

# Efficacy of Single vs. Split-Application of QualiPro Imidacloprid, Aloft and Allectus Against Japanese Beetle Larvae in Kentucky Bluegrass Turf 2012

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**SUMMARY:** This study compared the efficacy of single vs. split-applications of Imidacloprid, Aloft and Allectus against larvae of the Japanese beetle.

## MATERIALS AND METHODS

The experiment was located at the Nursery Complex at Purdue University (West Lafayette, IN) on a stand of turfgrass 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 0.3 meter alleys between plots. Each treatment was replicated 4 times. All materials 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>. Plots were irrigated (approximately 1.0 cm) immediately after application.

Field conditions on the July 16 application date were:

- (1) Soil Temp.: 27 °C
- (2) Air Temp: 28 °C
- (3) Weather: Clear, wind 0-3 mph
- (4) Thatch: 1.0 cm

## ADDITIONAL INDEX WORDS:

white grub, insecticide, bifenthrin, chlothianidin

Field conditions on the August 6 application date were:

- (1) Soil Temp.: 22 °C
- (2) Air Temp: 19 °C
- (3) Weather: Clear, wind 0-3 mph
- (4) Thatch: 1.0 cm

Japanese beetle larval infestations were created by driving three, 8" diameter pvc cylinders into each plot along its mid-line and caging two separate groups of 40 Japanese beetle adults (50:50 sex ratio) within each cylinder at two week intervals during late June and early July. Larval populations were assessed October 8, 2012 using a sod cutter to remove a strip of sod lying directly beneath the caging area of each plot and examining the soil to a depth of 3 inches (Fig. 1). The number of Japanese beetle larvae were counted and recorded. Variation in Japanese beetle larval populations was examined using main effects ANOVA and treatment means were compared using Fisher's LSD test ( $\alpha=0.05$ ).

## RESULTS AND DISCUSSION

All materials and application approaches provided excellent control of Japanese beetle larvae with 100% control being achieved by most treatments (table 1). There was no significant difference between products and single applications performed equally as well as split-applications.

**Table 1.** Influence of single vs. split-applications of QualiPro imidacloprid, Aloft and Allectus on Japanese beetle larval populations in Kentucky bluegrass turf 2012. Populations were assessed on October 8, 2012.

Product	Application Rate (oz./Acre)	Application Date	Larvae/ft <sup>2</sup> Mean(±SE)	% Control
QP Imidacloprid 2F	25	16-Jul	0.0±0.0 b	100.0
Allectus GC SC	57.5	16-Jul	0.0±0.0 b	100.0
Aloft GC SC	12.0	16-Jul	0.0±0.0 b	100.0
QP Imidacloprid 2F	12.5	16-Jul and 6-Aug	0.0±0.0 b	100.0
Allectus GC SC	29.0	16-Jul and 6-Aug	0.0±0.0 b	100.0
Aloft GC SC	6.0	16-Jul and 6-Aug	0.3±0.3 b	98.5
UNTREATED		---	17.0±2.1 a	---

Means followed by different letters are significantly different ( $\alpha=0.05$ )

**Figure 1.** Japanese beetle larvae in the soil of an untreated plot during October 2012.

