

CREEPING BENTGRASS (*Agrostis stolonifera* 'Penncross')

Dollar spot; *Sclerotinia homoeocarpa*

Brown patch; *Rhizoctonia solani* AG2-2 IIIB

D. Earlywine and G.L. Miller

Division of Plant Science

University of Missouri

Columbia, MO 65211

### **Evaluation of multiple fungicides for summer disease control on greens height creeping bentgrass, 2015.**

Fungicides were evaluated for disease control at the University of Missouri Turfgrass Research Facility in Columbia, MO on a 'Penncross' creeping bentgrass green. The green contained a 12-in. sand root zone over a drained subgrade. Mowing was performed at a height of 0.13-in., three and five times weekly from 2 Apr to 30 Apr and 1 May to 16 Sep, respectively. Nitrogen was applied at 0.375 lb N/1000 sq ft on 17 Apr. and every 3 wks at 0.39 lb N/1000 sq ft thereafter from 1 May to 18 Sep. Revolution® (6.0 fl oz/1000 sq ft) was applied every 28-d starting on 1 May. Plots were 5 ft × 5 ft and arranged in a randomized complete block design with four replications. Treatments were applied in water equivalent to 2 gal/1000 sq ft with a CO<sub>2</sub>-powered sprayer at 26 psi using TeeJet 8008 flat fan nozzles. Dollar spot symptoms occurred in the trial area in early Apr before the trial was initiated. Therefore, Daconil Ultrex (3.25 oz/1000 sq ft) was applied on 17 Apr, and reapplied at a higher rate (5.0 oz/1000 sq ft) on 23 Apr and 1 May. On 22 May, rye grain (*Secale cereale* L.) infested with the dollar spot pathogen was uniformly applied at a volume of 1.52-in.<sup>3</sup> per plot using a small broadcast spreader and left on the turf surface for 3 days before mowing. Disease severity and turfgrass quality were assessed every 14-d from initial symptom development. A natural infestation of brown patch was assessed as a visual estimate of the percent symptomatic area and dollar spot was quantified as counts of infection centers per plot. Turfgrass quality was evaluated using a 1 to 9 scale (9=best, 6=acceptable) based on color, density, and uniformity. Phytotoxicity was evaluated using a 0 to 9 scale with 0 = none, ≥ 2 = unacceptable discoloration, and 9 = total plot necrosis. Data were subjected to analysis of variance and means separation using Fisher's Protected LSD test ( $P=0.05$ ). To stabilize variance, disease severity and turf quality data were square-root transformed for analysis and back-transformed for presentation.

Initial fungicide applications were applied on 14-d intervals from 12 May through 4 Aug. At trial initiation, dollar spot (0.3 % severity) was observed in the trial area. From 23 Jun through 25 Aug, all treated plots, except Chipco Signature and Kabuto, had significantly less dollar spot incidence than the untreated control. By 16 Sep, the number of dollar spot infection centers per plot were similar in plots treated with Chipco Signature, Daconil Action, and Kabuto compared to the untreated control. On that date, extended dollar spot suppression was exhibited in all other treated plots and those plots treated with Emerald had the lowest dollar spot incidence. From 23 Jun through 16 Sep, Chipco Signature, Daconil Action and Kabuto provided the least amount of dollar spot control among the treatments tested. Brown patch was first observed on 23 Jun. No differences in brown patch control were noted among treatments until 4 Aug at which time plots treated with Lexicon (high rate) and Headway had significantly less brown patch severity than plots treated with Daconil Action, Kabuto or the untreated control. On 1 Sep, all treated plots had significantly less brown patch severity than plots treated with Daconil Action. Brown patch severity increased, and on 16 Sep plots treated with Lexicon (both rates), Headway, Fame, Fame T, Disarm M, and Fame C had significantly less brown patch severity than other fungicide treatments. From 9 Jun through 25 Aug, significant turfgrass phytotoxicity (bronzing /discoloration) was observed in plots treated with Headway. Turfgrass quality in plots treated with Lexicon Intrinsic (both rates), Fame T, Disarm M, and Fame C, had acceptable turfgrass quality (≥6) from 12 May through 1 Sep. From 22 Jul through 16 Sep, turfgrass quality fell below acceptable levels in plots treated with Chipco Signature, Daconil Action, and Kabuto due to high disease severity.