Pheromone Trapping of Stink Bugs

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RESEARCH PROBLEM

Because stink bugs are challenging to detect in cotton with traditional sampling tools, we continued investigations of alternative methods of monitoring the pest complex for management decisions. Trapping of stink bugs in pheromone traps has potential as a monitoring tool for stink bugs in cotton. Stink bugs can be caught successfully using the combination of a commercially available lure for the brown stink bug complex (*Euschistus* spp.) and a trap designed to visually attract stink bugs. However, effectiveness of the trap is currently hindered by the unavailability of effective lures for other species, such as the green stink bug, *Acrosternum hilare* (Say), and the southern green stink bug, *Nezara viridula* (L.). Trap captures could have some predictive value in terms of population development in the crop, but additional research into this area is necessary.

BACKGROUND INFORMATION

Because of the difficulties in detecting stink bugs in cotton with traditional methods, a successful pheromone trap could have a significant place in our management strategies for this pest complex. Initial movement of bugs into fields and population changes thereafter might be monitored with trapping techniques. The concept is not new for these insects but is limited by the lack of effective attractants for the group. The spined soldier bug, *Podisus maculiventris* (Say), has been lured and trapped with a synthetic pheromone (Aldrich et al., 1984), but research on additional stink bug pheromones has produced few practical lures. One commercially-available compound, methyl 2,4 decadienoate, readily attracts *Euschistus* spp. in some trap designs. The “Florida stink bug trap” has shown potential as an efficient design in pecans (Mizell and Tedders, 1995; Mizell et al., 1997; Yonce and Mizell, 1997). In 2002, we continued investigations into the effectiveness of using this trap and lure combination to observe populations of stink bugs around cotton fields.

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RESEARCH DESCRIPTION

Nineteen traps, modified from Mizell and Tedders (1995), were placed in and around six cotton fields near Rowher, AR, during 2002. Major components of the traps were corrugated plastic, plastic jars, rubber septa, and synthetic pheromone. Trap tops were made from plastic jars, and trap bases were made from sheets (4 ft x 8 ft safety yellow) of 10-mm corrugated plastic board. Lures were placed in the plastic jar top of each trap and consisted of a rubber septum (sleeve stopper, Fisher Scientific) treated with 40 µl of methyl 2,4-decadienoate (Bedoukian Research), and replaced every 7 d. Traps were examined and emptied once per wk.

RESULTS AND DISCUSSION

Over a 10-wk sampling period, 1064 stink bugs were captured in 19 traps. Approximately 90% of those trapped were part of the brown stink bug complex, Euschistus spp. The majority were E. servus, with some E. tristigmus, E. crenator, and E. ictericus. Others included Thyanta sp., A. hilare, N. viridula, Oebalus pugnax, and Holcostethus limbolarus.

Weekly trap numbers (Fig. 1) appeared to follow field populations, with a slight delay. Highest trap numbers were obtained on the first sampling date (18 July) and declined from mid-July to mid-August, where a trend for increased capture resumed. Highest field populations were detected with shake sheet procedures during the last week of July and the last two weeks of August, when stink bugs characteristically require treatment. The populations in late August corresponded with resumed increase in trap capture on 22 August. Similar results were observed previously (Greene et al., 2001).

PRACTICAL APPLICATION

Because stink bugs are challenging to detect in cotton with traditional sampling tools, we continued investigations of other methods of monitoring the pest complex for management decisions. Pheromone trapping of brown stink bugs was useful in following in-field populations of stink bugs, but the reduced availability and increased expense of currently available lures and unavailability of lures for other important species continue to hinder research into the potential of pheromone trapping of the group. Although successful in capturing brown stink bugs, the availability of operative lures for other important species such as N. viridula and A. hilare would have undoubtedly increased capture and monitoring capacity of the traps. Until additional “field-ready” lures are available, we will continue to explore opportunities for monitoring stink bugs in cotton using this trap and lure combination. As a result of these continuing studies, alternative monitoring and management strategies continue to be developed for stink bugs in cotton.
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DISCLAIMER

The mention of trade names in this report is for informational purposes only and does not imply an endorsement by the University of Arkansas Cooperative Extension Service.

LITERATURE CITED


Fig. 1. Weekly average number of stink bugs in pheromone-baited traps and shake sheet samples from cotton near Rohwer, AR, 2002.