

CHEMICAL TRIALS FOR DOLLAR SPOT DISEASE CONTROL GREENS HEIGHT TURF - SUMMER 2004

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ABSTRACT

Seven chemical and control treatments were evaluated on a 11 year old sward of Penncross® creeping bentgrass (*Agrostis palustris*) at the Guelph Turfgrass Institute in Guelph, Ontario during July to October 2004 for control of dollar spot disease (caused by *Sclerotinia homoeocarpa*). The grass was maintained at greens height (5 mm). In addition to inoculated and uninoculated control treatments, a standard fungicide treatment, Daconil 2787 EC containing 40% chlorothalonil which is registered and recommended for control of dollar spot disease of turfgrass in Ontario was included. The treatments were applied over a 12-week period. Disease was monitored over a 13-week period. BAS 51004F 70 WG (3.14 g and 4.0 g - 14 days) and BAS 51004F 70 WG alternate with Insignia 20 WG (4.0 g alt. 28.0 g - 14 days) achieved excellent results 28 July onward. BAS 51004F 70 WG (5.57 g - 21-28 days) significantly reduced disease on 22 and 28 July and achieved excellent results for the duration on the trial. Daconil 2787 EC (190 mL - 14 days) achieved excellent control with the exception of 16 and 23 September. No phytotoxicity was observed throughout the trial.

METHODS

Four chemical treatments were evaluated on a 11 year old sward of Penncross® creeping bentgrass (*Agrostis palustris*) at the Guelph Turfgrass Institute in Guelph, Ontario. Turfgrass cultural treatments were similar to those used for maintenance of golf course putting greens in Ontario. The plots were irrigated as needed, and mowing height was set at 5 mm. The green had been constructed in 1994 on a soil base of 80% sand and 20% organic matter. Sulphur-coated urea (N-P-K: 25-4-10) was applied three times annually in spring and early and late summer at a product rate of 2 kg/100 m². Experimental design consisted

of a randomized complete block design with 4 replications. Each treatment plot measured 1 m x 2 m. Inoculum was prepared by incubating four strains of *Sclerotinia homoeocarpa* on autoclaved wheat bran for 2 to 3 weeks. The inoculum was dried and chopped into small particles with a domestic mixer. Inocula from the four strains were combined, and 2 g of inoculum plus 8 g of wheat bran as a carrier were evenly applied to each plot. Inoculum was applied 12 July 2004. Fungicide treatments were first applied on 8 July 2004, with a wheel-mounted compressed air boom sprayer at 140 kPa in water at 11 L /100 m² using Lurmark 03-F110 nozzles. Fungicides were re applied on a 14 or 21 to 28 day schedule according to specifications over a 12 week period.

Dollar spot disease was evaluated weekly for thirteen weeks by estimating number of infection centres per 1 m x 2 m plot. Significant yellowing due to phytotoxicity was noted if present. Analysis of variance was performed with PROC ANOVA in SAS®. When a significant treatment effect was found, mean separation was done with the test of least significant difference (LSD). Treatment means that differ by more than the LSD value are significantly different at $p=0.05$.

RESULTS AND DISCUSSION

The summer of 2004 was wetter and cooler than usual, resulting in greater plant growth and faster recovery from dollar spot infection. Plots were rated weekly over thirteen weeks (Table 1, not all data shown), and disease development on the inoculated plots was lower than average with no spots evident until 22 June and then a rapid decline and no symptoms evident from 12 to 26 August and a slow increase to mid-September and then a decline to 8 October when plots were rated for the final time.



Daconil 2787 EC (190 mL - 14 days) achieved excellent results from the beginning of the trial with the exception of 16 and 23 September when disease symptoms were significantly reduced but exceeded our aesthetically acceptable value of 5 spots/m². BAS 51004F 70 WG (3.14 g and 4.0 g - 14 days) and BAS 51004F 70 WG alternate with Insignia 20 WG (4.0 g alt. 28.0 g -

14 days) achieved excellent results after the second application 28 July. BAS 51004F 70 WG (5.57 g - 21-28 days) significantly reduced disease on 22 and 28 July and achieved excellent results for the duration of the trial. No phytotoxicity was observed throughout the trial. Results are presented in Table 1.

Table 1: Treatment, application rate and schedule, and counts (1a.) and percent control (1b) of dollar spot disease during July, August, September and October 2004. Plots were inoculated with *Sclerotinia homoeocarpa* on 12 July. Counts are expressed as number of infection centres in each 1 m by 2 m plot based on 4 replicates. Shaded boxes are within our aesthetically acceptable value of 5 spots/m².

1a. Dollar spot counts

Product	Application Schedule (days)	Product /100m ²	Number of Spots												
			8 July	15 July	22 July	28 July	6 Aug	12 Aug	19 Aug	2 Sept	9 Sept	16 Sept	23 Sept	30 Sept	8 Oct
Uninoculated Check			2	0	180	12	4	0	0	45	50	173	113	105	95
Inoculated Check			2	0	325	255	150	0	0	155	150	267	225	150	140
BAS 51004F 70 WG	14	3.14 g	3	0	53	5	0	0	0	1	1	0	0	0	0
BAS 51004F 70 WG	14	4.0 g	0	0	21	0	1	0	0	1	0	0	0	0	0
BAS 51004F 70 WG	21- 28	5.57 g	1	0	34	79	0	0	0	0	1	1	0	0	2
BAS 51004F 70 WG alt. INSIGNIA 20 WG ^c	14	4.0 g/ 28.0 g	5	0	44	2	8	0	0	0	0	8	8	0	3
DACONIL 2787 EC ^b	14	190.0 mL	8	0	6	2	7	0	0	1	0	45	18	1	0
LSD (p=0.05)			8	0	53	43	31	0	0	52	19	51	32	24	50
Application Schedule															
14 days			x		x		x		x	x		x		x	
21 to 28 days			x			x			x		x				x

1b. Dollar spot percent control

Product	Application Schedule (days)	Product /100m ²	Percent Control ^a												
			8 July	15 July	22 July	28 July	6 Aug	12 Aug	19 Aug	2 Sept	9 Sept	16 Sept	23 Sept	30 Sept	8 Oct
Uninoculated Check															
Inoculated Check					0	0	0			0	0	0	0	0	0
BAS 51004F 70 WG	14	3.14 g			84	98	100			99	99	100	100	100	100
BAS 51004F 70 WG	14	4.0 g			94	100	99			99	100	100	100	100	100
BAS 51004F 70 WG	21- 28	5.57 g			90	69	100			100	99	100	100	100	99
BAS 51004F 70 WG at. INSIGNIA 20 WG ^c	14	4.0 g/ 28.0 g			86	99	95			100	100	97	96	100	98
DACONIL 2787 EC ^b	14	190.0 mL			98	99	95			99	100	83	92	99	100

a. Percent Control was calculated by dividing treatment result by inoculated control result

b. Daconil 2787 (500F) has an active ingredient of 40% chlorothalonil

c. alternate application on 14-day intervals

