Dollar Spot Control Evaluation on Putting Greens

RFR-A2015

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Introduction

The objective of this trial was to evaluate the control of fall dollar spot on greens with Maxtima and Navicon Intrinsic fungicides compared with traditional fungicides.

Materials and Methods

Research was conducted at the Iowa State University Horticulture Research Station, Ames, Iowa, on a Penncross creeping bentgrass (*Agrostis stolonifera*) putting green. Experimental units were 3 ft by 5 ft. Plots received 0.10 lb N/1,000 ft^2 every two weeks during the growing season from foliar urea applications. Plots were mowed at 0.125 in. with a John Deere Triplex mower six days a week. Irrigation was applied as necessary to facilitate optimal growing conditions. Treatments were applied using a CO_2-pressurized backpack sprayer with TeeJet 8004XR nozzles calibrated to apply two gallons water carrier/1,000 ft^2. Treatments and timings are presented in Table 1. Ratings for disease suppression (visually), turfgrass color and percent green cover ratings (digitally), quality, and any injury to turfgrass from applications (visually). Ratings were made visually on a 1-9 scale with 1 being poor and 9 being optimum turfgrass quality, 6 being minimum acceptable. Percent cover was digitally rated on a 0-100 percent scale and color was on a 1 to 9 scale with 1 being brown and 9 being dark green color with 6 being the minimally acceptable color (data not shown). Dollar spot lesions were counted on each plot.

Results and Discussion

There was a significant difference in disease presence throughout the trial (Table 2). On the first rating date, only the Navicon Intrinsic (8.7 lesions) fungicide had fewer dollar spot lesions than the untreated check (UTC) (17.3 lesions). By September 17, all treatments getting a fungicide offered fewer dollar spot lesions than the UTC. On the September 24 rating, both the Maxtima (4.7 lesions) and Navicon Intrinsic (2.7 lesions) had fewer dollar spot lesions than the UTC (18.3). Both October 1 and October 8 ratings had fewer dollar spot lesions on any plots that received fungicides than the UTC. By October 15, there were no differences between treatments, and the disease pressure had been greatly reduced. The average of dollar spot lesions for all rating dates was less for Maxtima (5.7 lesions), Navicon Intrinsic (5.7 lesions), and Banner Maxx (7.3 lesions) than the UTC. On every rating date, the Navicon Intrinsic product provided greater dollar spot control than the UTC, which was the only product to do so for every rating date except the last date. Maxtima offered greater dollar spot control than the UTC on every rating date except three rating dates. There were no differences in dollar spot control between Maxtima, Navicon Intrinsic, or Banner Maxx. These results indicate that both Maxtima and Navicon Intrinsic perform as well as Banner Maxx for dollar spot control in the fall.

There were differences between rating dates for percent green cover due to hollow tine aerification that took place next to the study, which resulted in some topdressing sand

ending up on the trial (Table 3) on the September 29 rating date. After the sand worked into the canopy, plots continued to have high percent green cover. There were no differences between treatments on any rating date during the study.

There were differences in turfgrass quality by rating date (Table 4), which was due to an improvement in turfgrass uniformity because of a lessening of dollar spot as time went on. There were no differences between treatments on actual rating dates for turfgrass quality.

Results from this study indicate Maxtima and Navicon Intrinsic will control dollar spot as well as Banner Maxx. All three fungicides will result in less dollar spot lesions than the untreated control. There were no differences in turfgrass color, percent green cover, and quality between treatments on any rating dates, indicating none of the treatments had a negative impact on turfgrass growth. Future research should include how these products control dollar spot in the summer months when we have even longer dollar spot pressure, due to prolonged favorable environmental conditions. to see if there is a drop off in control at the ends of application intervals.

Acknowledgements

The authors thank BASF for donation of test products and for financial funding for this project. Student workers Nate Underwood, Ethan DenBeste, and Colin Laswell assisted with maintenance.

Table 1. Fungicide product, rate, and application timing for fall dollar spot control on putting green height at the ISU Horticulture Research Station, Ames, Iowa.

Treatment name	Rate	Rate unit	Application interval
Maxtima	0.2	fl oz/1,000 ft^2	14
Navicon Intrinsic	0.7	fl oz/1,000 ft^2	21
Banner Maxx	3.0	fl oz/1,000 ft^2	14
Untreated check	--	fl oz/1,000 ft^2	--

Table 2. Visual count of dollar spot lesions (numerical count) for fungicides, rates, and timing applied to a creeping bentgrass/annual bluegrass putting green, Ames, Iowa, in 2020.

			Rating date						
Treatment	Rate (fl oz/1,000 ft^2)	Appl. interval	9/10	9/17	9/24	10/1	10/8	10/15	Mean
Maxtima	0.2	14	10.7	12.7	4.7	2.0	1.0	3.3	5.7
Navicon Intrinsic	0.7	21	8.7	11.3	2.7	4.0	0.7	0.3	5.7
Banner Maxx	0.5	14	9.3	18.3	11.3	3.7	1.0	0.3	7.3
Untreated check	0	0	17.3	37.0	18.3	22.7	17.0	6.7	18.8
		LSD (0.05)	**8.2**	**17.8**	**11.3**	**7.1**	**6.0**	**9.9**	**7.0**

Table 3. Turfgrass digital percent green cover ratings (0-100%) for fungicides, rates, and timings applied to a creeping bentgrass/annual bluegrass putting green, Ames, Iowa, in 2020.

			Rating date						
Treatment	**Rate (fl oz/1,000 ft^2)**	**Appl. interval**	**9/8**	**9/15**	**9/22**	**9/29**	**10/6**	**10/13**	**Mean**
Maxtima	0.2	14	99.7	99.5	99.7	79.5	99.2	99.2	96.1
Navicon Intrinsic	0.7	21	99.9	99.6	99.7	96.8	99.3	99.3	99.0
Banner Maxx	0.5	14	99.8	99.4	99.3	82.9	98.6	98.6	96.5
Untreated check	0	0	99.5	99.2	98.6	85.5	97.7	97.7	96.3
		LSD (0.05)	**0.5**	**0.8**	**1.3**	**42.3**	**2.4**	**2.4**	**7.0**

Table 4. Turfgrass visual quality ratings (1-9; 6 is acceptable) for various fungicides, rates, and timings applied to a creeping bentgrass/annual bluegrass putting green in Ames, Iowa, in 2020.

			Rating date						
Treatment	**Rate (fl oz/1,000 ft^2)**	**Appl. interval**	**9/8**	**9/15**	**9/22**	**9/29**	**10/6**	**10/13**	**Mean**
Maxtima	0.2	14	6.0	7.0	6.3	7.3	7.3	7.3	6.9
Navicon Intrinsic	0.7	21	6.7	7.0	6.7	7.3	8.0	8.0	7.2
Banner Maxx	0.5	14	6.3	6.3	6.0	7.0	8.0	8.0	6.9
Check	0	0	6.7	7.3	7.3	7.3	7.7	7..3	7.3
		LSD (0.05)	**1.8**	**2.0**	**1.4**	**0.6**	**1.4**	**1.4**	**0.7**