



Take-all Patch Management on Golf Course Fairways

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OBJECTIVE

To determine length and degree of efficacy of different fungicides and fungicide combinations in preventing take-all patch caused by the fungus *Gaeumannomyces graminis* var. *graminis*.

MATERIALS AND METHODS

The study was conducted at Royal St. Patrick's Golf Course in Wrightstown, WI on a stand of creeping bentgrass (*Agrostis stolonifera*) maintained at 0.5 inches. The individual plots measured 3 feet by 5 feet and were arranged in a randomized complete block design with four replications. Treatments were applied at a nozzle pressure of 40 p.s.i. using a CO₂ pressurized boom sprayer equipped with two XR Teejet AI8004 VS nozzles. All fungicides were agitated by hand and applied in the equivalent of 1.5 gallons of water per 1000 ft². The trial was initiated on October 6th, 2016 (Application A) with one more fall application occurring on October 27th, 2016 (B) and two spring applications occurring on May 15th, 2017 (C) and June 7th, 2017 (D). All products were watered in with approximately 0.1" of water from overhead irrigation within 1 hour of application. Disease severity (percent take-all patch per treatment) and turfgrass quality (1-9, 9 being excellent, 6 acceptable, and 1 bare soil) were visually assessed on July 7th and August 1st, 2017. Turf quality and disease severity were subjected to an analysis of variance and means were separated using Fisher's LSD ($P = 0.05$). Results of the disease severity and turfgrass quality ratings can be found in table 1 and 2, respectively.

RESULTS AND DISCUSSION

Take-all pressure was variable across the experimental area through most of 2017 as soil moisture fluctuated following periods of heavy rainfall. When disease pressure was highest in early July, all treatments exhibited some symptoms except for treatments 7 and 13. While many treatments were numerically lower than the nontreated control, no statistical differences were observed due to variation in disease pressure between replications. Most treatments provided acceptable quality turf on both rating dates. Phytotoxicity was not observed with any treatment.

Table 1: Mean take-all severity per treatment at fairway height at Royal St. Patrick's Golf Course in Wrightstown, WI during 2016-2017.

	Treatment	Rate	Application Code ^a	Take-all Severity ^b	
				July 7 th , 2017	August 1 st , 2017
1	Nontreated Control			7.5 a	3.8 a
2	Velista	0.7 oz/1000 ft ²	ABCD	7.5 a	6.3 a
3	Heritage Action	0.4 oz/1000 ft ²	ABCD	2.5 a	0.0 a
4	Briskway	0.7 fl oz/1000 ft ²	ABCD	3.8 a	5.0 a
5	Heritage 50 WG	0.4 fl oz/1000 ft ²	ABCD	1.3 a	2.5 a
6	A22070A	3.0 fl oz/1000 ft ²	ABCD	2.5 a	1.3 a
7	A22069A	3.0 fl oz/1000 ft ²	ABCD	0.0 a	0.0 a
8	A19649B Heritage 50 WG	0.157 fl oz/1000ft ² 0.39 oz/1000 ft ²	ABCD	3.8 a	3.8 a
9	Headway	3.0 fl oz/1000 ft ²	ABCD	1.3 a	1.3 a
10	A18126B	0.16 oz/1000 ft ²	ABCD	7.5 a	6.3 a
11	A19188B	1.0 fl oz/1000 ft ²	ABCD	5.0 a	5.0 a
12	A20866A	0.26 fl oz/1000 ft ²	ABCD	3.8 a	3.8 a
13	Velista	0.5 oz/1000 ft ²	ABCD	0.0 a	3.8 a

^aA=Oct 6th, 2016, B=Oct 27th, 2016, C=May 15th, 2017, D=Jun 7th, 2017

^bTake-all severity was visually assessed as percent disease. Means followed by the same letter do not significantly differ (P=.05, Fisher's LSD).

Table 2: Mean turfgrass quality per plot at fairway height at Royal St. Patrick's Golf Course in Wrightstown, WI during 2016-17.

	Treatment	Rate	Application Code ^a	Turf Quality ^b	
				July 7 th , 2017	August 1 st , 2017
1	Nontreated Control			6.0 a	6.5 a
2	Velista	0.7 oz/1000 ft ²	ABCD	6.3 a	6.3 a
3	Heritage Action	0.4 oz/1000 ft ²	ABCD	6.8 a	7.0 a
4	Briskway	0.7 fl oz/1000 ft ²	ABCD	7.3 a	6.5 a
5	Heritage 50 WG	0.4 fl oz/1000 ft ²	ABCD	6.8 a	6.8 a
6	A22070A	3.0 fl oz/1000 ft ²	ABCD	6.8 a	6.8 a
7	A22069A	3.0 fl oz/1000 ft ²	ABCD	8.0 a	6.8 a
8	A19649B Heritage 50 WG	0.157 fl oz/1000ft ² 0.39 oz/1000 ft ²	ABCD	6.8 a	6.5 a
9	Headway	3.0 fl oz/1000 ft ²	ABCD	4.5 a	6.8 a
10	A18126B	0.16 oz/1000 ft ²	ABCD	6.3 a	6.3 a
11	A19188B	1.0 fl oz/1000 ft ²	ABCD	6.8 a	6.5 a
12	A20866A	0.26 fl oz/1000 ft ²	ABCD	6.5 a	6.5 a
13	Velista	0.5 oz/1000 ft ²	ABCD	7.8 a	6.5 a

^aA=Oct 6th, 2016, B=Oct 27th, 2016, C=May 15th, 2017, D=Jun 7th, 2017

^bTurfgrass quality was rated visually on a 1 – 9 scale with 6 being acceptable. Means followed by the same letter do not significantly differ (P=.05, Fisher's LSD).