

BOLL DAMAGE BY THE STINK BUG/PLANT BUG COMPLEX IN SOUTH CAROLINA

Sam G. Turnipseed, Michael J. Sullivan, Aaron M. Hagerty, and Amy L. Gibson

Department of Entomology

Clemson University

Edisto Research and Education Center

Blackville, SC

Abstract

Phytophagous pentatomids such as *Acrosternum hilare*, *Euschistus servus*, and *Nezara viridula* as well as *Lygus* spp. are known to damage developing cotton bolls (Greene et al. 1999, Greene et al. 2001, Turnipseed et al. 1995). After the bugs penetrate the boll and feed on seeds, bolls may abort but damage is most evident in the form of punctures or warts on internal carpel walls and as stained seed or lint. During 2002, our research revealed that the cotton fleahopper, *Pseudotomoscelis seriata* (Reuter), and a red mirid, *Ceratocapsus punctulatus* (Reuter), both caused damage as described above when caged for three days on 3-day-old bolls (three days from white flower). After removal of insects, bolls remained protected within the cup cages for six more days when damage was assessed. Some small bolls were “blasted” or aborted; but most continued to grow. Bolls were squeezed open and examined internally for punctures, warts, and seed staining.

Overall damage caused by three late instar cotton fleahoppers is compared to damage from one 2nd instar southern green stink bug from three separate tests (Table 1.). In each test, consisting of 12 cups per treatment, damage was significantly greater with bugs present than in non-bug checks. In test 1, damage from *N. viridula* was significantly greater than that caused by *P. seriata*, whereas in test 3, the reverse was true.

Because the stink bug/plant bug complex is rapidly emerging as the most important pest problem in low-insecticide-input cotton production systems, it is imperative that efficient and effective thresholds for insecticidal intervention be developed. We need to know the insect species involved, their population levels at various stages of crop development, the extent of their damage to bolls, and the relationship of damage to yield and quality of the crop.

References

- Greene, J. K., S. G. Turnipseed, M. J. Sullivan, and G. A. Herzog. 1999. Boll damage by southern green stink bug (Hemiptera: Pentatomidae) and tarnished plant bug (Hemiptera: Miridae) caged on transgenic *Bacillus thuringiensis* cotton. *J. Econ. Entomol.* 92:941-944.
- Greene, J. K., S. G. Turnipseed, M. J. Sullivan, and O. L. May. 2001. Treatment thresholds for stink bugs in cotton. *J. Econ. Entomol.* 94: 403-409.
- Turnipseed, S. G., M. J. Sullivan, J. E. Mann, and M. E. Roof. 1995. Secondary pests in transgenic B.t. cotton in South Carolina, pp. 768-69. In C. P. Dugger and D. A. Richter [eds.], Proceedings, Beltwide Cotton Production Research Conferences, January 1995, San Antonio, TX, National Cotton Council of America, Memphis, TN.

Table 1. Percent damage¹ caused by *N. viridula* and *P. seriata* caged over 3-day-old bolls in small cups for three days, 2002.

Treatment ²	Mean % damage/12 bolls		
	Test 1	Test 2	Test 3
<i>N. viridula</i>	100a	92a	58b
<i>P. seriata</i>	58b	83a	92a
Untreated	0c	17b	0c

¹aborted, punctures, warts, and seed-lint damage.

²*N. viridula* - one 2nd instar per cage; *P. seriata* - three late instars per cage