

EFFICACY OF DINOTEFURAN APPLIED PREVENTIVELY AGAINST BILLBUGS IN KENTUCKY BLUEGRASS TURF 2007

D. S. Richmond, T. J. Gibb, M. W. Baldauf, V. A. Caceres, A. M. Nance and T. L. Hctor
Turfgrass Entomology and Applied Ecology Laboratory
Purdue University
West Lafayette, IN 47907

OBJECTIVES

The primary objective of this study was to describe the activity of dinotefuran (Safari 20SG) applied preventatively against bluegrass billbug by:

- 1) Describing the influence of Safari 20SG on larval billbug populations
- 2) Comparing the efficacy of Safari 20SG with industry standard compounds

METHODS AND MATERIALS

The experiment was located at the W.H. Daniel Center for Turfgrass Research and Education, Purdue University (West Lafayette, IN) on a lawn consisting primarily of Kentucky bluegrass maintained at 6.4 cm. Plots measuring 2.1 x 2.4 meters were arranged in a randomized complete-block design with 0.6 meter alleys between plots. Each treatment was replicated 4 times. Although the industry standard compounds were applied May 7th, 2007, Safari 20SG was applied May 18th, 2007 (less than ideal timing). All materials were applied using a hand-held CO₂ boom sprayer configured with four 8010 nozzles operating at 30 psi and calibrated to deliver a spray volume of 2 gal/1000ft². Plots were irrigated within 24 hrs following applications (1.0 cm irrigation).

Larval populations were assessed July 9th by extracting 5 turf and soil cores (10.8 cm diameter) from each plot and counting the number of billbug larvae in each core. Samples were taken at least 0.25 m inside the border of each plot. Between treatment variation in larval populations was examined using main effects ANOVA and treatment means were compared using Fisher's LSD test ($\alpha=0.05$).

RESULTS

Table 1. Billbug larval densities and percent control resulting from preventive applications of Merit 240SC, Meridian 25WG, Talstar 1.67SC and Safari 20SG in Kentucky bluegrass turf. Industry standard compounds (Merit 240SC, Meridian 25WG and Talstar 1.67SC) were applied on May 7th, 2007 whereas Safari 20SG was applied on May 18th, 2007. Larval populations were assessed on July 9th, 2007.

TRT#	Treatment	Billbugs	
		0/ft ²	% Control
	Untreated Control	24.4 a	----
	Merit 240 SC @ 0.3 lb ai/A	3.6 c	85
	Meridian 25WG @ 0.27 lb ai/A	2.2 c	92
	Talstar 1.67SC @ 0.1 lb ai/A	10.2 bc	58
	Safari 20 SG @ 0.27 lb ai/A	14.7 b	41
	Safari 20SG @ 0.54 lb ai/A	9.6 bc	61

Numbers followed by same letters are not significantly different (Fisher LSD, $\alpha=0.05$)

* There were no signs of phytotoxicity associated with any of the insecticide treatments.

All treatments significantly reduced billbug larval populations compared to untreated controls. At the highest rate, Safari 20SG provided levels of control that were statistically similar to the reference compounds even though the Safari material was applied 11 days later and very close to the end of the window for billbug preventive control. Results indicate that Safari has strong potential as a preventive billbug insecticide for turfgrass, but further testing of different application rates and timings is needed.