

Evaluation of Crusade 5G for Control of Black Turfgrass Ataenius

Principal Investigator: Larry Stowell

Cooperator: Eric Lover, Dove Canyon Country Club

Sponsor: Zeneca

Summary: Crusade 5G reduced grub presence seven days after application to a Black Turfgrass Ataenius (BTA) infested bentgrass fairway at Dove Canyon Country Club, Dove Canyon, California. Because turfgrass damage had occurred prior to application, turfgrass damage ratings did not reflect protection of the turf as a result of the application. Crusade 5G did not improve turfgrass recovery from BTA damage. Based upon these results, Crusade 5G is effective in controlling BTA grub populations but it must be applied early in the season, before grub damage is visible, to prevent damage.

Materials and Methods: Crusade was provided by Jeffrey Dobbs, Zeneca. Application was conducted using a Gandy drop spreader. Calibration to deliver 0.1 lb ai/1000 sq ft resulted in a Gandy setting of 23 and delivered 36.0 ± 3.0 g/45 sq ft test area. The desired amount for the 45 sq ft calibration area was $35.8 \pm 5\%$ or between 35.0 and 38.6 g. The material handled well and no problems were encountered during application.

The trial was applied on 8/23/94 and watered into the turf by hand immediately following application.

Grubs were active at the time of application.

Plots were rated 1 week after treatment (WAT) on 8/30/94 by evaluating turfgrass damage and presence of grubs in damaged areas of each plot. A 4 x 8 inch area over a damaged portion of turfgrass was cut to expose the thatch-soil interface. If any grubs were found, the site was rated as 1. If no grubs were found the site was rated as a 0. One sampling area was evaluated for each of the 5 replicate plots.

Results and discussion:

The distribution of BTA was aggregated within the plots and throughout the course. The initial damage present at the plots did not appear to recover during the trial. Plots were evaluated 1 and 4 weeks after treatment WAT. By 4 WAT, there were no active grubs in any of the plots. The turfgrass damage ratings were no different than the 1 WAT evaluation.

Scoring the plots for the presence or absence of grubs under the damaged areas resulted in a significant correlation between treated areas and absence of grubs ($r=0.82$, $p<0.004$) indicating that the Crusade reduced

the presence of grubs. Grubs were found in all five of the non-treated plots but in only one of the Crusade treated plots. There was no significant difference between turfgrass damage ratings at 1 or 4 WAT. The damage caused by the grubs did not recover during the course of the experiment.

The damage was present at the beginning of the trial remained throughout the trial. This observation stresses the need to accurately time the application of a BTA control material to ensure that grubs are killed before damage is observed.

Table 1. Evaluation of presence of grubs and turfgrass damage. The turfgrass damage was present at the time of application and did not improve during the course of the trial.

Plot number	Rate (lb ai/1000 sq ft)	Presence of BTA 0=none, 1 = 1 or more	Percent Damage
1	0.1	0	5
1c	0	1	5
2	0.1	0	10
2c	0	1	20
3	0.1	0	15
3c	0	1	5
4	0.1	1	5
4c	0	1	15
5	0.1	0	0
5c	0	1	10

Analysis of correlation between presence of BTA grubs and rate of Crusade application .