

Anthracnose - Fungicide Studies - 1980

The 1980 anthracnose (Colletotrichum graminicola) fungicide studies were conducted on the Bay Pointe Golf Club in West Bloomfield, MI, and on the El Dorado Golf Course in Mason, MI, on irrigated annual bluegrass fairways maintained at a 1/2 inch height of cut. The studies were laid out in three replications of a randomized block design.

The liquid applications were made with a CO₂ small-plot sprayer at a volume of 40 gal./acre while the granular formulations were applied with a Scotts 3 foot drop-type spreader. The plot size was 6 feet x 9 feet.

Treatments were applied curatively at El Dorado also, on August 19 and August 29. The ratings were taken on September 11.

Results and Conclusions

Bay Pointe Golf Club Anthracnose Study

The July 10 fungicide applications were made prior to the presence of any observable disease symptoms. No additional treatment was made until August 12. The next scheduled treatment was for July 23, but was not applied because no evidence of the disease was present. Anthracnose did develop the week of August 3 and all treatments were applied on August 12, with selected contact fungicides (as indicated on chart) applied a week later on August 19. Ratings were taken on August 27 and September 3 (Tables 12 and 13). It can be seen that effective fungicides which control anthracnose will allow annual bluegrass survival during heat stress periods of the summer.

El Dorado Golf Course, Mason, MI

Ratings were based on % improvement since fungicide treatments were applied after disease outbreak. Those treatments receiving minuses indicate how much the disease increased in those treatments. For example, the check which received no treatment had a 22% increase in the amount of disease from the start of the experiment on August 19 to September 11 when the readings were taken. The plot area was predominately annual bluegrass with 10-20% Kentucky bluegrass interspersed as patches. This affected the uniformity of turf and of infection. Only annual bluegrass areas in the plots were evaluated. The statistics reflect the variation among treatments by showing no significant difference between 96.7% improvement in turf recovery and 15% improvement. The data show that fungicide treatment can control an anthracnose epidemic and allow annual bluegrass recovery whereas the untreated annual bluegrass control continued to deteriorate. Those products which were most effective in stopping the anthracnose epidemic were: the benzimidazole systemic fungicides (Bromosan, Duosan, Fungo 50, Tersan 1991, Cleary's 3336), products containing the systemic fungicide Bayleton (F-numbered compounds except F-7888, which contained only fertilizer, IBDU fertilizer + Bayleton, Bayleton + Acti-dione TGF and Bayleton alone), the systemic fungicide CGA-64251, or certain rates of Daconil 2787 (Table 14). Similar trends can be seen in the anthracnose data taken at Bay Pointe Golf Club (Tables 12 and 13) except that Ronilan, which had one preventive treatment, also ranked among the top treatments.

Table 12. Anthracnose - Fungicide Study - 1980.
 Bay Pointe Golf Course, Union Lake, MI.
 % Area Infected - 8/27/82

Treatment	Rate/1000 ft ²	Replication			AVE	DMR (5%)
		I	II	III		
F-9177	2X	1	2	1	1.3	A
F-9177	1X	2	8	0	3.3	AB
Bayleton	2 oz.	1	8	1	3.3	AB
Bayleton + IBDU (.25 oz. ai.)	4.76 lbs.	10	1	1	4	ABC
Bayleton + IBDU (.5 oz. ai.)	4.76 lbs.	3	0	10	4.3	ABC
CGA-64251	8 gm. ai.	15	1	2	6	ABCD
F-7458	2X	5	10	4	6.3	ABCD
F-9594	1X	15	7	0	7.3	ABCD
F-9594	2X	20	1	3	8	ABCD
CGA-64251	4 gm. ai.	25	2	0	9	ABCD
Ronilan	2 oz.	10	5	15	10	ABCDE
Fungo 50	2 oz.	15	0	20	11.7	ABCDE
Tersan 1991	2 oz.	25	0	15	13.3	ABCDE
Daconil 2787 GR	13.3 oz.	8	10	25	14.3	ABCDEF
F-7498	2X	1	15	30	15.3	ABCDEF
Bayleton + Acti-dione TGF	.125 oz. ai. + .34 oz.	30	2	15	15.7	ABCDEF
Duosan	6.6 oz.	30	5	15	16.7	ABCDEF
Tersan 1991	1 oz.	15	5	30	16.7	ABCDEF
Cleary 3336	2 oz.	40	4	7	17	ABCDEF
Daconil 2787 GR	1.7 oz.	8	5	40	17.7	ABCDEFG
Cleary 3336	1 oz.	30	10	15	18.3	ABCDEFG
Fungo 50	1 oz.	15	35	8	19.3	ABCDEFG
Duosan	3.3 oz.	30	20	10	20	ABCDEFG
Daconil 2787 GR	3.3 oz.	20	10	30	20	ABCDEFG
Bayleton	.125 oz. ai.	15	40	10	21.7	ABCDEFG
Bromosan	4 oz.	45	4	20	23	ABCDEFG
Acti-dione TGF	.69 oz.	50	7	15	24	ABCDEFGH
Daconil 2787 FL	3 fl. oz.	30	30	20	26.7	ABCDEFGH
Daconil 2787 FL	6 fl. oz.	25	30	25	26.7	ABCDEFGHI
F-7888	2X	30	10	40	26.7	ABCDEFGHI
Daconil 2787 WP	.92 oz.	45	1	35	27	ABCDEFGHI
KL 589-05-80	7.6 gm.	40	30	50	28	ABCDEFGHI
Acti-dione TGF + Daconil 2787 WP	.34 oz. + .92 oz.	25	8	60	31	CDEFGHI
Kalo 591 + Biofilm	7.6 gm. + 7 fl. oz./100 gal.	60	8	40	36	DEFGHI
Acti-dione TGF	.34 oz.	50	40	30	40	EFGHI
Powder Blue + Hyd. Lime	2 lbs. + 1 lb.	60	30	40	43.3	FGHI
KL 589 + Biofilm	7.6 gm. + 7 fl. oz./100 gal.	30	60	40	43.3	GHI
Check	-	50	45	50	48.3	HI
Biofilm	7 fl. oz./100 gal.	50	40	60	50	I

Note: Treatments followed by the same letter are not significantly different from each other at the 5% level.

Table 13. Anthracnose - Fungicide Study.
 Bay Pointe Golf Course, West Bloomfield, MI.
 % Area Infected - 9/3/80

Treatment	Rate/1000 ft ²	Replication			AVE	DMR (5%)
		I	II	III		
F-9177	1X	1	0	0	.3	A
F-9177	2X	1	0	0	.3	A
Bayleton	2 oz.	1	1	0	.7	AB
Bayleton + IBDU (.25 oz. ai.)	4.76 lbs.	2	0	5	2.3	AB
Bayleton + IBDU (.25 oz. ai.)	4.76 lbs.	7	0	0	2.3	ABC
CGA-64251	8 gm. ai.	10	0	0	3.3	ABCD
F-7458	2X	5	7	2	4.7	ABCD
F-9594	2X	15	0	0	5	ABCD
F-9594	1X	15	1	0	5.3	ABCD
CGA-64251	4 gm. ai.	20	5	0	8.3	ABCDE
Duosan	6.6 oz.	20	2	7	9.7	ABCDE
Tersan 1991	2 oz.	20	0	10	10	ABCDE
Cleary 3336	2 oz.	30	0	5	11.7	ABCDEF
F-7498	2X	1	5	30	12	ABCDEF
Ronilan	2 oz.	15	5	20	13.3	ABCDEFG
Bayleton + Acti-dione TGF	.125 oz. ai. + .34 oz.	30	0	10	13.3	ABCDEFG
Bromosan	4 oz.	30	1	10	13.7	ABCDEFG
Duosan	3.3 oz.	30	7	5	14	ABCDEFG
Daconil 2787 GR*	13.3 oz.	7	5	30	14	ABCDEFG
Tersan 1991	1 oz.	5	2	40	15.7	ABCDEFG
Fungo 50	2 oz.	30	0	20	16.7	ABCDEFGH
Daconil 2787 GR*	1.7 oz.	5	5	40	16.7	ABCDEFGH
Daconil 2787 GR*	3.3 oz.	10	10	30	16.7	ABCDEFGH
Acti-dione TGF*	.69 oz.	40	1	10	17	ABCDEFGH
Cleary 3336	1 oz.	30	5	17	17.3	ABCDEFGH
Bayleton	.125 oz. ai.	2	40	10	17.3	ABCDEFGH
Daconil 2787 FL*	3 fl. oz.	30	15	10	18.3	ABCDEFGH
Daconil 2787 FL*	6 fl. oz.	10	30	15	18.3	ABCDEFGH
Fungo 50	1 oz.	20	30	10	20	ABCDEFGH
Daconil 2787 WP	.92 oz.	40	0	40	26.7	BCDEFGHI
F-7888	2X	30	10	40	26.7	BCDEFGHI
Acti-dione TGF + Daconil 2787 WP*	.34 oz. + .92 oz.	30	5	50	28.3	CDEFGHI
Daconil 2787 WP	1.84 oz.	60	10	20	30	DEFGHI
Chipco 26019	2 oz.	35	30	30	31.7	EFGHI
Kalo 591-05-80	7.6 gm.	40	30	30	33.3	EFGHIJ
Kalo 591 + Biofilm	7.6 gm. + 7 fl. oz./100 gal.	55	5	40	33.3	EFGHIJ
Kalo 589 + Biofilm	7.7 gm. + 7 fl. oz./100 gal.	20	40	50	36.7	FGHIJ
Check	-	50	25	40	38.3	GHIJ
Powder Blue + Hyd. Lime	2 lbs. + 1 lb.	60	15	50	41.7	HIJ
Acti-dione TGF*	.34 oz.	40	35	50	41.7	HIJ
Kalo 589-05-80	7.6 gm.	40	40	60	46.7	IJ
Biofilm	7 fl. oz./100 gal.	40	50	80	56.7	J

Note: Treatments followed by the same letter are not significantly different from each other at the 5% level.

*Plots receiving an additional treatment on August 19.

Table 14. Anthracnose - Fungicide Study.
 El Dorado Golf Course, Mason MI.
 Percent improvement following treatment - 9/11/80

Treatment	Rate/1000 ft ²	Replication			AVE	DMR (5%)
		I	II	III		
F-9177	2X	100	100	90	96.7	A
Bromosan	4 oz.	90	100	100	96.7	A
Duosan	3.3 oz.	75	100	100	91.7	AB
Fungo 50	1 oz.	83.3	100	80	87.7	ABC
Tersan 1991	2 oz.	80	100	80	86.7	ABC
F-7458	2X	100	70	87.5	85.8	ABCD
F-4594*	2X	100	83.3	60	81.1	ABCD
Bayleton	.125 oz. ai.	62.5	100	75	79.2	ABCDE
CGA-64251	8 gm. ai.	50	100	83.3	77.8	ABCDE
Tersan 1991	1 oz.	87.5	50	93.3	76.9	ABCDE
F-7498	2X	100	50	75	75	ABCDE
Bayleton	2 oz.	90	100	33.3	74.4	ABCDE
Cleary 3336	2 oz.	80	66.7	75	73.9	ABCDE
Bayleton + AD-TGF	.125 oz. ai. + .34 oz.	100	90	25	71.7	ABCDE
Daconil 2787 FL	6 fl. oz.	80	25	100	68.3	ABCDEF
Daconil 2787 GR	3.3 oz.	50	100	50	66.7	ABCDEF
Duosan	6.6 oz.	100	50	50	66.7	ABCDEF
Bayleton + IBDU (.25 oz. ai.)	4.76 lbs.	50	95	50	65	ABCDEF
Fungo 50	2 oz.	60	66.7	66.7	64.5	ABCDEF
Cleary 3336	1 oz.	80	33.3	70	61.1	ABCDEF
Daconil 2787 GR	1.7 oz.	50	87.5	37.5	58.3	ABCDEF
F-9594*	1X	50	90	33.3	57.8	ABCDEF
CGA-64251	4 gm. ai.	16.7	100	41.7	52.8	ABCDEF
F-9177	1X	0	80	60	46.7	ABCDEF
Daconil 2787 FL	3 fl. oz.	62.5	37.5	37.5	45.8	ABCDEF
Acti-dione TGF	.34 oz.	0	75	60	45	ABCDEF
Chipco 26019	2 oz.	0	100	30	43.3	ABCDEF
Daconil 2787 GR	13.3 oz.	95.3	50	-33.3	37.3	ABCDEF
Bayleton + IBDU (.5 oz. ai.)	4.76 lbs.	0	58.3	40	32.8	ABCDEF
Ronilan	2 oz.	50	40	0	30	ABCDEF
Daconil 2787 WP	.92 oz.	-50	75	62.5	29.2	ABCDEF
Acti-dione TGF + Daconil 2787 WP	.34 oz. + .92 oz.	0	30	50	26.7	ABCDEF
Acti-dione TGF	.69 oz.	-50	50	75	25	ABCDEF
F-7888	2X	33.3	-25	62.5	23.6	ABCDEF
KL-589-05-80	7.6 gm.	-33.3	16.7	66.7	19.5	ABCDEF
Powder Blue + Hyd. Lime	2 lbs. + 1 lb.	-75	40	80	15	ABCDEF
KL-591 + Biofilm	7.6 gm. + 7 oz./100 gal.	0	0	33.3	11.1	BCDEF
Daconil 2787 WP	1.84 oz.	-50	0	83.3	11.1	CDEF
KL-591-05-80	7.6 gm.	-20	33.3	16.7	10	DEFG
Biofilm	7 oz./100 gal.	-50	0	62.5	4.2	EFG
KL 589 + Biofilm	7.6 gm. + 7 oz./100 gal.	-100	20	66.7	-4.4	FG
Check	-	0	33.3	-100	-22.2	FG

Note: Treatments followed by the same letter are not significantly different from each other at the 5% level.

*Received only one treatment.