

INFLUENCE OF NOVEL FORMULATIONS OF CHLOTHIANIDIN AGAINST BILLBUGS IN KENTUCKY BLUEGRASS TURF 2007

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

OBJECTIVES

The primary objective of this study was to describe the curative activity of preventative insecticides against bluegrass billbug by comparing the efficacy against several insecticides (Merit and ARY = Arena) against an untreated control.

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 (Fig. 1). 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. All materials were applied May 7, 2007 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 not irrigated for at least one day following applications.

Field conditions on the May 7 treatment date were:

- (1) Soil: moist, 13.1-13.6 °C at 10 cm depth (8:00-9:30 am)
- (2) Air Temp: 12.8-8.3°C (8:00-9:30 am)
- (3) Weather: clear, wind 0-10 mph
- (4) Thatch: less than 0.63 cm
- (5) Billbugs species: *S. parvulus* (90%), *S. inaequalis* (8%) and *S. minimus* (2%)

Larval populations were assessed July 9, 2007 by extracting five 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 curative applications of imidacloprid and several novel chlothianidin (ARY) formulations in Kentucky bluegrass turf, 2007.

TRT#	Treatment	Billbug larvae	
		0/ft ²	% Control
1	Untreated	24.4a	---
2	Imidacloprid 240SC @0.3 lb ai/A	3.6b	85.0
3	ARY-04415 SC @ 7.2 fl oz/A	10.7b	56.0
4	ARY-04415 SC @ 14.4 fl oz/A	3.0b	88.0
5	ARY-04416 G @ 100 lb/A	3.0b	88.0
6	ARY-0486-02 SC @ 24 fl oz/A	6.1b	75.0