

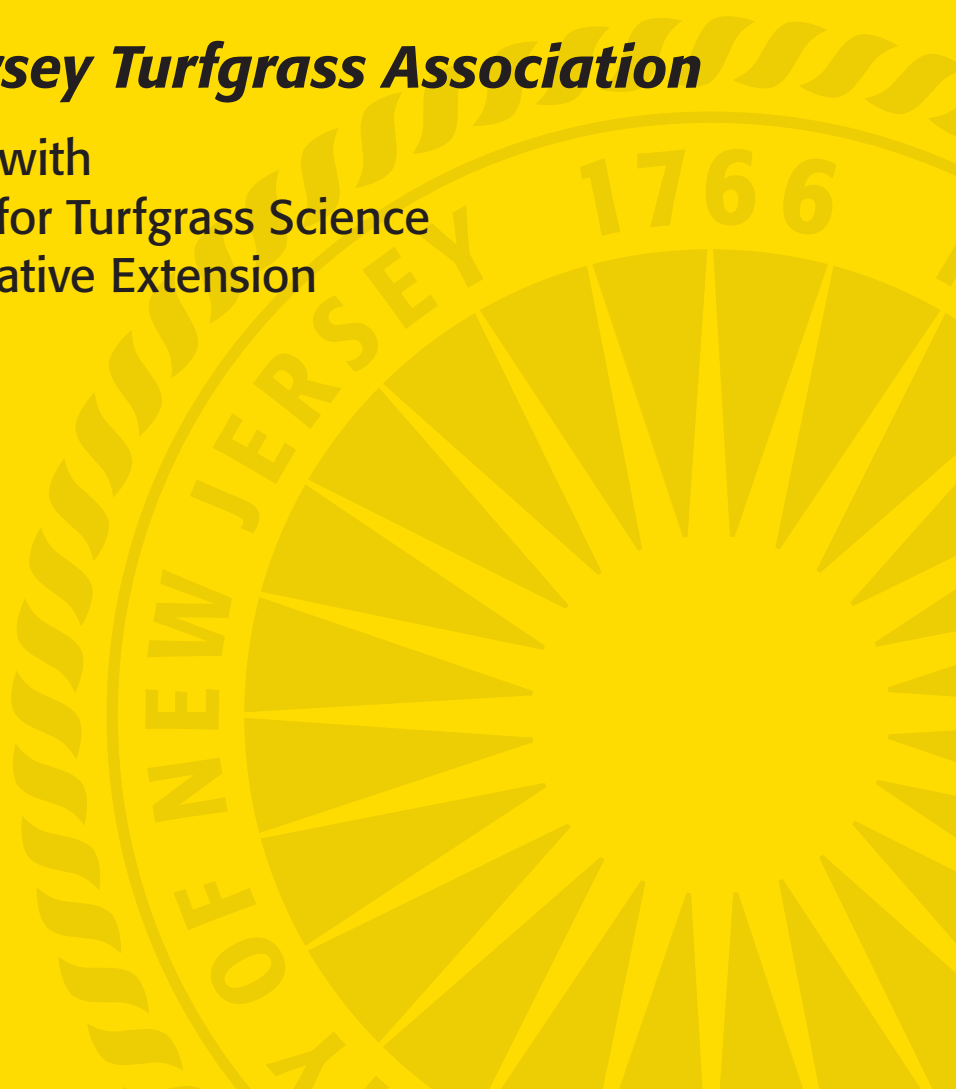
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The Rutgers Turfgrass Proceedings is published yearly by the Rutgers Center for Turfgrass Science, Rutgers Cooperative Extension, and the New Jersey Agricultural Experiment Station, School of Environmental and Biological Sciences, Rutgers, The State University of New Jersey 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.

This publication includes lecture notes of papers presented at the 2008 New Jersey Turfgrass Expo. Publication of these lectures provides a readily avail-

able source of information covering a wide range of topics and includes technical and popular presentations of importance to the turfgrass industry.

This proceedings also includes research papers that contain original research findings and reviews of selected subjects in turfgrass science. These papers are presented primarily to facilitate the timely dissemination of original turfgrass research for use by the turfgrass industry.

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Dr. Ann Brooks Gould, Editor
Dr. Bruce B. Clarke, Coordinator

IMPACT OF FUNGICIDES AND BIORATIONAL PRODUCTS FOR THE CONTROL OF PINK SNOW MOLD ON PERENNIAL RYEGRASS TEES, 2007-2008

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Fungicides were evaluated for their ability to control pink snow mold (caused by *Microdochium nivale*) on perennial ryegrass tees at the Peace Pipe Country Club in Denville, NJ. Turf was established in 1995 as push up tees on a sandy loam with a pH of 6.7. The tees were cut five times per week at 0.275 inches with clippings collected. Turf was irrigated to avoid drought stress.

Fertilizer was applied as 10-10-10 (0.75 lb nitrogen (N)/1000 ft²) on 20 August 2007 and as 18-3-17 (0.75 lb N/1000 ft²) on 15 September 2007. Plots were 3 x 9 ft and were arranged in a randomized complete block with four replications.

Fungicides were applied in water equivalent to 1.9 gal per 1000 ft² with a CO₂ powered sprayer at 30 psi using TeeJet 8003VS flat fan nozzles. Treatments (trt) were first applied on 8 and/or 30 November 2007 when environmental conditions were conducive to pink snow mold development. Entries requiring a dormant winter application were applied on 12 December 2007 and/or 8 January 2008 as indicated in Tables 1 and 2. Turf was visually evaluated for number of pink snow mold infested patches per plot on 8 January, 25 March, and 8 April 2008. Average patch diameter was 2.0 inches. Turf quality was assessed on 8 April using a 1 to 9 scale, where 9 = best turf quality and 5 = acceptable quality. Data were

subjected to analysis of variance and means were separated using the Waller-Duncan *k*-ratio *t*-test (*k* = 100).

Pink snow mold was first observed on 2 January 2008 and became uniform throughout the two tees by 8 January 2008 (Tables 1 and 2). Disease incidence ranged from 7 to 25 patches (tee #8, Table 1) and 7 to 15 patches (tee #10, Table 2) infested with *M. nivale* on untreated turf, which was considered a low to moderate level of snow mold infestation. Less than 5 infested patches per plot represented an acceptable level of disease control. Most treatments in the two studies provided good to excellent control of pink snow mold during the evaluation period (8 November 2007 to 8 April 2008), except for Tourney 50WG @ 0.44 oz (trt 1) and 3336 50WP @ 2.16 oz (trt 18) applied twice, and CX2250 @ 4.0 oz (trt 9) sprayed four times (Table 1), and Rhapsody AS @ 5.0 fl oz (trt 21) and Heritage 50WG @ 0.4 oz (trt 22) sprayed twice, and Endorse 2.5WP @ 4.0 oz (trt 31) applied once (Table 2).

Turf quality was acceptable (greater or equal to 5.0) for all entries in the two studies on 8 April 2008 (Tables 1 and 2) except for the untreated check (trt 19, Table 1), and was inversely associated with pink snow mold severity. No phytotoxicity was observed for any of the products evaluated.

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Table 1. Impact of fungicides and biorational products for the control of pink snow mold on perennial ryegrass tee #8 — Peace Pipe Golf Course, Denville, NJ, 2007-2008.

Treatment	Rate per 1000 sq ft)	Application Interval (days) ³	Number of Patches per Plot ¹			Turf Quality ² 8 April
			8 Jan.	25 March	8 April	
1 Tourney 50WG	0.44 oz	1,4	3.8 bd	3.3 cf	5.8 de	6.3 bd
2 Tourney 50WG	0.44 oz					
+ Daconil Ultrex 82.5WDG.....	3.2 oz	1,4	3.0 be	2.0 df	4.0 de	6.0 ce
3 Tourney 50WG	0.44 oz					
+ 3336 50WP	4.0 oz	1,4	2.3 ce	4.0 bd	3.8 de	6.3 bd
4 SARS346 40WP	0.5 oz	1,4	2.5 be	4.3 bc	3.0 de	7.0 ac
5 SARS346 40WP	0.75 oz	1,4	1.8 ce	4.0 bd	2.3 de	7.0 ac
6 SARS346 40WP	1.0 oz	1,4	2.3 ce	2.8 cf	1.8 de	7.0 ac
7 SARS346 40WP	0.4 oz					
+ 3336 50WP	1.44 oz	1,4	2.8 be	4.8 bc	4.0 de	6.0 ce
8 SARS346 40WP	0.4 oz					
+ 3336 50WP	2.16 oz	1,4	2.5 be	4.5 bc	3.8 de	6.3 bd
9 CX2250	4.0 oz	1,2,3,4	5.0 b	5.5 b	8.8 c	5.3 df
10 CX2250	6.0 oz	1,2,3,4	4.3 bc	3.0 cf	2.3 de	7.0 ac
11 ARY 0474006 SC.....	2.85 fl oz					
+ Banner MAXX 1.3MC	1.5 fl oz	1	1.5 de	3.5 be	2.8 de	7.0 ac
12 ARY 0474006 SC.....	5.7 fl oz					
+ Banner MAXX 1.3MC	3.0 fl oz	1	0.8 e	1.3 f	0.8 e	8.0 a
13 ARY 0474006 SC.....	2.85 fl oz					
+ Chipco 26GT 2SC.....	3.0 fl oz	1	1.8 ce	3.0 cf	0.8 e	7.5 a
14 Kestrel 1.3ME	1.0 fl oz					
+ Pegasus L 6F.....	3.6 fl oz					
+ Raven 2SC.....	4.0 fl oz	1,4	4.0 bd	1.8 ef	2.3 de	6.3 bd
15 Banner MAXX 1.3MC.....	1.0 fl oz					
+ Daconil Weather Stik 6F	3.6 fl oz					
+ Chipco 26GT 2SC.....	4.0 fl oz	1,4	2.3 ce	3.0 cf	2.3 de	6.0 ce
16 Instrata XL 3.6SE.....	6.0 fl oz	1,4	1.8 ce	1.5 f	1.3 e	7.0 ac
17 Chipco 26GT 2SC.....	4.0 fl oz					
+ Daconil Weather Stik 6F	3.6 fl oz	1	2.8 be	3.5 be	3.5 de	7.3 ab
18 3336 50WP	2.16 oz	1,4	2.5 be	4.8 bc	13.0 b	5.8 df

(Continued)

Table 1 (continued).

Treatment	Rate per 1000 sq ft)	Application Interval (days) ³	Number of Patches per Plot ¹			Turf Quality ² 8 April
			8 Jan.	25 March	8 April	
19 Untreated Check.....	—	—	7.3 a	10.3 a	25.0 a	4.8 f
20 Untreated Check.....	—	—	8.8 a	10.0 a	24.5 a	5.0 ef
		INT ⁴	DAT ⁵	DAT	DAT	DAT
		1 = 8 Nov. 2007	53	130	144	144
		2 = 30 Nov. 2007	39	116	130	130
		3 = 12 Dec. 2007	27	104	118	118
		4 = 8 Jan. 2008	—	17	91	91

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). Pink snow mold patches averaged 2 inches in diameter.

² Turf quality on a 1 to 9 scale of where 9 = best turf quality and 5 = commercially acceptable quality.

³ Fungicides were applied on 1 = 8 November 2007, 2 = 30 November 2007, 3 = 12 December 2007, and 4 = 8 January 2008.

⁴ Application intervals in days.

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

Table 2. Impact of fungicides and biorational products for the control of pink snow mold on perennial ryegrass tee #10 — Peace Pipe Golf Course, Denville, NJ, 2007-2008.

Treatment	Rate per 1000 sq ft)	Application Interval (days) ³	Number of Patches per Plot ¹			Turf Quality ² 8 April
			8 Jan.	25 March	8 April	
21 Rhapsody AS	5.0 fl oz	3,4	4.3 b	1.8 bc	7.8 b	5.3 e
22 Heritage 50WG	0.4 oz	3,4	4.3 b	2.8 b	5.8 bc	6.3 ce
23 Heritage 50WG	0.7 oz	3	1.5 c	1.5 bc	1.3 d	7.3 ac
24 26/36 3.8F	4.0 fl oz	3	4.0 b	0.5 c	3.8 cd	6.3 ce
+ CLEXP09	1.2 oz					
25 26/36 3.8F	4.0 fl oz	3	1.5 c	0.8 c	1.0 d	7.5 ab
+ Endorse 2.5WP	4.0 oz					
26 26/36 3.8F	8.0 fl oz	3	2.8 bc	1.5 bc	1.3 d	7.8 a
+ Endorse 2.5WP	4.0 oz					
27 26/36 3.8F	4.0 fl oz	3	1.5 c	1.5 bc	3.5 cd	7.0 ac
28 26/36 3.8F	8.0 fl oz	3	2.0 bc	0.5 c	2.0 d	7.0 ac
29 Spectro 90WDG	5.75 oz	3	2.5 bc	1.5 bc	1.3 d	7.0 ac
+ Endorse 2.5WP	4.0 oz					
30 Spectro 90WDG	5.75 oz	3	3.3 bc	1.5 bc	1.5 d	7.0 ac
31 Endorse 2.5WP	4.0 oz	3	2.3 bc	7.5 a	3.0 cd	6.5 bd
32 Untreated Check	—	—	7.3 a	8.0 a	14.5 a	5.5 de

INT ⁴	DAT ⁵	DAT	DAT	DAT
1 = 8 Nov. 2007	41	95	109	109
2 = 30 Nov. 2007	27	81	95	95
3 = 12 Dec. 2007	15	69	83	83
4 = 8 Jan. 2008	14	42	57	57

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). Pink snow mold patches averaged 2 inches in diameter.

² Turf quality on a 1 to 9 scale of where 9 = best turf quality and 5 = commercially acceptable quality.

³ Fungicides were applied on 1 = 8 November 2007, 2 = 30 November 2007, 3 = 12 December 2007, and 4 = 8 January 2008.

⁴ Application intervals in days.

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



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