

2004 White Grub Control Evaluation

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Objectives

Chemical applications to control white grubs (Japanese beetles) are often applied on turfgrasses where post application irrigation is not possible. Such treatments must rely either on homeowners to irrigate, or natural precipitation to meet the manufacturers application recommendations. Some applications are undoubtedly made in the absence of irrigation. This study seeks to understand the results of such treatments.

Rationale

Preventive white grub controls are standard in the pest management industry. Timing studies have shown that the closer that they are applied to the critical grub egg hatch date, the better they perform. Often this target date occurs when the turfgrass is at its driest point of the season. It is important to track the performance of standard control products during non-irrigated applications.

How It Was Done

On August 2nd, August 11th and August 23rd, 20 adult Japanese beetles (equal sex ratio) were field collected and caged in PVC cylinders (10" diam, 8 inches high) dug approx. 6.5 inches into the soil. Three cylinders were established in each plot. Beetles were allowed to oviposit at will before cylinder removal on Sept 7th.

Experimental Plots -Treatments were applied to plots measuring 10 X 5 feet.

Experimental Design -Treatments were applied in a randomized complete block fashion and were replicated 4 times. There were two control plots (one treated and one untreated) in each replicate.

Plots were mowed to 2.5 inches at 9 AM on day of treatment. Treatments were applied between 10 AM and 12 noon. Skies were 75% overcast and temperatures were approximately 80 degrees F. Humidity was high (85% +) and winds were from the south at approximately 5 mph. Liquid sprays were applied using a CO2 powered back pack sprayer and a 4 nozzle boom, with nozzles being directed into the turfgrass. Granular applications were applied using a hand held shaker, with materials calibrated for the plot size. Each application was made separately for each product. Designated plots received .75 inch of irrigation between 12 to 2PM (immediately after application). Others were irrigated 24, 48 and 72 and 120 hours post application per protocol.

Application (Sept. 14, 2004.) was made to coincide with the occurrence of a majority of 2nd instar (artificially reared) grubs. (Note: this date occurred approximately 4 weeks after normal white grub egg hatch).

Results and Conclusions

Of the experimental chemicals tested, the various rates of Imidachloprid consistently out-performed the others. Halofenozide was also very effective and not significantly different than imidachloprid. Efficacy improved with the immediate application of irrigation, however, irrigation did not improve efficacy if applied after 48 hours. Both chemicals (imidachloprid and halofenozide) even when applied in the absence of irrigation, performed significantly better than untreated controls.