

# **EFFICACY OF SEVERAL THIAMETHOXAM FORMULATIONS APPLIED DURING MAY AGAINST WHITE GRUBS IN KENTUCKY BLUEGRASS TURF 2007**

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## **OBJECTIVES**

The primary objective of this study was to describe the efficacy of May applications of several insecticides/formulations against white grubs by:

- 1) Describing how the various formulations influence subsequent white grub populations
- 2) Comparing the efficacy of the different formulations against selected reference compounds

## **METHODS AND MATERIALS**

The experiment was located at the Purdue University Nursery located on the campus of Purdue University in West Lafayette, IN, on a lawn consisting primarily of Kentucky bluegrass maintained at 7.6 cm. Plots measuring 1.5 x 1.5 meters were arranged in a randomized complete-block design with 0.6 meter alleys between plots. Liquid formulations were applied 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>. Granular formulations were applied using a hand-held shaker jar. Each treatment was replicated 5 times and plots were irrigated (1.0 cm) immediately following applications. Thatch at the site measured less than 1/8 inch.

An artificial infestation of Japanese beetle larvae was created at the site by caging groups of 30 adult beetles (sex ratio = 50:50) on plots using 8" diameter PVC pipes cut into 6" sections. Three cylinders were placed in each plot and one quarter of a large apple was placed inside each cage to provide a source of nutrition and moisture for the beetles. Beetles were caged during the first and third weeks of July using fresh beetles collected using Trecé traps and a floral lure.

Japanese beetle larval populations were assessed on October 12, 2007 by examining the turf and soil core lying directly under each PVC cylinder to a depth of 5 inches (total area = 1.05 ft<sup>2</sup>) and counting the number of live larvae present. Between treatment variation in Japanese beetle populations was examined using main effects ANOVA. Treatment means were compared using Fisher's LSD test ( $\alpha=0.5$ ).

Field conditions on the April 24 treatment date were:

- (1) Soil: moist, 13.0-13.1 °C at 10 cm depth (8:00-10:00 am)
- (2) Air Temp: 13.5-16.8 °C (8:00-10:00 am)
- (3) Weather: clear, wind 0-11.8 mph
- (4) Thatch: less than 0.25 cm

## RESULTS

**Table 1.** Japanese beetle larval densities and percent control resulting from May applications of several white grub insecticides/formulations in Kentucky bluegrass turf. Applications were made on May 11<sup>th</sup>, 2007 and larval populations were assessed on October 12, 2007.

TRT#	Treatment	Japanese beetle	
		JB/ft <sup>2</sup>	% Control
1	Untreated	6.7a	---
2	MERIDIAN 0.33 G @ 67 KG/HA	0.5b	92.9
3	MERIDIAN 0.33 G @ 90 KG/HA	0.2b	96.4
4	SCOTTS GRUBEX 0.20 G @ 90 KG/HA	0.2b	96.4
5	GRUB STOP 1.5 G @ 147 KG/HA	0.5b	92.9
6	MERIT 0.5 G @ 90 KG/HA	0.0b	100.0
7	ARENA 0.5 G @ 75 KG/HA	0.b	100.0

Numbers followed by same letters are not significantly different (Fisher LSD,  $\alpha=0.1$ )

\* There was no indication of phytotoxicity associated with any of the insecticide treatments at 1 or 7 DAT.