## STINK BUGS IN MIDSOUTH COTTON: IDENTIFICATION, LIFE CYCLES, AND NATURAL ENEMIES Livy Williams, III and Sandra C. Castle United States Department of Agriculture Agricultural Research Service Southern Insect Management Research Unit Stoneville, MS

## **Abstract**

A complex of stink bugs causes damage to Midsouth row crops, including cotton, soybean, corn, and sorghum. In the past, these bugs have been regarded as sporadic pests, but their importance is expected to increase in response to the reduction of insecticide applications resulting from widespread use of transgenic cotton and the implementation of the boll weevil eradication program. It is likely that researchers, consultants, and producers will encounter stink bugs more frequently in the future. Therefore, this poster presents information on the life history and identification of the predominant stink bugs in Midsouth cotton. These include the pests: brown stink bug, (Euschistus servus), green stink bug (Acrosternum hilare), red-shouldered stink bug, (*Thyanta custator*), and southern green stink bug (*Nezara viridula*), as well as the beneficial spined soldier bug (Podisus maculoventris). Easy-to-use characters are illustrated to help distinguish the different species and genders. Life history information and illustrations are also presented for several important natural enemies of stink bugs. The major mortality factors of stink bug eggs are parasitoids and predators. Scelionid wasps, especially Telenomus spp. and Trissolcus spp., are the most frequently encountered egg parasitoids. These wasps have characteristics (e.g., searching capacity, host specificity, dispersal capacity, and host density responsiveness) which make them potentially important candidates for biological control programs directed at stink bugs. An important mortality factor of nymphs and adults is parasitism by tachinid flies, including Trichopoda spp. and Phasia spp. These parasitoids are attracted by their host's pheromones, and parasitism rates can reach 90%. A two-year study of stink bug egg mortality was conducted in non-crop vegetation and adjacent cotton in Elizabeth, MS. In each year, predation and parasitism rates varied considerably over the course of the season for all species. Predation by chewing arthropods was the greatest source of egg mortality in both years. Eggs of the brown stink bug generally suffered greater mortality than eggs of other stink bugs. Total egg mortality (predation + parasitism) in non-crop vegetation was nearly 3x higher than in adjacent cotton. In cotton, total egg mortality was independent of distance from the field border. Moderate levels of egg mortality in cotton at all distances from the field border suggest that the natural enemies present possess adequate colonizing potential. Relatively high levels of egg mortality in non-crop vegetation adjacent to cotton suggest the potential for habitat management strategies to increase stink bug egg mortality in cotton. Future studies will address identification of predators and parasitoids that attack stink bug egg masses in the Midsouth, and strategies to enhance their impact on stink bug populations

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