

Turfgrass Pathology Research Report: Annual bluegrass culture update, Fungicide control of snow mold, dollarspot, anthracnose, melting out, and Fusarium blight; Nitrogen Fertility disease interactions.

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Snow Mold Fungicide - Fertility Trials - 1978-79

Establishment:

The 1978-79 snow mold fungicide - fertility trials were conducted at the Boyne Highlands Resort on Penncross creeping bentgrass mowed at 1/2 inch. Treatments were applied to 6' x 9' plots in three repetitions of a random block design on November 8, 1978. The wettable powder and flowables were applied with a small-plot CO₂ sprayer at a volume of 40 gal/acre. The granular fungicide and fertilizer applications were made with a 3 ft Scotts drop-type spreader. The plot ratings were taken on April 16, 1979.

Results:

The data in Table 1 are for all snow molds. There were 2 snow molds present in the plots caused by three different species. Typhula blight (gray snow mold) was caused by two different species, Typhula incarnata and Typhula ishkariensis. The Fusarium patch pink snow mold was caused by Fusarium nivale. The total percent area infected with snow mold for each treatment and the check is given in Table 1 without regard to species involved. The percent area infected with snow mold attributable to each is factored out in Tables 2 & 3 & 4.

Fungicides which gave significant control of all snow molds compared to the untreated checks in Table 1 were: Acti-dione RZ 8 oz; Terraclor 75 8 oz; Tersan 1991 and Daconil 2787 (500) 1 + 8 oz; Pro Turf F + F II 2x; Calo Gran 6 lbs; Chipco 26019 + Daconil 2787 (500) 8 + 8 oz, 4 + 4 oz, 2 + 2 oz, Daconil 2787 (500) 16, 12, 8 oz; Daconil 2787 WP 10.6, 8, 5.2 oz; Calo Clor 3 oz, Pro Turf Broad Spectrum Fungicide 2x, 1x; Tersan 1991 + Tersan SP 3 + 6 oz, 3 + 9 oz; BFN 8077 20; 10 oz; Caddy + Bromosan 2 + 6 oz; Bayleton (50 WP) 20, 12 oz; BFN 7789 20 oz; BFN 8090 10 oz; Tersan SP 9 oz; CGA-64251 20 gm ai. Tables 2, 3, and 4 reflect fungicide efficacy of each product on the individual snow mold fungi. It can be seen that Daconil 2787 and Bayleton were very effective against the two species of Typhula, and most of the snow mold in these treatments was due to Fusarium nivale. Whereas, most of the snow mold in the BFN 7789 and Tersan 1991 treatments was due to Typhula and the treatments were relatively free of Fusarium patch.

Table 1. % Area Infected With All Snow Molds, Typhula Blight (*Typhula incarnata*, *Typhula ishikarensis*) and Fusarium Patch, In Boyne Highlands Snow Mold Fungicide Trials 1978-79.

Treatment	Rate/1000 ft ²	I	II	III	Average	
Acti-dione-RZ	8 oz	0	0	0	0	A
Terraclor 75	8 oz	2	2	0	1.3	AB
Tersan 1991 +						
Daconil 2787 (500)	1 oz + 8 fl. oz	2	0	2	1.3	AB
Pro Turf F & F II	2 x rate	0	0	5	1.7	AB
Calo Gran	6 lbs	2	2	2	2.0	AB
Chipco 26019 +						
Daconil 2787 (500)	8 oz + 8 fl. oz	2	2	5	3.0	AB
Daconil 2787 (500)	16 fl. oz	10	0	2	4.0	ABC
Calo Clor	3 oz	5	2	7	4.7	ABC
Pro Turf Bd. Spect.	2 x	15	10	10	11.7	ABCD
Tersan 1991 +						
Tersan SP	3 oz + 6 oz	15	14	20	16.3	ABCDE
BFN 8077	20 fl. oz	20	20	10	16.7	ABCDE
Chipco 26019 +						
Daconil 2787 (500)	4 oz + 4 fl. oz	7	3	40	16.7	ABCDE
Caddy + Brom. fl.	2 fl. oz + 6 fl. oz	35	5	15	18.3	ABCDEF
Daconil 2787 (500)	8 fl. oz	10	5	50	21.7	ABCDEFG
Daconil 2787-(WP)	5.2 oz	20	40	10	23.3	ABCDEFG
Daconil 2787-(WP)	10.6 oz	10	10	50	23.3	ABCDEFG
Bayleton 25WP	20 oz	40	20	10	23.3	ABCDEFG
Pro Turf Bd. Spect.	1 x	5	10	60	25.0	ABCDEFGH
Bayleton 50 WP	6 oz	40	7	30	25.7	ABCDEFGH
Chipco 26019 +						
Daconil 2787 (500)	2 oz + 2 fl. oz	40	20	30	30.0	BCDEFGHI
Daconil 2787 (500)	12 fl. oz	20	10	60	30.0	BCDEFGHI
Chipco 26019	8 oz	40	30	30	33.3	CDEFGHI
Daconil 2787 (WP)	8 oz	45	15	40	33.3	CDEFGHI
Bayleton 50 (WP)	10 oz	40	30	30	33.3	CDEFGHI
Tersan 1991 +						
Tersan SP	3 oz + 9 oz	40	40	25	35.0	DEFGHI
BFN 8077	10 fl. oz	40	30	40	36.7	DEFGHIJ
BFN 7789	20 fl. oz	50	2	60	37.3	DEFGHIJ
Bayleton 25 WP	12 oz	60	15	40	38.3	DEFGHIJ
BFN 8090	10 oz	60	20	40	40	DEFGHIJ
Tersan SP	9 oz	60	20	50	43.3	EFGHIJK
CGA-64251	20 gm ai	40	30	70	46.7	FGHIJK
Bayleton 50 WP	3 oz	30	30	80	46.7	FGHIJK
Chipco 26019	4 oz	30	40	80	50.0	GHIJKL
BFN 8090	20 oz	70	60	30	53.3	HIJKLM
Bayleton 25 WP	6 oz	40	30	90	53.3	HIJKLM
BFN 7789	10 fl. oz	70	40	60	56.7	IJKLM
CGA-64251	10 gm ai	60	50	60	56.7	IJKLM
IBDU (F)	1 lb N	70	30	95	65.0	JKLMN
Tersan SP	6 oz	70	60	80	70.0	KLMN
Tersan 1991	3 oz	70	50	90	70.0	KLMN
Check	-	80	60	90	76.7	LMN
Chipco 26019	2 oz	90	50	90	76.7	LMN
Urea	1/2 lb N	90	50	95	78.3	LMN
Sulfur coated Urea	1 lb N	90	60	90	80.0	MN
Sulfur coated Urea	1/2 lb N	95	50	95	80.0	MN
IBDU (F)	1/2 lb N	95	80	95	90.0	N
Urea	1 lb N	95	90	95	93.3	N

Table 2. % Area Infected with Typhula Blight (*Typhula Incarnata*) in Boyne Highlands Snow Mold Fungicide Trial - 1978-79

Treatment	Rate/1000 ft ²	I	II	III	Average	
Acti-dione RZ	8 oz	0	0	0	0	A
Tersan 1991 + Tersan SP	3 oz + 9 oz	0	0	0	0	A
Tersan 1991 + Tersan SP	3 oz + 6 oz	0	0	0	0	A
Daconil 2787 (500)	8 fl oz	0	0	0	0	A
CGA-64251	20 gm ai	0	0	0	0	A
CGA-64251	10 gm ai	0	0	0	0	A
Daconil 2787-(WP)	5.2 oz	0	0	0	0	A
Daconil 2787 (500)	16 fl oz	0	0	0	0	A
Daconil 2787 (500)	12 fl oz	0	0	0	0	A
Bayleton 50 WP	3 oz	0	0	0	0	A
Chipco 26019 + Daconil 2787 (500)	8 oz + 8 fl oz	0	0	0	0	A
Chipco 2609 + Daconil 2787 (500)	4 oz + 4 fl oz	0	0	0	0	A
Chipco 26019	8 oz	0	0	0	0	A
Chipco 26019	4 oz	0	0	0	0	A
Daconil 2787-(WP)	10.6 oz	0	0	0	0	A
Daconil 2787-(WP)	8 oz	0	0	0	0	A
Bayleton 25 WP	20 oz	0	0	0	0	A
Bayleton 25 WP	12 oz	0	0	0	0	A
Bayleton 25 WP	6 oz	0	0	0	0	A
Bayleton 50 WP	10 oz	0	0	0	0	A
Bayleton 50 WP	6 oz	0	0	0	0	A
Sulfur coated Urea	1 lb N	0	0	0	0	A
Chipco 26019 + Daconil 2787 (500)	2 oz + 2 fl oz	0	0	0	0	A
Pro Turf F & F II	2 x rate	0	0	0	0	A
Calo Gran	6 lbs	2	0	0	.7	A
Tersan 1991 + Daconil 2787 (500)	1 oz + 8 fl oz	0	0	2	.7	A
Terraclor	8 oz	2	2	0	1.3	AB
Calo Clor	3 oz	5	0	0	1.7	AB
BFN 8077	20 fl oz	0	0	10	3.3	AB
Caddy + Brom. fl	2 fl oz + 6 fl oz	0	5	15	6.7	ABC
Pro Turf Bd. Spect.	2 x	15	0	5	6.7	ABC
Urea	1/2 lb N	0	0	30	10.0	ABC
Chipco 26019	2 oz	40	0	0	13.3	ABC
BFN 8077	10 fl oz	0	0	40	13.3	ABC
BFN 8090	10 oz	0	0	40	13.3	ABC
Check	-	40	0	0	13.3	ABC
BFN 7789	20 fl oz	40	2	0	14.0	ABC
Urea	1 lb N	0	45	0	15.0	ABC
Pro Turf Bd. Spect.	1 x	0	10	40	16.7	ABC
IBDU (F)	1 lb N	0	10	45	18.3	ABC
Sulfur coated Urea	1/2 lb N	0	0	60	20.0	ABC
Tersan SP	9 oz	30	0	30	20.0	ABC
IBDU (F)	1/2 lb N	0	80	0	26.7	ABC
BFN 8090	20 oz	70	0	30	33.3	BC
Tersan SP	6 oz	50	50	0	33.3	BC
Tersan 1991	3 oz	60	25	15	33.3	BC
BFN 7789	10 fl oz	70	40	0	36.7	C

Table 3. % Typhula Blight due to Typhula ishikarensis in Boyne Highlands
Snow Mold Fungicide Trial - 1978-79.

Treatment	Rate/1000 ft ²	I	II	III	Average	
Acti-dione RZ	8 oz	0	0	0	0	A
Tersan 1991 + Daconil 2737 (500)	1 oz + 8 fl oz	0	0	0	0	A
Daconil 2787 (500)	16 fl oz	0	0	0	0	A
Daconil 2787 (500)	12 fl oz	0	0	0	0	A
Chipco 26019 + Daconil 2787 (500)	8 oz + 8 fl oz	0	0	0	0	A
Chipco 26019 + Daconil 2787 (500)	4 oz + 4 fl oz	0	0	0	0	A
Daconil 2787 (WP)	10.6 oz	0	0	0	0	A
Daconil 2787 (WP)	8 oz	0	0	0	0	A
Calo Clor	3 oz	0	0	0	0	A
Calo Gran	6 lbs	0	0	0	0	A
Bayleton 25 WP	20 oz	0	0	0	0	A
Terraclor	8 oz	0	0	0	0	A
Pro Turf Bd. Spectrum	2 x	0	0	0	0	A
Pro Turf F & F II	2 x rate	0	0	0	0	A
Bayleton 50 WP	10 oz	0	10	0	3.3	AB
Bayleton 50 WP	6 oz	10	0	0	3.3	AB
IBDU (F)	1 lb N	10	0	0	3.3	AB
BFN 8077	20 fl oz	0	10	0	3.3	AB
Daconil 2787 (500)	8 fl oz	0	0	10	3.3	AB
Chipco 26019	8 oz	0	15	0	5.0	ABC
Bayleton 25 WP	12 oz	0	15	0	5.0	ABC
IBDU (F)	1 lb N	0	0	20	6.7	ABCD
Chipco 26019 + Daconil 2787 (500)	2 oz + 2 fl oz	0	20	0	6.7	ABCD
Pro Turf Bd. Spectrum	1 x	0	0	20	6.7	ABCD
Daconil 2787-(WP)	5.2 oz	0	20	0	6.7	ABCD
Tersan SP	6 oz	20	0	0	6.7	ABCD
Tersan 1991 + Tersan SP	3 oz + 6 oz	15	7	0	7.3	ABCD
BFN 8090	20 oz	0	30	0	10.0	ABCD
BFN 8090	10 oz	30	0	0	10.0	ABCD
Bayleton 50 WP	3 oz	0	10	20	10.0	ABCD
Bayleton 25 WP	6 oz	0	30	0	10.0	ABCD
Caddy + Brom. fl.	2 fl oz + 6 fl oz	35	0	0	11.7	ABCD
Tersan SP	9 oz	30	0	20	16.7	ABCD
BFN 8077	10 fl oz	40	15	0	18.3	ABCD
BFN 7789	10 fl oz	0	0	60	20.0	ABCD
Sulfur coated Urea	1/2 lb N	20	10	30	20.0	ABCD
Urea	1/2 lb N	20	50	0	23.3	ABCD
BFN 7789	20 fl oz	10	0	60	23.3	ABCD
CGA-64251	10 gm ai	20	0	60	26.7	ABCD
Chipco 26019	4 oz	0	40	40	26.7	ABCD
Sulfur coated Urea	1 lb N	30	60	0	30.0	ABCD
Chipco 26019	2 oz	0	50	45	31.7	ABCD
CGA-64251	20 gm ai	35	0	60	31.7	ABCD
Tersan 1991 + Tersan SP	3 oz + 9 oz	40	40	25	35.0	BCD
Tersan 1991	3 oz	10	25	75	36.7	BCD
Urea	1 lb N	10	45	60	38.3	CD
Check	-	40	0	80	40.0	D

Table 4. % Area infected With Fusarium Patch (*Fusarium nivale*) in Boyne Highlands Snow Mold Fungicide Trial - 1978-79

Treatment	Rate/1000 ft ²	I	II	III	Average	
BFN 7789	20 fl oz	0	0	0	0	A
BFN 7789	10 fl oz	0	0	0	0	A
Acti-dione RZ	8 oz	0	0	0	0	A
Tersan 1991 +						
Tersan SP	3 oz + 9 oz	0	0	0	0	A
Caddy + Brom. fl.	2 fl oz + 6 fl oz	0	0	0	0	A
Tersan 1991	3 oz	0	0	0	0	A
Terraclor (WP)	8 oz	0	0	0	0	A
Tersan 1991 +						
Daconil 2787 (500)	1 oz + 8 fl oz	2	0	0	.7	A
Calo Gran	6 lbs	0	2	2	1.3	A
Pro Turf Bd. Spect.	1 x	5	0	0	1.7	AB
Pro Turf F + F II	2 x rate	0	0	5	1.7	AB
Calo Clor	3 oz	0	2	7	3.0	AB
Chipco 26019 +						
Daconil 2787 (500)	8 oz + 8 fl oz	2	2	5	3.0	AB
Daconil 2787 (500)	16 fl oz	10	0	2	4.0	ABC
BFN 8077	10 fl oz	0	15	0	5.0	ABC
Pro Turf Bd. Spect.	2 x	0	10	5	5.0	ABC
Tersan SP	9 oz	0	20	0	6.7	ABC
Tersan 1991 +						
Tersan SP	3 oz + 6 oz	0	7	20	9.0	ABCD
BFN 8090	20 oz	0	30	0	10.0	ABCD
BFN 8077	20 fl oz	20	10	0	10.0	ABCD
CGA-64251	20 gm ai	5	30	10	15.0	ABCD
BFN 8090	10 oz	30	20	10	16.7	ABCD
Daconil 2787 (WP)	5.2 oz	20	20	10	16.7	ABCD
Chipco 26019 +						
Daconil 2787 (500)	4 oz + 4 fl oz	7	3	40	16.7	ABCD
Daconil 2787 (500)	8 fl oz	10	5	40	18.3	ABCDE
Bayleton 50 WP	6 oz	30	7	30	22.3	ABCDE
Bayleton 25 WP	20 oz	40	20	10	23.3	ABCDE
Chipco 26019 +						
Daconil 2787 (500)	2 oz + 2 fl oz	40	0	30	23.3	ABCDE
Check	-	0	60	10	23.3	ABCDE
Chipco 26019	4 oz	30	0	40	23.3	ABCDE
Daconil 2787 (WP)	10.6 oz	10	10	50	23.3	ABCDE
Chipco 26019	8 oz	40	15	30	28.3	ABCDE
Daconil 2787 (500)	12 fl oz	20	10	60	30.0	ABCDE
CGA-64251	10 gm ai	40	50	0	30.0	ABCDE
Bayleton 50 WP	10 oz	40	20	30	30.0	ABCDE
Tersan SP	6 oz	0	10	80	30.0	ABCDE
Chipco 26019	2 oz	50	0	45	31.7	ABCDE
Bayleton 25 WP	12 oz	60	0	40	33.3	ABCDE
Daconil 2787 (WP)	8 oz	45	15	40	33.3	ABCDE
Bayleton 50 WP	3 oz	30	20	60	36.7	ABCDE