

2008 Preemergence Crabgrass Control Study

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Introduction

The objectives of this study were to determine which application timing provides acceptable crabgrass control, determine if the mesotrione/prodiamine premix causes unacceptable phytotoxicity on Kentucky bluegrass, and determine the efficacy of the mesotrione/prodiamine premix compared with industry standards.

Materials and Methods

This study was conducted at the Iowa State University Horticulture Research Station in Ames, IA, on a blend of Alene, Brooklawn, and Newport Kentucky bluegrass. The soil is a disturbed Nicollet clay soil, with a pH of 6.0, 3.9% organic matter, 110 ppm K, and 5 ppm P. Plots were arranged in a randomized complete block design with four replications.

Plot area was seeded with large crabgrass on April 25, 2008, and the first treatments (Table 1) were applied on May 1. The second set of treatments was applied on June 10, at approximately the 2 to 4 leaf stage of crabgrass. The third application was made on July 14, at approximately the 1 to 2 tiller stage of the crabgrass. Treatments were applied using a backpack CO₂ sprayer at 40 psi, and at a spray volume equivalent to 3 gallons/1000ft².

Data were collected on percentage crabgrass control and phytotoxicity to Kentucky bluegrass (Table 2). Data collection began July 14 and concluded on August 25.

Results and Discussion

None of the treatments that contained mesotrione and prodiamine damaged Kentucky bluegrass. Plots treated with Acclaim, applied as a late postemergence (Treatment 10), showed the only sign of phytotoxicity (Table 2). Untreated control plots had an average of 70% crabgrass cover at the end of the season. All treatments provided greater than 85% crabgrass control at the end of the season (Table 2). Treatments 2 and 3, mesotrione/prodiamine premix and mixed onsite applied as a preemergence application alone, were not different in controlling crabgrass at the end of the season. Treatment 4, dithiopyr as a preemergence application alone, provided approximately 13% less crabgrass control than the two mesotrione/prodiamine mixes (Treatments 2 and 3). Treatment 5, mesotrione/prodiamine premix applied as an early postemergence application, provided approximately 14% more crabgrass control than Treatment 6, dithiopyr applied at the same time. Treatments 8 and 9, mesotrione/prodiamine premix and mixed onsite applied both as a preemergence application and a late postemergence application, both provided over 99% crabgrass control. Treatment 7, mesotrione/prodiamine premix applied as a preemergence followed by mesotrione applied as a late postemergence control, was not different than Treatment 10, dithiopyr applied as a preemergence followed by Acclaim as a late postemergence control. However, as mentioned previously, the Acclaim applied in Treatment 10 damaged the Kentucky bluegrass.