

**Stink Bugs:** Southern Green Stink bug: *Nezara viridula*  
Green Stink bug: *Acrosternum hilare*  
Brown Stink bugs: *Euschistus spp.*

Historically, stink bugs were not considered a significant pest of Mississippi cotton because they were controlled coincidentally by the large number of treatments applied to control boll weevils, bollworm/budworms and other pests. However, the reduction in spraying that has occurred as a result of the success of the boll weevil eradication effort and the widespread adoption of Bt-cotton has resulted in increased opportunities for stink bugs to colonize and survive in Mississippi cotton fields. Thus, the importance of stink bugs as a pest of cotton has increased in recent years, and consultants are finding it necessary to scout and, occasionally treat for these pests.

Several species of stink bugs may occur in cotton. These include the southern green stink bug, *Nezara viridula*, the green stinkbug, *Acrosternum hilare*, and several species of brown stink bugs belonging to the genus *Euschistus*. Of the brown stink bugs, *Euschistus servus*, is the most common species found in cotton. Several other species of stink bugs may be found occasionally in Mississippi cotton fields, but these rarely occur in large numbers.

**Biology:** Stink bugs are found on a large number of agricultural crops, including soybeans, corn, and grain sorghum. Crops or weeds bearing immature seeds are especially favored. All species overwinter as adults, which emerge in early spring and begin feeding on seed bearing plants, such as wheat, clovers, and various weeds. Small nymphs often feed on vegetative portions of the plants, but larger nymphs and adults prefer to feed on developing seeds. The barrel-shaped eggs are laid in clusters which hatch in seven to twelve days. There are five nymphal instars. Newly emerged nymphs usually remain clustered together, but disperse as they grow larger. Development rate is temperature dependent, but at normal summer temperatures the time to complete one generation is approximately 45 to 50 days. There are approximately three generations per season.

Adult stink bugs are strong fliers. As early spring hosts mature and senesce, stink bugs move from these hosts to other hosts that are in a more attractive stage of development. This results in a sequential movement from early spring hosts, such as clovers or wheat, to early summer hosts, such as soybeans, corn, and grain sorghum, and ultimately to late summer hosts, such as cotton. As a result, stink bug populations in cotton are usually greatest in late summer due to immigration from nearby early summer hosts. Cotton fields that are located near large plantings of corn, soybeans, or grain sorghum are especially susceptible to invasion by stink bugs. If such cotton fields are receiving relatively few foliar insecticide treatments, the potential for stink bug invasion is even greater.

Stink bugs produce species specific aggregation pheromones. As a result, the distribution of stink bugs in a cotton field can be extremely patchy and detection of high numbers of stink bugs in one portion of a field may not indicate a field wide infestation. Also, stink bugs tend to concentrate along the edges of fields, especially edges that are nearest to some other senescing host crop, such as corn or early-maturing soybeans.

**Damage:** Although stink bugs feed on vegetative parts of the plant, and will occasionally feed on squares, feeding injury to bolls is the most common type of stink bug damage to cotton. Both adults and larger nymphs are capable of damaging bolls. Stink bugs have piercing-sucking mouth parts, which they use to pierce the boll wall to feed preferentially on the developing seed. Recent research has shown that bolls less than 350 DD60s or approximately 18 days of age are especially susceptible to injury. But stink bugs will feed on older bolls, and the effect of stink bug feeding on the ultimate fate of a boll is highly variable. Depending on the extent of the feeding and the age of the boll, bolls that have been fed upon by stink bugs may be completely destroyed or they may open normally and produce a normal amount of lint.

External signs of stink bug feeding are small, somewhat sunken dark spots on the boll wall, often exhibiting a small pierced area in the center of the spot. This external injury is very similar to that caused by plant bugs. Internal symptoms of the damage include small pierced areas on the inner boll wall, wart-like growths on the inner boll wall, stained lint, and damaged seed. Bolls that have sustained heavy damage usually fail to open, but if heavy damage is confined to one or two locks, the affected boll may partially open. Often, bolls may exhibit external signs of feeding without suffering severe internal damage. However, bolls may also exhibit severe internal damage in the absence of external symptoms.

**Yield Effects:** Yield effects of stink bug injury are dependent on the percent of bolls damaged. Heavy uncontrolled infestations of stink bugs can cause severe yield loss. Because stink bugs often do not appear in cotton fields until the later part of the growing season, damage is often concentrated in the upper portion of the plant. Historically, the percent yield loss attributed to stink bugs in Mississippi has been near zero. However, in more eastern states where boll weevil has been eradicated for a number of years, estimates of the amount of yield lost to stink bugs have ranged as high as 3.8%. It is anticipated that the importance of stink bugs will increase considerably in Mississippi in the coming years.

**Control:** Effective control of stink bugs depends on the application of foliar insecticide sprays that are applied whenever infestation levels exceed the economic threshold. Currently, stink bug is an occasional pest of cotton, with fewer than 0.1 % of fields requiring treatment each year. Although there are some differences between the brown stink bugs and other stink bugs in susceptibility to certain insecticides, stink bugs are relatively easy to control with foliar sprays. However, fields located near plantings of alternate hosts harboring high numbers of stink bugs may require multiple insecticide treatments for adequate yield protection. Because of their clumped distribution, spot treatment or border treatments are often effective against this pest. Insecticides recommended for the control of stink bugs are listed in Table 8.

**Table 8: Insecticides Recommended for Control of Stink Bugs.**

<b>Insecticide</b>	<b>Trade Name</b>	<b>Lbs ai/acre</b>
Acephate	Orthene, etc	0.75 to 1.0
Cyfluthrin *	Baythroid	0.025 to 0.033
Cyahlothrin *	Karate	0.025 to 0.03
Dicrotophos	Bidrin	0.4 to 0.5
Tralomethrin *	Scout X-tra	0.018 to 0.024
Deltamethrin *	Decis	0.019 to 0.03

Pyrethroid insecticides are less effective against brown stink bug species.

Source: Cotton Insect Control Guide, 2003, Publication 343, Mississippi State University Extension Service



**Stink bugs:** Several species of stink bugs are capable of attacking cotton. These include the southern green stink bug, green stink bug, and the brown stink bug. Note that the nymph of the brown stink bug looks much different than the adult. The nymph of the green stink bug also differs greatly from the adult stage.



southern green stink bug



green stink bug



brown stink bug



nymph of the green stink bug