was not as effective as when they were applied every two weeks, but it demonstrated that some control can be obtained even with monthly applications.

### Fusarium Blight Study

The 1976 *Fusarium* blight study was conducted at the Northfield condominium complex in Troy, Michigan on irrigated *Fusarium*-infested Merion Kentucky bluegrass turf. The plots were of 6' x 10' and replicated three times in a randomized block design. The turf was maintained at a two inch height of cut.

This study consisted of fungicides, wetting agents and nematicides. All treatments were applied on July 23 with the fungicide and wetting agent plots receiving a second treatment on August 6. Application of both fungicides and wetting agents was accomplished with an Ortho hose jar applicator, while the

nematicides were applied with a 3' Scotts drop-type spreader. All treatments were drenched into the root zone with one-half inch of water immediately after application.

The readings in Table 3 were taken on August 26.

TABLE 3. Northfield Fusarium Blight Study. Number of rings after treatment.

Treatment	Rate/1000ft <sup>2</sup>	I	II	III	AVE	(DMR)
Cleary's 3336	4 oz	0	0	0	0	A
Cleary's 3336	8 oz	0	0	0	0	A
Tersan 1991	4 oz	0	0	0	0	A
Tersan 1991 + Hydro-Wet	4 oz + 8 oz	0	0	0	0	A
Tersan 1991 + Aqua-Gro	8 oz + 8 oz	0	0	0	0	A
Dasinat*	3 lb.	0	0	0	0	A
CG 12223(20G)*	10 lb ai/A	0	0	0	0	A
Tersan 1991	8 oz	0	.5	0	.2	A
Fungo	4 oz	1	0	0	.3	A
Fungo	8 oz	1	0	0	.3	A
RP 26019	8 oz	0	0	0	.3	A
Tersan 1991 + Hydro-Wet	8 oz + 8 oz	0	1	0	.3	A
Tersan 1991 + Aqua-Gro	4 oz + 8 oz	1	0	0	.3	A
UC 21865*	10 lb ai/A	0	1	0	.3	A
Aqua-Gro	8 oz	0	0	1	.3	A
CG 12223(20G)*	15 lb ai/A	.5	0	1	.5	A
Hydro-Wet	8 oz	2	.5	0	.8	AB
CG 12223(4E)*	15 lb ai/A	1.5	1	0	.8	AB
EL 222	3 oz	1	0	0	1	AB
UC 21865*	5 lb ai/A	3	0	0	2.2	AB
Check	-	4	1.5	1	3.2	BC
EL 222	6 oz	2	5.5	2	3.2	C

\* applied once only.

#### Results: Fusarium Blight

Table 3 shows that Cleary's 3336 at 4 and 8 oz., Tersan 1991 at 8 and 4 oz., Tersan 1991 at 4 and 8 oz. with 8 oz. of Hydro-Wet and Aqua-Gro, Dasinat at 3 lbs., CG 12223(20G) at 10 and 15 lbs ai/A, Fungo at 4 and 8 oz., RP 26019 at 8 oz., UC 21865 at 10 lbs ai/A, and Aqua-Gro at 8 oz./1000ft<sup>2</sup> rates all gave significant control compared to the untreated check.

#### Conclusions:

Many fungicides and nematicides can help control Fusarium blight when combined with a good watering program consisting of light, frequent waterings. The effect of the fungicides is a direct one, acting on the Fusaria fungi that are involved in the disease. The effect of the nematicides and wetting agents is probably indirect.

They act in different ways to prevent drought stress from occurring which is the key to symptom development. The nematicides act indirectly by killing the nematodes that predispose the plants to infection by *Fusarium* and damage the root systems of plants already infected. The study was conducted on a heavy clay soil and the wetting agent Aqua-Gro probably allowed better moisture penetration into the heavy soil allowing deeper root penetration, thereby reducing drought stress.

#### Sclerotinia Dollar Spot Study

The *Sclerotinia* dollar spot (*Sclerotinia homeocarpa*) study was conducted on the MSU Crop Science Research Farm on an intensively maintained Toronto bentgrass green. The plots were laid out in three replications in a randomized block design. The dollar spot infestation was allowed to spread freely until the first applications were made on August 11. All fungicide applications were made foliarly with a CO<sub>2</sub> small-plot sprayer at a volume of about 40 gallons/acre. Subsequent applications were made on a bi-weekly basis on August 27 and September 14.

Readings in Table 4 were taken on September 14.

TABLE 4. MSU Crop Science Field Laboratory Dollar Spot Study.  
Number of Spots

Treatment	Rate/1000ft <sup>2</sup>	I	II	III	AVE	(DMR)
RP 26019	1/2 oz	0	0	0	0	A
Tersan 1991	1/2 oz	0	0	0	0	A
Tersan 1991	1 oz	0	0	0	0	A
Acti-dione Thiram #4	2 oz	0	0	0	0	A
Acti-dione-RZ #1	2 oz	0	0	0	0	A
Bromosan	3 oz	0	0	0	0	A
RP 26019	2 oz	0	0	0	0	A
RP 26019	1 oz	1	0	0	.3	A
Acti-dione Thiram	2 oz	0	1	0	.3	A
Acti-dione Thiram #2	2 oz	1	0	0	.3	A
Acti-dione-RZ #4	2 oz	0	0	1	.3	A
EL 222	.4 oz	0	0	1	.3	A
Fungo	1 oz	1	0	0	.3	A
Daconil 2787	6 oz	0	0	1	.3	A
Cleary's 3336	1 oz	0	2	0	.7	A
Acti-dione Thiram #1	2 oz	0	0	2	.7	A
Acti-dione Thiram #3	2 oz	0	3	0	1	A
Acti-dione-RZ #2	2 oz	2	2	0	1	A
Acti-dione-RZ	2 oz	2	2	0	1.3	A
EL 222	.8 oz	5	0	0	1.7	A
Acti-dione-RZ #3	2 oz	5	0	0	1.7	A
Thiram (Flo)	6 oz	0	0	7	2.3	A
Check	-	0	22	6	9.3	AB
Maneb-Zineb	8 oz	0	37	1	12.7	B

Results: Dollar Spot. M.S.U. Crop Science Field Laboratory.

Table 4 shows that while there was not severe disease pressure, all the materials tested control dollar spot when compared to the untreated check except Maneb-Zineb at 8 oz.

Note: Upjohn experimentals on chart are numbered according to the last digit of reference number on label.