

# INFLUENCE OF APPLICATION RATE ON THE EFFICACY OF CHLORANTRANILIPROLE APPLIED PREVENTIVELY AGAINST BILLBUGS IN KENTUCKY BLUEGRASS TURF 2007

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## OBJECTIVES

The primary objective of this study was to describe the preventive activity of chlorantraniliprole applied at several different rates against bluegrass billbug by:

- 1) Describing the influence of various application rates on larval billbug populations
- 2) Comparing the efficacy of chlorantraniliprole against selected reference 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 (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 CO<sub>2</sub> boom sprayer configured with four 8010 nozzles operating at 30 psi and calibrated to deliver a spray volume of 2 gal/1000ft<sup>2</sup>. 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 preventive applications of chlorantraniliprole, Merit and Talstar in Kentucky bluegrass turf. Applications were made on May 7<sup>th</sup>, 2007 and larval populations were assessed on July 9, 2007.

TRT#	Treatment	Billbugs	
		0/ft <sup>2</sup>	% Control
	Chlorantraniliprole 1.67SC @ 0.104 lb ai/A	5.6bc	77.1
	Chlorantraniliprole 1.67SC @ 0.157 lb ai/A	6.1bc	75.0
	Chlorantraniliprole 1.67SC @ 0.209 lb ai/A	4.1bc	83.4
	Chlorantraniliprole 1.67SC @ 0.260 lb ai/A	1.5c	93.8
	Talstar 0.67SC @ 0.1 lb ai/A	10.2b	58.4
	Merit 240 SC @ 0.3 lb ai/A	3.6b	85.4
	Untreated Control	24.4a	----

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 the untreated control. At the highest rate, chlorantraniliprole provided significantly better control than either reference compound (Merit and Talstar) and, at lower rates, resulted in levels of control that were similar to or slightly better than the reference compounds.



**Figure 1.** Site of billbug preventive trial 2007. W.H. Daniel Center for Turfgrass Research and Education, Purdue University, West Lafayette, IN.