

Brown Patch Suppression using ISK Biosciences® Fungicides



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OBJECTIVE

To determine the efficacy of ISK Biosciences® fungicides for controlling brown patch caused by the fungus *Rhizoctonia solani* on colonial bentgrass.

MATERIALS AND METHODS

The study was conducted at the O. J. Noer Turfgrass Research and Education Facility on a stand of colonial bentgrass (*Agrostis capillaris*) maintained at 0.5 inches. Individual plots measured 3 feet by 10 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 nozzles. All fungicides were agitated by hand and applied in the equivalent of 2 gallons of water per 1000 ft². All treatments were initiated on July 23rd and subsequent applications were made at 14 or 28-day intervals. The experimental area was covered with an Evergreen® cover to promote brown patch infection. Brown patch severity (percent disease) and turfgrass quality (1-9, 9 being excellent and 6 acceptable) were visually assessed and subjected to an analysis of variance and means were separated using the Waller-Duncan 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

Brown patch pressure was low until mid-August, when warm and humid conditions favored disease development. All treatments reduced disease relative to the non-treated control except Secure on the August 25th rating date. Heritage TL and Insignia SC provided the most consistent brown patch suppression throughout the trial, though the mixture of IB11171 and IB17256 provided acceptable suppression until disease pressure became extreme in late August. Turfgrass quality mirrored disease severity, with Heritage TL and Insignia SC providing the most consistently high turf quality. No treatment provided acceptable quality during the extreme disease severity observed on August 25th. Phytotoxicity was not observed with any treatment.

Table 1. Mean brown patch severity per treatment at the OJ Noer Turfgrass Research and Education Facility in Madison, WI during 2014.

| Treatment | Rate | Application Interval | Brown Patch Severity ^a | | | |
|-----------|--------------------------------------|---|-----------------------------------|--------|--------|-------|
| | | | Aug 1 | Aug 22 | Aug 25 | |
| 1 | Non-treated control | | 5.0a | 47.5a | 80.0a | |
| 2 | IB11171 IB17256 | 0.5 FL OZ/1000 FT2 0.0106 OZ WT/1000 FT2 | 14 Day | 1.3a | 15.0bc | 41.3b |
| 3 | IB11171 IB17256 Daconil Action | 0.5 FL OZ/1000 FT2 0.0106 OZ WT/1000 FT2 1.6 FL OZ/1000 FT2 | 14 Day | 2.5a | 12.5bc | 42.5b |
| 4 | Secure | 0.5 FL OZ/1000 FT2 | 14 Day | 0.0a | 30.0b | 65.0a |
| 5 | Heritage TL | 2.0 FL OZ/1000 FT2 | 28 Day | 2.5a | 10.0c | 27.5b |
| 6 | Insignia SC | 0.7 FL OZ/1000 FT2 | 28 Day | 0.0a | 12.5bc | 30.0b |

^aBrown patch severity was visually assessed as percent disease. Means followed by the same letter do not significantly differ (P=.05, Waller-Duncan).

Table 2. Mean turfgrass quality per treatment at the OJ Noer Turfgrass Research and Education Facility in Madison, WI during 2014.

| Treatment | Rate | Application Dates | Turfgrass Quality ^a | | | |
|-----------|--------------------------------------|---|--------------------------------|--------|--------|------|
| | | | Aug 1 | Aug 22 | Aug 25 | |
| 1 | Non-treated control | | 6.0a | 4.0b | 2.0c | |
| 2 | IB11171 IB17256 | 0.5 FL OZ/1000 FT2 0.0106 OZ WT/1000 FT2 | 14 Day | 6.8a | 6.0a | 4.3a |
| 3 | IB11171 IB17256 Daconil Action | 0.5 FL OZ/1000 FT2 0.0106 OZ WT/1000 FT2 1.6 FL OZ/1000 FT2 | 14 Day | 6.5a | 5.8a | 4.3a |
| 4 | Secure | 0.5 FL OZ/1000 FT2 | 14 Day | 7.0a | 4.8b | 3.0b |
| 5 | Heritage TL | 2.0 FL OZ/1000 FT2 | 28 Day | 6.8a | 6.0a | 4.8a |
| 6 | Insignia SC | 0.7 FL OZ/1000 FT2 | 28 Day | 7.0a | 5.8a | 4.8a |

^aTurfgrass 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, Waller Duncan).