

Thresholds/Monitoring/Sampling

Aggregation Pheromone for Monitoring Stink Bug Populations in Orchard Borders

Christian Krupke and Jay Brunner

Washington State University Tree Fruit Research and Extension Center, Wenatchee, WA

Keywords: Conspers stink bug, *Euschistus conspersus*

The primary component of the aggregation pheromone of the consperse stink bug, *Euschistus conspersus*, has been used in trapping systems in northcentral Washington with limited success. This lack of success can be attributed to two factors: 1) the absence of a release device with suitable slow-release characteristics for the compound and 2) the absence of a trap to reliably retain responders. Research was undertaken in 1999 to evaluate 3 candidate release devices in the field and to develop more efficient trapping systems.

Methods and Materials

Release devices: 3 release devices were evaluated in 1999:

1. IPM technologies lure: A polyethylene vial containing a small cotton plug that is soaked with the pheromone component.
2. Scenturion lure: A wax matrix imbued with aggregation pheromone component.
3. WSU lure: A hollow polyethylene cap containing pheromone.

Each lure was placed inside tube or 'minnow' traps consisting of 2 screen funnels on either end of a 15 cm length of clear PVC pipe. These baited traps were hung on mullein plants on orchard borders at a minimum distance of 20 m apart. Baited plants were checked at 3-day intervals, and all SB counted, identified to species, sexed, and removed from the area. Catches in for each species and sex were compared for all lures, as well as comparison with unbaited mullein plants.

Results and Discussion

Release devices: In general, SB were attracted only to the vicinity of the trap (i.e., mullein plant), but did not enter the trap. The number of SB within the actual trap reflected <1% of the SB attracted to the baited plant. This is in keeping with low trap catches in previous studies using jug-type traps. For this reason, traps were considered redundant, and modified lure studies were developed that used the 'trap plant' concept of affixing a lure to a mullein plant and physically removing bugs at regular intervals. Using this method, the WSU lure was shown to be the most attractive (Figure 1). A comparison of baited and unbaited plants reveals that the addition of the pheromone lure results in a significant increase in aggregation (Figure 2), suggesting that pheromone may be an efficient and sensitive tool in detection and monitoring of SB populations.

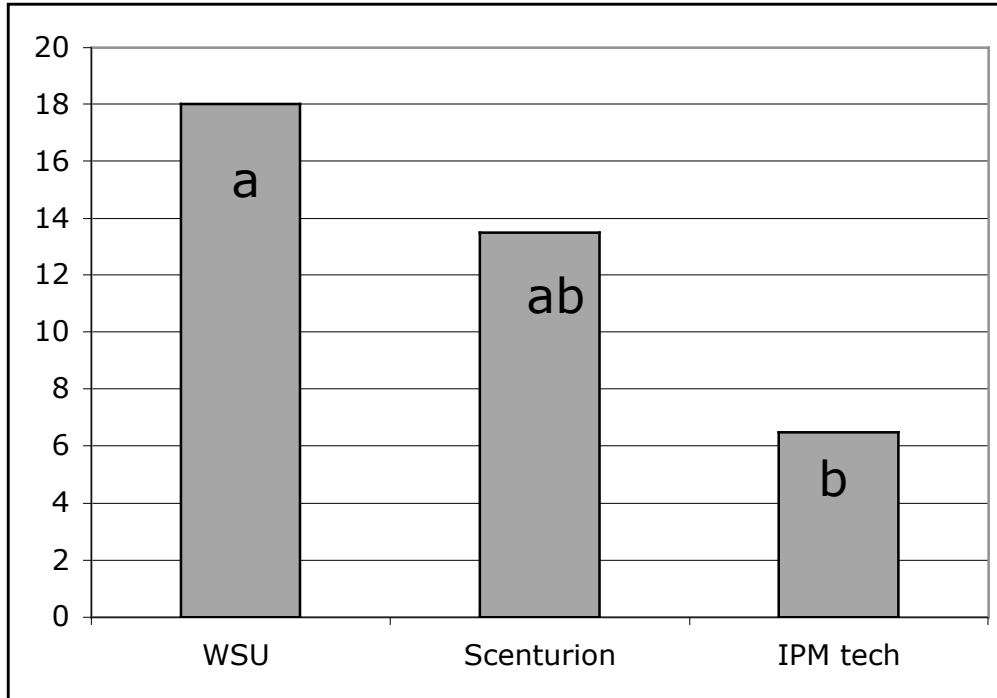


Figure 1. Comparison of mean bugs/plant/count, bars with same letter superscript are not significantly different, $P < 0.05$.

Cumulative SB catch

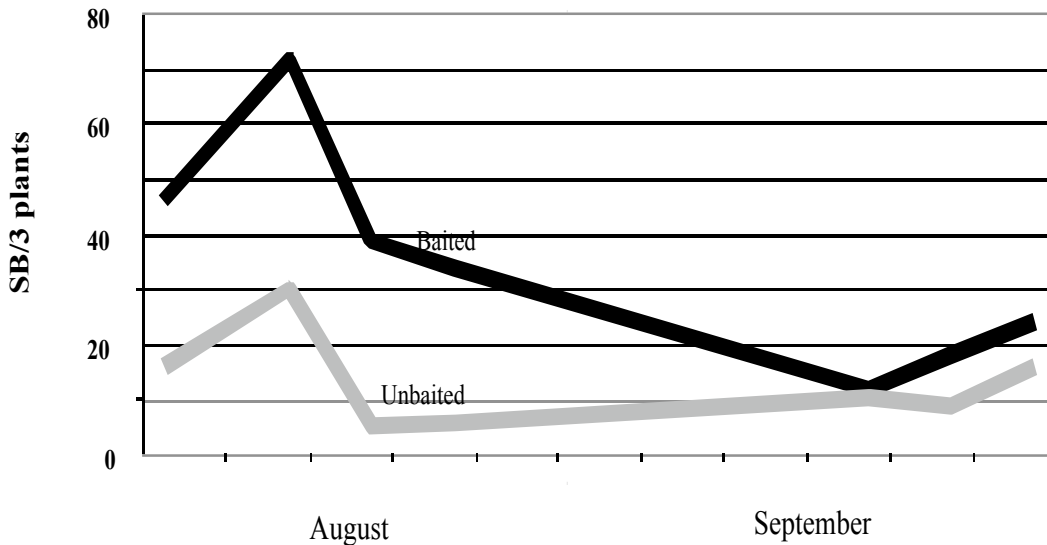


Figure 2. Comparison of numbers of bugs on pheromone-baited vs. unbaited mullein plants on orchard borders.