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Use of Pyrimisulfan and Penoxsulam in Turfgrass Systems

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Abstract

Pyrimisulfan + penoxsulam applications in 'Meyer' zoysiagrass and buffalograss resulted in excellent large crabgrass control and no turfgrass injury. Applications also do not have any negative influence on tested ornamental species.

Keywords

Pyrimisulfan, penoxsulam

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Summary. Pyrimisulfan + penoxsulam applications in 'Meyer' zoysiagrass and buffalograss resulted in excellent large crabgrass control and no turfgrass injury. Applications also do not have any negative influence on tested ornamental species.

Rationale. Pyrimisulfan and penoxsulam are two new acetolate synthase (ALS) inhibiting herbicides used for weed control in turfgrass systems.

Objectives. The objectives of these studies were to determine weed control efficacy of pyrimisulfan and penoxsulam, as well as the non-target ornamental damage.

Study Description. Research trials in 2014 through 2016 in Kansas were conducted to further explore pyrimisulfan and penoxsulam use in turfgrass systems and safety to non-target landscape vegetation. Research trials were initiated in Junction City, KS, on September 14, 2014, to evaluate post-emergent yellow nutsedge (*Cyperus esculentus*) and spotted surge (*Euphorbia maculata*) control with pyrimisulfan and penoxsulam combinations. In May 2016, research trials in Manhattan, KS, were initiated to determine pre-emergent large crabgrass (*Digitaria sanguinalis*) control with pyrimisulfan and penoxsulam. Pre-emergent treatments included pyrimisulfan (0.64 oz/a), pyrimisulfan (1.28 oz/a), pyrimisulfan [0.64 oz/a followed by (fb) 0.64 oz/a 60 days after initial treatment (DAIT)], pyrimisulfan + penoxsulam (1.28 oz/a), pyrimisulfan + penoxsulam (2.5 oz/a), and pyrimisulfan + penoxsulam (1.28 oz/a fb 1.28 oz/a 60 DAIT). Additional pyrimisulfan + penoxsulam treatments were applied at same rate on a nitrogen fertilizer carrier. 'Cody' buffalograss (*Bouteloua dactyloides*), and 'Meyer' zoysiagrass (*Zoysia japonica*) tolerance studies were initiated on May 5, 2016, in Manhattan, KS, to evaluate tolerance during spring transition with pyrimisulfan and penoxsulam applications. Treatments included pyrimisulfan

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and penoxsulam applied at 1, 1.5, and 2 oz/a and pyrimisulfan + penoxsulam at 1, 2, 3, and 4 oz/a. In 2015 and 2016 research trials were conducted to determine ornamental species' tolerance to turfgrass pyrimisulfan and penoxsulam applications. All treatments within each trial included a non-treated control and were arranged in a randomized complete block with 3 or 4 replications. Analysis of variance (ANOVA) was performed in SAS 9.4 (SAS Institute Inc., Cary, NC) and means were separated according to Fisher's protected least significant difference (LSD) at 0.05 significance level.

Results. Pyrimisulfan + penoxsulam at 2.5 oz/a resulted in excellent pre-emergent large crabgrass control 90 DAIT. No buffalograss, zoysiagrass, or ornamental injury was observed throughout tolerance studies.

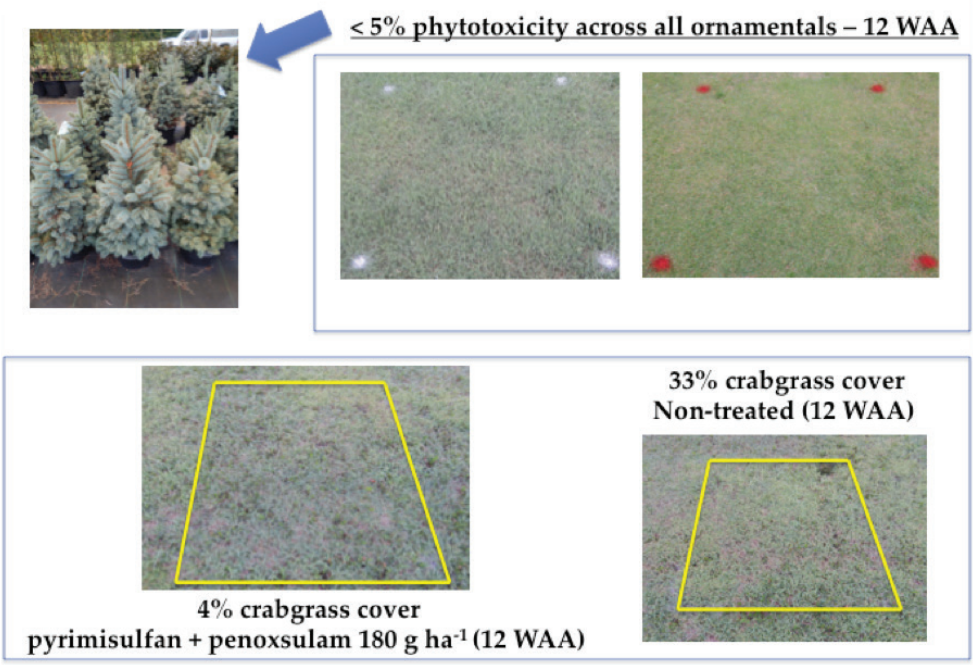

Figure 1. Summary of pyrimisulfan + penoxsulam applications; 'Meyer' zoysiagrass and buffalograss tolerance, crabgrass control, and non-target ornamental injury.
WAA = weeks after application.

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