PHEROMONE TRAPPING OF STINK BUGS, 2003

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RESEARCH PROBLEM

Because stink bugs continue to pose a challenge to current and future efforts concerning cotton insect management, investigations must continue into alternative monitoring strategies and management tactics for the pest complex. Predominant phytophagous (plant-feeding) stink bugs in the Southeast and much of the mid-South are similar and include the green stink bug, *Acrosternum hilare* (Say), the southern green stink bug, *Nezara viridula* (L.), and the brown stink bug, *Euschistus servus* (Say). Several other species are part of the plant-feeding stink bug complex but are of less importance. Pheromone trapping of stink bugs (*Euschistus* spp.) is useful in following in-field populations of stink bugs, but the reduced availability and considerable expense of currently available lures and unavailability of lures for other important species continue to make potential pheromone trapping prohibitive.

BACKGROUND INFORMATION

Stink bugs have become important pests in cotton in recent years because of a tremendous reduction in broad-spectrum insecticide use. Because stink bugs are difficult to detect in cotton, investigations into methods of sampling the pest group are important. A successful pheromone trap would likely have a significant place in our management strategies for the pest complex. Immigration of bugs into fields and population fluctuations 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 successfully 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 2003, 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

Twenty-two traps, modified from Mizell and Tedders (1995) and Greene et al., (2001), were placed in and around cotton fields near Rowher, Arkansas, during 2003. 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’ x 8’ 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, Pittsburgh, PA) treated with 40 \( \text{ml} \) of methyl 2, 4-decadienoate, and replaced every seven days. Traps were examined and emptied once a week.

RESULTS AND DISCUSSION

Over a 13-wk sampling period, 2345 stink bugs were captured in 22 traps. Approximately 95% 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*, and *Oebalus pugnax*.

Weekly trap numbers (Fig. 1) appeared to follow field populations. Capture in pheromone traps declined during July and increased during August and September. Highest trap numbers were obtained during mid- and late September. Highest field populations were detected with shake-sheet procedures during the middle of August and first week of September. The increase in numbers in August and September occurred after a trend for increasing trap capture began in early August. Similar results were observed previously (Greene et al., 2001, Greene and Capps, 2003).

PRACTICAL APPLICATION

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.

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**LITERATURE CITED**


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