

Fungicides were necessary to have the best fairways. Combining the fungicide treatments with the 1/2 lb. nitrogen/month gave the best result. Benzimidazole systemic fungicide rates could be reduced from 1 oz/1000 sq ft to 1/2 oz/1000 sq ft where the fungicide treatment was combined with 1/2 lb. N/month. Such a program should cut in half the cost of treating fairways with fungicides.

There is an indication that timing of nitrogen fertilizer application might also be important. The quality of the plots receiving only the May nitrogen treatments were equal to the quality of the plots which received nitrogen in June, July, or August, 2 to 3 weeks prior to reading. This was probably due to the fact that the May nitrogen application prevented the development of anthracnose and dollar spot early in the season.

These results should be viewed for what they are, one year's data. It is dangerous to draw strong conclusions or to make recommendations on one year's field data. There are simply too many variables in field research. These results should be viewed as blocks to build upon and trends to follow in successfully growing "Poa". However, as stated last year, I do believe that controlling anthracnose is the key to growing healthy annual bluegrass in the northern regions of the cool season grass belt.

Meadowbrook Anthracnose - Fungicide Studies

Material, Methods and Objectives

Anthracnose (Colletotrichum graminicola) study #2 and #3 were conducted on the Meadowbrook Golf Course in Novi, Michigan on a fairway which was primarily Poa annua maintained at a one-half inch height of cut. The objectives of these studies were 1) to determine the optimum time intervals between applications of fungicides, 2) to determine the effect of Exhalt 800, a fungicide sticker-extender at prolonging the control given by the fungicides, and 3) to shed further light on the role of fertility in the control of anthracnose. Liquid fungicide treatments were applied with a CO₂ small plot sprayer at a rate of 40 gallons per acre while the granular fungicide and fertilizer treatments were applied with a Scotts drop-type spreader. The plots (6' x 9') were established on a fairway which had already suffered extensive turf loss due to anthracnose.

Study 1 consisted of treatments applied at three different time intervals: weekly, tri-weekly, and every six weeks. The treatments were replicated three times in a randomized block design. The first treatments were applied on July 15 and continued until August 19.

Study 2 consisted of two tri-weekly applications applied on July 21 and August 12. The treatments were replicated three times in a random block design.

At the conclusion of the season, all six week plots had received one fungicide application, all tri-weekly plots had received two fungicide applications and all weekly plots had received six fungicide applications. The readings in Tables 6 - 9 were taken on August 23.

Results, Anthracnose - Meadowbrook

Study 2

Daconil 2787 at the 3 and 6 oz/1000 sq ft rate and Tersan LSR at the 2 and 4 oz/1000 sq ft rate gave good control of anthracnose when applied on a weekly basis. The degree of control was improved slightly, although not significantly, where the sticker-extender Exhalt 800 was used with Daconil 2787 at the 6 oz rate and with Tersan LSR at the 2 oz rate, when the fungicides were applied on a weekly basis. When Tersan 1991 was applied only once and the plots were read 6 weeks later, Exhalt

800 was not effective in improving the performance of the fungicide. When the fungicides were applied on a three week basis, there was no significant difference among treatments, although the range went from 6.7% disease at 1 oz of Tersan 1991 to 35% disease in the untreated control. Tersan 1991, 1/2 oz + Exhalt 800 at the 1 pt/100 gal rate had only 8.3% disease compared to Tersan 1991 at the 1/2 oz rate by itself which had 35% disease.

Study 3

Where the fungicides were applied on a tri-weekly basis, Cleary's 3336, Scotts fertilizer + DSB, Bromosan and OAC 2582 gave significant control over the check. The fertilizers were applied at a 1 lb. N/mo. rate instead of a 1/2 lb. N/mo. rate because this study was started before the results of the Dearborn study had been obtained. Had the fertilizers been applied at the 1/2 lb. nitrogen rate, they may have given better control.

Conclusions

The benzimidazole systemic fungicides Tersan 1991, Cleary's 3336 and Scotts Fertilizer + DSB fungicide gave excellent control of anthracnose when applied at 3 week intervals. Bromosan, a combination product of Cleary's 3336 and Thiram, also gave excellent control when applied at 3 week intervals, as did the experimental fungicide, OAC 2582. Tersan LSR and Daconil 2787, applied on a weekly basis, gave good control of anthracnose. Exhalt 800 did slightly improve the performance of some of the fungicides. Some control was obtained with Tersan 1991, where it was only applied once during the six week period.

It is important to combine both the benzimidazole systemic fungicides and the contact fungicides in a control program for anthracnose. Otherwise, resistance by the anthracnose fungus (Colletotrichum graminicola) could develop to the systemic fungicides.

Table 6
Meadowbrook Anthracnose Study #1
% infection - weekly applications only

Treatment	Rate/1000ft ²	I	II	III	AVE	DMR ^a
Daconil 2787 + Exhalt	6 oz + 1 pt/100 gal	5	2	0	2.3	A
Tersan LSR + Exhalt	2 oz + 1 pt/100 gal	5	2	5	4	A
Tersan LSR + Exhalt	4 oz + 1 pt/100 gal	5	2	15	7.3	A
Tersan LSR	4 oz	2	5	15	7.3	A
Daconil 2787 + Exhalt	3 oz + 1 pt/100 gal	20	2	2	8	A
Daconil 2787	3 oz	1	5	20	8.7	A
Daconil 2787	6 oz	5	20	5	10	A
Tersan LSR	2 oz	2	30	15	15.7	A
Check	-	50	40	15	35	B

^aTreatments followed by the same letter are not significantly different from each other at the 5% level.

Table 7
Meadowbrook Anthracnose Study #1
% infection - tri - weekly applications

Treatment	Rate/1000ft ²	I	II	III	AVE	DMR ^a
Tersan 1991	1 oz	0	15	5	6.7	A
Tersan 1991 + Exhalt	1/2 oz + 1 pt/100 gal	10	10	5	8.3	A
Tersan 1991 + Exhalt	1 oz + 1 pt/100 gal	20	2	5	9	A
Daconil 2787	6 oz	0	10	20	10	A
Tersan LSR	4 oz	2	20	15	12.3	A
Tersan LSR	4 oz + 1 pt/100 gal	5	30	10	15	A
Tersan LSR	2 oz	20	20	15	18.3	A
Daconil 2787	3 oz	10	50	10	23.3	A
Tersan LSR + Exhalt	2 oz + 1 pt/100 gal	35	25	20	26.7	A
Daconil 2787 + Exhalt	3 oz + 1 pt/100 gal	5	60	20	28.3	A
Daconil 2787 + Exhalt	6 oz + 1 pt/100 gal	65	30	5	33.3	A
Tersan 1991	1/2 oz	20	20	25	35	A
Check	-	50	40	15	35	A

^aTreatments followed by the same letter are not significantly different from each other at the 5% level.

Table 8
Meadowbrook Anthracnose Study #1
% infection - six-week applications only

Treatment	Rate/1000ft ²	I	II	III	AVE	DMR ^a
Tersan 1991	1 oz	2	15	15	10.7	A
Tersan 1991	1/2 oz	20	20	25	21.7	A
Tersan 1991 + Exhalt	1/2 oz + 1pt/100 gal	40	30	5	25.0	A
Tersan 1991 + Exhalt	1 oz + 1pt/100 gal	2	60	15	25.7	A
Check	-	50	40	15	35	A

^aTreatments followed by the same letter are not significantly different from each other at the 5% level.

Table 9
Meadowbrook Anthracnose Study #2
% infection - tri-weekly applications

Treatment	Rate/1000ft ²	I	II	III	AVE	DMR ^a
Cleary's 3336	1 oz	2	0	2	1.3	A
Scotts fertilizer + DSB	1X	0	2	2	1.3	A
Bromosan	3 oz	2	5	5	4.0	AB
OAC 2582	4 oz	10	5	5	6.7	AB
OAC 2784	4 oz	20	0	10	10.0	ABC
IBDU	1 lb. N.	20	10	2	10.7	ABC
OAC 2582	8 oz	20	0	15	11.7	ABC
UREA	1 lb. N.	30	10	5	15.0	BC
OAC 2784	8 oz	20	20	10	16.7	BC
Milorganite	1 lb. N.	35	15	10	20.0	C
Cleary's 3336	1/2 oz	30	15	15	20.0	C
Check	-	10	20	30	20.0	C

^aTreatments followed by the same letter are not significantly different from each other at the 5% level.