Investigating Flat-Pod Syndrome in Soybean
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Introduction

Several research projects have been conducted at the Beaumont Center over the past few years to investigate possible causes of "flat-pod syndrome" in soybean. It has been speculated that feeding stink bugs, perhaps redbanded stink bug (RBSB), transmit an agent that is translocated throughout the plant resulting in extensive damage to developing pods and seed. Research in 2007 provided an initial indication that flat-pod syndrome is not translocated to other parts of the plant from stink bug feeding activity. In 2008, a Lamar University student intern conducted a more elaborate field experiment to investigate this phenomenon.

Materials and Methods

The experiment was conducted in a field plot of HBK RR5123 (MG V) soybean. Treatments were arranged in a randomized complete block with 4 replications. Plots consisted of 1 row on a 30 inch row width, 7 ft long. Treatments were devised as follows:

1 = untreated for stink bugs (no insecticides)
2 = entire plants in a 7 ft row treated for stink bugs with multiple applications of insecticide
3 = top half of plants treated as in 2
4 = bottom half of plants treated as in 2

For treatments 2, 3 and 4, Karate Z (0.03 lb ai/acre) was sprayed weekly with a 1 gal hand-pump sprayer from Jul through Aug in an effort to totally eliminate stink bug activity on entire plant, top half of plant only, and bottom half of plant only. RBSBs were observed in the plots during pod development and seed-fill although quantitative observations (sweeps) were not made verifying the effectiveness of the insecticide applications. This was assumed. At maturity, pods were removed from the top and bottom halves of plants from all treatments and categorized into filled, shattered and/or flat and counted. Seeds were removed from pods, counted and weighed.

Discussion

Data from pods collected from the field plots showed no significant differences among treatments across all parameters. Hurricane Ike and winds from several other storms battered soybean fields at the Beaumont Center. This disrupted observations and hampered sample collection from the lodged plants. Several improvements were noted concerning the treatment procedure. Stink bug density (on bottom and top half of plant) should be accounted for in some manner. This work with RBSB and flat-pod syndrome in soybean will be continued in 2009 with an incoming graduate student.