

1999 RUTGERS Turfgrass Proceedings



THE NEW JERSEY TURFGRASS ASSOCIATION

In Cooperation With

**RUTGERS COOPERATIVE EXTENSION
NEW JERSEY AGRICULTURAL EXPERIMENT STATION
RUTGERS, THE STATE UNIVERSITY OF NEW JERSEY
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1999 RUTGERS TURFGRASS PROCEEDINGS

of the

**New Jersey Turfgrass Expo
December 7-9, 1999
Trump Taj Mahal
Atlantic City, New Jersey**

**Volume 31
Published July, 2000**

The Rutgers Turfgrass Proceedings is published yearly by the Rutgers Center for Turfgrass Science, Rutgers Cooperative Extension, and the New Jersey Agricultural Experiment Station, Cook College, Rutgers University in cooperation with the New Jersey Turfgrass Association. The purpose of this document is to provide a forum for the dissemination of information and the exchange of ideas and knowledge. The proceedings provide turfgrass managers, research scientists, extension specialists, and industry personnel with opportunities to communicate with co-workers. Through this forum, these professionals also reach a more general audience, which includes the public. Articles appearing in these proceedings are divided into two sections.

The first section includes lecture notes of papers presented at the 1999 New Jersey Turfgrass Expo. Publication of the New Jersey Turfgrass Expo Notes provides a readily available

source of information covering a wide range of topics. The Expo Notes include technical and popular presentations of importance to the turfgrass industry.

The second section includes research papers containing original research findings and reviews covering selected subjects in turfgrass science. The primary objective of this section is to facilitate the timely dissemination of original turfgrass research for use by the turfgrass industry.

Special thanks are given to those who have submitted papers for this proceedings, to the New Jersey Turfgrass Association for financial assistance, and to those individuals who have provided support to the Rutgers Turf Research Program at Cook College - Rutgers, The State University of New Jersey.

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CURATIVE CONTROL OF BROWN PATCH ON TALL FESCUE WITH SELECTED FUNGICIDES

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Fungicides were evaluated in 1999 for their ability to control brown patch caused by *Rhizoctonia solani* on tall fescue (*Festuca arundinacea* 'Coronado') at the Plant Science Research Farm in Adelphia, New Jersey. Turf was established the first week of September 1998 on a Freehold sandy loam with a pH of 6.3. The site was mowed at a height of 2.0 inches two times per week and clippings were collected. Each plot was inoculated with 0.4 oz of Kentucky bluegrass seed infested with *R. solani* isolates COBGBP-1, COBGBP-2, and RH-13, applied as a broadcast inoculation on 30 July 1999. Turf was irrigated throughout the growing season to prevent drought stress.

Pelletized dolomitic lime (46 lb/1000 ft²) was applied on 12 February 1999. Weeds were controlled with Betasan 4E (7.5 fl oz/1000 ft²) on 15 April 1999. Fertilizer was applied as 16-4-8 on 8 September 1998 (0.7 lb N/1000 ft²), 15-0-0 on 12 April (0.5 lb N/1000 ft²) and 8 June 1999 (1.0 lb N/1000 ft²), and 16-4-8 on 22 July 1999 (0.5 lb N/1000 ft²). Plots were 3 ft x 9 ft and were arranged in a randomized complete block with four replications.

Fungicides were applied in water equivalent to 1.9 gal/1000 ft² with a CO₂ powered sprayer at 30-psi using TeeJet 8003E nozzles. Treatments (trt) were initiated on 8 July. Fungicides were reapplied as indicated in Table 1. Percent turf area infested with *R. solani* was assessed on 8 July (data not shown), 15 July, 26 July (data

not shown), 6 August, 13 August (data not shown), 20 August, 27 August, 3 September, and 10 September. Turf quality was evaluated on 13 September. Data were subjected to analysis of variance and means separation by Waller-Duncan *k*-ratio *t*-test (*k* = 100) following arcsine transformation.

Brown patch first developed in late June, but did not become evenly distributed throughout the test until 8 July. Disease pressure was moderate throughout the study, with disease activity peaking in mid-to late-August. Although curative control of brown patch was still inadequate for all treatments on 15 July (7 days post-treatment), Heritage 50WG (trt 2) and Chipco 26GT 2SC + Chipco Signature 80WG (trt 8) provided an acceptable level of disease control by 6 August. It is interesting to note that the component products (trt 6 and 7) of this mixture did not provide good control of brown patch until 27 August and 3 September, respectively. By 20 August, ProStar 70W (trt 9) and Heritage 50W (trt 4) were also effective in suppressing the development of brown patch. On 10 September, 22 to 64 days post-treatment, only Daconil Ultrex 82.5SDG (trt 5), Chipco Signature 80WG (trt 7), Chipco 26GT 2SC + Chipco Signature 80WG (trt 8), and ProStar 70W (trt 9) provided good to excellent control of the target disease. At the end of the study, turf quality was closely associated with the prior incidence of brown patch (15 July to 10 September). No phototoxicity was observed.

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Table 1. Impact of fungicides on the incidence of brown patch on tall fescue in Adelphia, NJ: 1999.

Treatment and rate/1000 sq ft	Spray interval ³ (days)	Turf area infected (%) per plot ¹							Turf quality ²
		15 July	6 Aug.	20 Aug.	27 Aug.	3 Sept.	10 Sept.	13 Sept.	
1. Heritage 50WG 0.2 oz	Once	17.0 ab	12.5 cd	8.2 cd	10.0 ef	18.0 e	13.2 d	6.5 b	
2. Heritage 50WG 0.2 oz	14	12.8 a	7.5 ab	5.0 b	3.2 b	5.8 b	11.0 cd	7.5 cd	
3. Heritage 50WG 0.4 oz	Once	11.5 a	10.8 bc	7.5 bc	8.0 de	11.0 cd	12.8 d	6.5 b	
4. Heritage 50WG 0.4 oz	28	12.2 a	13.0 cd	4.8 b	4.5 bc	6.2 b	10.8 cd	8.0 de	
5. Daconil Ultrex 82.5SDG 3.9 oz	14	11.8 a	14.0 cd	10.5 c-e	7.2 c-e	6.0 b	8.8 c	8.0 de	
6. Chipco 26GT 2SC 4.0 fl oz	14	12.0 a	10.5 bc	11.0 de	7.8 de	6.8 b	12.8 d	6.8 bc	
7. Chipco Signature 80WG 8.0 oz	14	23.0 bc	20.0 e	14.0 e	13.5 f	8.0 bc	6.2 b	8.8 ef	
8. Chipco 26GT 2SC 4.0 fl oz + Chipco Signature 80WG 8.0 oz	14	13.2 a	6.0 a	1.0 a	0.5 a	0.8 a	3.0 a	9.0 f	
9. ProStar 70W 2.2 oz	14	12.2 a	16.5 de	8.0 cd	5.8 b-d	8.2 bc	8.8 c	8.0 de	
10. Cleary 3336 50W 2.0 oz	14	14.5 ab	20.0 e	12.0 e	10.5 ef	12.5 d	12.5 d	7.0 bc	
11. Untreated Check	—	26.0 c	38.5 f	33.2 f	26.2 g	22.2 e	22.2 e	5.8 a	
		INT ⁴	DAT ⁵	DAT	DAT	DAT	DAT	DAT	
		Once	7	29	43	50	57	64	
		14	7	15	1	8	15	22	
		28	7	29	14	21	28	35	

¹ Values are means of four replicates. Means followed by the same letter are not significantly different according to Waller-Duncan *k*-ratio *t*-test (*k* = 100).

² Turf quality on a scale of 1 to 9, where 9 = best turf quality.

³ Fungicides were applied on 8 July (all treatments), 22 July (14 day treatment), 6 August (14 and 28 day treatments), and August (14 day treatment).

⁴ Spray interval in days.

⁵ Days after treatment (DAT) for each spray interval.