Seasonal Programs for Disease Control on Putting Greens

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OBJECTIVE

To determine the efficacy of fungicide programs for the season-long control of turfgrass diseases and abiotic stresses on golf course putting greens.

MATERIALS AND METHODS

The study was conducted at the O.J. Noer Turfgrass Research and Education Facility in Madison, WI on a mixed stand of creeping bentgrass (*Agrostis stolonifera*) and annual bluegrass (*Poa annua*) maintained at a 0.125 inch cutting height. The mowing height was gradually lowered to 0.100 inches by early July. The individual plots measured 6 ft X 10 ft and were arranged in a randomized complete block design with four replications. Individual treatments were applied at a nozzle pressure of 40 p.s.i using a CO_2 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 ft^2. Two different fungicide programs were initiated on May 21st and subsequent applications made every 14 days. Disease severity (number of dollar spot infection centers per plot) and turfgrass quality (1-9, 9 being excellent, 6 acceptable, and 1 bare soil) were assessed every two weeks. Results were subjected to an analysis of variance and means were separated using the Tukey's Honest Significant Difference test (P = 0.05). Results of the disease severity and turfgrass quality ratings can be found in table 1 and 2, respectively.

RESULTS AND DISCUSSION

Dollar spot pressure was very high throughout the summer of 2015, peaking in late June and early July with non-treated controls averaging 1812 dollar spot foci per plot. Both treatment programs reduced dollar spot relative to the non-treated control on each rating date. Turfgrass quality mirrored disease severity, and both programs provided acceptable turfgrass quality on the July 29th and August 20th rating date. No phytotoxicity was observed with either treatment program.

Table 1. Mean number of dollar spot infection centers per plot at the O. J. Noer Turfgrass Research and Education Facility in Madison, WI during 2015.

	Treatment	Rate	Application Interval	Dollar spot severity[a]		
				Jun 29	Jul 29	Aug 20
1	Non-treated control			1812.0a	492.8a	450.0a
2	Signature Xtra Stressgard (A) Daconil Ultrex (A) Signature Xtra Stressgard (B) Interface (B) Signature Xtra Stressgard (C) Daconil Ultrex (C) Signature Xtra Stressgard (D) Insignia SC (D) Signature Xtra Stressgard (E) Daconil Ultrex (E) Signature Xtra Stressgard (F) Interface (F) Signature Xtra Stressgard (G) Daconil Ultrex (G) Signature Xtra Stressgard (H) Insignia SC (H)	4.0 OZ/1000 FT2 3.2 OZ/1000 FT2 4.0 OZ/1000 FT2 4.0 FL OZ/1000 FT2 4.0 OZ/1000 FT2 3.2 OZ/1000 FT2 4.0 OZ/1000 FT2 0.7 FL OZ/1000 FT2 4.0 OZ/1000 FT2 3.2 OZ/1000 FT2 4.0 OZ/1000 FT2 4.0 FL OZ/1000 FT2 4.0 OZ/1000 FT2 3.2 OZ/1000 FT2 4.0 OZ/1000 FT2 0.7 FL OZ/1000 FT2	14 Day	580.0b	31.0b	62.3b
3	Signature Xtra Stressgard (A) Daconil Ultrex (A) Signature Xtra Stressgard (B) Exteris Stressgard (B) Signature Xtra Stressgard (C) Daconil Ultrex (C) Signature Xtra Stressgard (D) Insignia SC (D) Signature Xtra Stressgard (E) Daconil Ultrex (E) Signature Xtra Stressgard (F) Exteris Stressgard (F) Signature Xtra Stressgard (G) Daconil Ultrex (G) Signature Xtra Stressgard (H) Insignia SC (H)	4.0 OZ/1000 FT2 3.2 OZ/1000 FT2 4.0 OZ/1000 FT2 3.0 FL OZ/1000 FT2 4.0 OZ/1000 FT2 3.2 OZ/1000 FT2 4.0 OZ/1000 FT2 0.7 FL OZ/1000 FT2 4.0 OZ/1000 FT2 3.2 OZ/1000 FT2 4.0 OZ/1000 FT2 3.0 FL OZ/1000 FT2 4.0 OZ/1000 FT2 3.2 OZ/1000 FT2 4.0 OZ/1000 FT2 0.7 FL OZ/1000 FT2	14 Day	963.8b	62.8b	50.0b

[a]Dollar spot was visually assessed as number of dollar spot infection centers per plot. Means followed by the same letter do not significantly differ (P=.05, Tukey's HSD).

Table 2. Mean turfgrass quality per plot at the O. J. Noer Turfgrass Research and Education Facility in Madison, WI during 2015.

	Treatment	Rate	Application Interval	Turfgrass Quality[a]		
				Jun 29	Jul 29	Aug 20
1	Non-treated control			2.5b	4.8b	4.0b
2	Signature Xtra Stressgard (A) Daconil Ultrex (A) Signature Xtra Stressgard (B) Interface (B) Signature Xtra Stressgard (C) Daconil Ultrex (C) Signature Xtra Stressgard (D) Insignia SC (D) Signature Xtra Stressgard (E) Daconil Ultrex (E) Signature Xtra Stressgard (F) Interface (F) Signature Xtra Stressgard (G) Daconil Ultrex (G) Signature Xtra Stressgard (H) Insignia SC (H)	4.0 OZ/1000 FT2 3.2 OZ/1000 FT2 4.0 OZ/1000 FT2 4.0 FL OZ/1000 FT2 4.0 OZ/1000 FT2 3.2 OZ/1000 FT2 4.0 OZ/1000 FT2 0.7 FL OZ/1000 FT2 4.0 OZ/1000 FT2 3.2 OZ/1000 FT2 4.0 OZ/1000 FT2 4.0 FL OZ/1000 FT2 4.0 OZ/1000 FT2 3.2 OZ/1000 FT2 4.0 OZ/1000 FT2 0.7 FL OZ/1000 FT2	14 Day	4.0a	7.0a	6.0a
3	Signature Xtra Stressgard (A) Daconil Ultrex (A) Signature Xtra Stressgard (B) Exteris Stressgard (B) Signature Xtra Stressgard (C) Daconil Ultrex (C) Signature Xtra Stressgard (D) Insignia SC (D) Signature Xtra Stressgard (E) Daconil Ultrex (E) Signature Xtra Stressgard (F) Exteris Stressgard (F) Signature Xtra Stressgard (G) Daconil Ultrex (G) Signature Xtra Stressgard (H) Insignia SC (H)	4.0 OZ/1000 FT2 3.2 OZ/1000 FT2 4.0 OZ/1000 FT2 3.0 FL OZ/1000 FT2 4.0 OZ/1000 FT2 3.2 OZ/1000 FT2 4.0 OZ/1000 FT2 0.7 FL OZ/1000 FT2 4.0 OZ/1000 FT2 3.2 OZ/1000 FT2 4.0 OZ/1000 FT2 3.0 FL OZ/1000 FT2 4.0 OZ/1000 FT2 3.2 OZ/1000 FT2 4.0 OZ/1000 FT2 0.7 FL OZ/1000 FT2	14 Day	3.5ab	6.5a	6.5a

[b]Turfgrass quality was visually assessed on 1-9 scale, with 9 being excellent, 6 being acceptable, and 1 bare dirt. Means followed by the same letter do not significantly differ (P=.05, Tukey's HSD).