

Development of Redbanded Stink Bug Economic Injury Levels

Introduction

Stink bugs are important constraints to yield and quality. However, no economic injury levels or thresholds have been developed for the most recent troublesome soybean stink bug---the redbanded stink bug (RBSB), *Piezodorus guildinii* (Figs. 1 and 2). Our objective is to determine the RBSB density/damage relationships specific to various soybean developmental stages (R1 - R7). Knowledge of these relationships will enable farmers to apply insecticides based on specific RBSB population densities corresponding to various soybean reproductive stages.



Figure 1. Adult RBSB



Figure 2. Nymph RBSB

Materials and Methods

This experiment served as a proof of concept consisting of 4 treatments (0, 1, 2, and 3 days infested) and 4 replications. Soybeans (HBKC5025) were planted (in rows 30 inches apart) at the Beaumont Center on May 7 and sprayed with preemergence herbicide (First Rate @ 0.75 oz/A and Dual II Magnum @ 2.5 pt/A) on May 8. When plants reached R6, 16 plants were selected and surrounding plants were cleared. On Sep 23, cages made from modified 3 liter bottles were installed and infested with one RBSB adult (Fig. 3). The following day (Sep 24) 4 cages were removed and the vegetation formerly contained in the cages was sprayed with Endigo ZC @ 0.05 lb ai/A (Fig. 4). On Sep 25, 4 more cages were removed and those plants were also sprayed. On Sep 26, all remaining cages were removed and those plants were sprayed. On Oct 1, 6, 14, 20, Nov 6, 11, 18 and 23 all previously caged vegetation was sprayed. On Dec 7, all plants were harvested by hand. Pods were collected from caged vegetation and remaining portion of plant. Pods were classified as filled or unfilled and counted. Seeds were removed from pods and counted. Percent data was transformed using arcsine and all data analyzed by ANOVA ($P = 0.05$).



Figure 3. Cage made of 3 liter plastic bottle.



Figure 4. Spraying plant with Endigo ZC.

Discussion

None of the data is significant (Table 1), so no meaningful information was generated from the experiment, which was due to excessive rainfall during and after podfill. However, as noted in the introduction, the experiment's main objective was to determine the appropriateness of the cages. Basically, cages need to be improved because moisture collected in the bottoms. This water may have interfered with normal RBSB behavior. Nevertheless, observations revealed RBSB behavior appeared normal in the cages. Next year, cages will be improved so reliable data can be generated.

Table 1. Mean data for redbanded stink bug (RBSB) cage study. Beaumont, TX. 2009.

Trt. ^a	% unfilled pods			% filled pods			Seeds per filled pod		
	Cage	Outside	Plant	Cage	Outside	Plant	Cage	Outside	Plant
0	40.3	33.0	35.4	59.7	67.0	64.6	1.6	1.6	1.6
1	31.7	26.1	27.4	68.3	73.9	72.6	1.7	1.6	1.6
2	24.4	28.6	29.8	75.7	71.4	70.2	1.7	1.5	1.6
3	37.6	31.0	32.9	62.4	69.1	67.1	1.5	1.4	1.4

^a 0 = not infested; 1 = infested for 1 day; 2 = infested for 2 days; 3 = infested for 3 days

Means in a column are not significant ($P = 0.05$, ANOVA)