

**EFFECT OF STEWARD ON THE TARNISHED
PLANT BUG AND THE BIG-EYED BUG**

P. G. Tillman

USDA, ARS, IBPML

Tifton, GA

Keith Wing, Glenn Hammes, Michael Connair

and Laura Mulderig

Dupont Agricultural Products

Wilmington, DE

Abstract

The tarnished plant bug (*Lygus lineolaris*) is a pest in a variety of field crops including cotton. Earlier laboratory and field toxicity tests indicated Steward was effective against this pest. The big-eyed bug (*Geocoris punctipes*) is a predator of eggs and young larvae of many lepidopteran species including the tobacco budworm (*Heliothis virescens*) and can be found in abundance in cotton fields. Laboratory tests have demonstrated that Steward is less toxic to this natural enemy than some organophosphates. The objective of this study was to compare survival of the big-eyed bug and the tarnished plant bug when exposed Steward. Several tests were conducted with this goal in mind: 1) topical toxicity tests, 2) residual toxicity tests, 3) tests to determine toxicity of Steward to insects which fed on plants sprayed with this insecticide, 4) tests to determine mortality of big-eyed bug females which fed on tobacco budworm eggs sprayed with Steward, and 5) observations of the amount of time female insects spent feeding on tobacco budworm eggs versus cotton plant tissue. Steward was equally toxic to each insect species in topical toxicity tests; the LC₅₀ for both insects was 200 ppm 72 hours after treatment. Residues of Steward were non-toxic to both insect species in residual toxicity tests since the LC₅₀ for both insects was greater than 4800 ppm 72 hours after treatment. Steward was toxic to both insect species when they fed on treated cotton leaves. The mortality of the tarnished plant bug and the big-eyed bug was 94.9 and 86.7 %, respectively, when these insects fed on cotton plants treated with Steward at 0.09 lbs ai/acre. However, for the 3 big-eyed bug females observed, females spent only 17-29 % of their eating time feeding on cotton tissue, and the mortality of big-eyed bug females was only 1.7 % when they fed on eggs treated with Steward at 0.09 lbs ai/acre. Therefore, a feeding preference of the big-eyed bugs for eggs over plant tissue may result in differential mortality for the two species when Steward is applied to cotton in the field.