

Influence of drying time on the efficacy of fungicides for brown patch control, 2006.

This trial was designed to investigate the effect of post-application irrigation or rainfall on fungicide effectiveness in tall fescue landscapes. This trial was conducted at the Lake Wheeler Turfgrass Field Laboratory in Raleigh, NC on ‘Coronado’ tall fescue maintained under home lawn conditions. Mowing was performed two times weekly at a height of 3.5 in. with clippings returned, and the site was irrigated daily with 0.13 in. at 8 PM to enhance disease development. Fertilizer was applied as 25-6-12 on 28 Feb, 29 Mar, and 16 Jun (1.0 lb N/1000 sq ft). Barricade 65WG (0.75 lb ai/A) was applied on 7 Mar for pre-emergent weed control. Plots were 5 ft x 6 ft and were arranged in a randomized complete block with four replications. Fungicides were applied in water equivalent to 2 gal per 1000 sq ft with a CO₂ powered sprayer at 40 psi using TeeJet 8004 nozzles. All treatments were initiated on 22 Jun. Treatments were applied at various time intervals preceding a 0.5 in. irrigation event to test the influence of drying time on product performance. Fungicides were reapplied on 3 Aug in the same manner. The experimental area was inoculated on 5 Jun using rye grain infested with *R. solani* isolates AG-1, Rh-45, and Rh-46 to encourage brown patch development. Percent turf area exhibiting brown patch symptoms was assessed on 29 Jun, 5, 12 and 26 Jul, and 1, 15, and 29 Aug. Data were subjected to analysis of variance and means separation by Waller-Duncan k-ratio t test (k=100).

Disease incidence was low to moderate in the experiment, reaching a high of 12.3% in the untreated control in mid-July. On 29 Jun and 5 Jul (7 and 13 days, respectively, after treatment) all treatments were providing good control of brown patch. On 12 Jul (20 days after treatment), Bayleton and Compass treatments were showing signs of decreased effectiveness compared to Heritage and Armada. The effectiveness of Armada and Heritage were not significantly impacted by drying time in this trial. The results indicate that, under low to moderate disease pressure, Heritage and Armada can withstand at least 0.5 in. of irrigation or rainfall immediately after application without reduced effectiveness.

Treatment, formulation, rate/1000 sq ft	Application Interval*	Brown patch incidence (%)			
		29 Jun	5 Jul	12 Jul	26 Jul
Armada 50WP 1.2 oz.....	6 hr before irrigation	0.2 b**	0.0 b	1.2 cd	3.8 a
Heritage 50WG 0.3 oz.....	6 hr before irrigation	0.0 b	0.1 b	0.0 d	1.1 a
Armada 50WP 1.2 oz.....	4 hr before irrigation	0.0 b	0.0 b	1.7 bcd	4.6 a
Armada 50WP 1.2 oz.....	2 hr before irrigation	0.6 b	0.3 b	1.3 bcd	1.7 a
Armada 50WP 1.2 oz.....	1 hr before irrigation	0.0 b	0.0 b	0.7 cd	3.8 a
Armada 50WP 1.2 oz.....	0.5 hr before irrigation	0.2 b	0.0 b	0.3 cd	6.3 a
Armada 50WP 1.2 oz.....	Irrigate immediately	0.6 b	0.8 b	2.3 bcd	2.5 a
Heritage 50WG 0.3 oz.....	Irrigate immediately	0.8 b	0.0 b	0.0 d	1.4 a
Bayleton 50WP 1.0 oz.....	Irrigate immediately	0.8 b	2.7 b	4.0 bc	3.5 a
Compass 50WG 0.2 oz.....	Irrigate immediately	0.8 b	0.9 b	4.9 b	2.9 a
Untreated Control.....		4.4 a	10.5 a	12.3 a	2.4 a

Treatment, formulation, rate per 1000 sq ft	Application Interval*	Brown patch incidence (%)		
		1 Aug	15 Aug	29 Aug
Armada 50WP 1.2 oz.....	6 hr before irrigation	6.5 a**	1.6 a	6.3 a
Heritage 50WG 0.3 oz.....	6 hr before irrigation	6.2 a	2.0 a	0.4 a
Armada 50WP 1.2 oz.....	4 hr before irrigation	7.9 a	2.4 a	2.1 a
Armada 50WP 1.2 oz.....	2 hr before irrigation	5.9 a	0.5 a	1.2 a
Armada 50WP 1.2 oz.....	1 hr before irrigation	7.4 a	0.6 a	3.6 a
Armada 50WP 1.2 oz.....	0.5 hr before irrigation	13.1 a	4.1 a	0.3 a
Armada 50WP 1.2 oz.....	Irrigate immediately	5.0 a	1.6 a	3.0 a
Heritage 50WG 0.3 oz.....	Irrigate immediately	5.7 a	2.1 a	0.0 a
Bayleton 50WP 1.0 oz.....	Irrigate immediately	9.3 a	2.8 a	3.7 a
Compass 50WG 0.2 oz.....	Irrigate immediately	5.3 a	1.7 a	2.6 a
Untreated Control.....		6.1 a	4.0 a	5.4 a

*Fungicides were applied on 22 Jun and 3 Aug relative to a 0.5” irrigation cycle timed as indicated.

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