

Mesotrione: Evaluate Tolerance of Kentucky Bluegrass

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Introduction

The objective of this research was to determine: 1) what rates are safe to Kentucky bluegrass, 2) are sequential applications safe, and 3) are both spring and fall applications safe.

Materials and Methods

The experiment was conducted at the Iowa State University Horticulture Research Station in 2005 on 'Vantage' Kentucky bluegrass. The research area was maintained at a 3 inch mowing height and received regular irrigation. Soil type was a Nicollet (fine-loamy, mixed, mesic-Aquic Hapludolls) with 3 ppm P, 98 ppm K, 4.4% organic matter, and a pH of 6.8. The trial was arranged as a randomized complete block with three replications and plots measured 5 feet by 5 feet. Spring applications of mesotrione were applied on 6 June 2005 at 0.187, 0.25, 0.5, and 0.75 lb ai/A. Three weeks later on 27 June 2005 three plots in each block received a second application of mesotrione at 0.187, 0.25, and 0.5 lb ai/A. The procedure was repeated in the fall with initial applications occurring on 1 Sept. 2005 and repeat applications on 22 Sept. 2005. A backpack sprayer pressurized with carbon dioxide to 38 psi and equipped with TeeJet #8002 flat fan nozzles was used to make all applications. Total spray volume was 3 gal/1000 ft². Turfgrass phytotoxicity was evaluated 7, 14, 21, and 28 days after each application on a scale of 1 to 9 with 1 = worst, 6 = acceptable, and 9 = best.

Results

Phytotoxicity was not observed on Kentucky bluegrass receiving single and sequential spring applications of mesotrione (data not shown). In addition, Kentucky bluegrass proved tolerant to fall applications of mesotrione except 7 days after the initial application. Phytotoxicity was observed on plots receiving applications of mesotrione at 0.5 and 0.75 lb ai/A (Table 1). Phytotoxicity symptoms were located toward the leaf tips and were temporary, recovering to levels equal to untreated controls by 14 days after treatment. Kentucky bluegrass appears tolerant of single and sequential applications of mesotrione in the spring and appears tolerant of fall applications of mesotrione at rates ≤ 0.25 lb ai/A.

Table 1. Phytotoxicity on 'Vantage' Kentucky bluegrass receiving one or two applications of mesotrione in the fall.

Rate (lb ai/A)	Timing	Phytotoxicity (days after initial treatment)							
		7	14	21 ^z	28	35	42	49	56
0.25	1 Sept.	9a ^y	9a	9a	9a	9a	9a	9a	9a
0.5	1 Sept.	6b	9a	9a	9a	9a	9a	9a	9a
0.75	1 Sept.	6b	9a	9a	9a	9a	9a	9a	9a
0.187	1 Sept., 22 Sept.	9a	9a	9a	9a	9a	9a	9a	9a
0.25	1 Sept., 22 Sept.	9a	9a	9a	9a	9a	9a	9a	9a
0.5	1 Sept., 22 Sept.	6b	9a	9a	9a	9a	9a	9a	9a

^z The second application was applied on 22 Sept., 21 days after the initial application.

^y Means within columns followed by the same letter are not different according to Fisher's LSD_{0.05}.