



**TUSKEGEE UNIVERSITY
COOPERATIVE EXTENSION PROGRAM**



**Publication No. TUCED - MANAGEMENT OF STINK BUGS IN ORGANIC TOMATO
PRODUCTION**

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Stink Bugs (Green): *Acrosternum hilare* (family: pentatomidae)
(Brown): *Euschistus servus*



Green Stink Bug



Brown Stink Bug



Stink bug damage

Photos: Leslie Grill, Tuskegee University

Introduction: Stink bugs are large triangular bugs in the pentatomidae family of insects. Their common name is derived from disagreeable odors produced by scent glands to deter predation. The insect uses piercing-sucking mouthparts to suck sap from plants. Several species of stink bugs cause serious damage to tomatoes and other vegetable crops. These green, brown and black insects give an awful odor when crushed; they are reported on a large number of crops and cause significant damage as they feed on these crops. They are found on a variety of host plants, but cause most damage to tomato, pepper, bean, okra and fruit crops. In the past 3 years, in the southeast, stink bugs have shifted from occasional minor pests to frequent major pests. The most common species in Alabama are the green stink bug (*Acrosternum hilare*) and brown stink bug (*Euschistus servus*). Stink bugs build up their populations on alternate hosts like broadleaf weeds, legumes and soybeans until cultivated hosts become available. They overwinter as adults in the northern parts of the US but are active all year round in the southern regions of the US which are warmer.

Identification: All adult stink bugs have a distinct shield-shaped body that is either green or brown in color. Green stink bugs are 3/4 inch in length, bright green with a narrow orange-yellow line bordering the body regions. The brown stink bug on the other hand is about 1/2 to 5/8 inch in length and dull greyish-yellow in color. Green stink bug nymphs are black in color when small, however as they mature, they turn green with orange and black markings. Nymphs of brown stink bugs are light green. Stink bug adults become active during early summer and each female lays several hundred barrel-shaped eggs in clusters of 20-30 eggs each; eggs are laid

on the foliage of host plants. Nymphs feed throughout the summer and molt to adults in late summer. The insect typically completes 2-3 generations each year.

Injury: Adults as well as nymphs pierce and suck sap with needle-like mouthparts (i.e. stylets) from the leaves, buds, growing shoots and developing fruits. Damage on green fruits appear as characteristic white or yellow scars on the skin or sunken areas in tissues where the stylets were inserted into fruits; these points of insertion remain light green on ripe tomato fruits. Retarded growth of young fruits as well as withering and dropping of fruits is often observed on stinkbug-infested tomato plants. In addition to the noticeable damage of tomato fruits, the feeding activity of stinkbugs sometimes result in the mechanical transmission of bacterial spot caused by *Xanthomonas spp.*

Management: Sampling by sweep nets to catch adult stink bugs is traditionally performed to determine the life stage and their numbers on the crop. The economic threshold level (number of insects above which there will be economic losses) suggested in Alabama is 0.25 stink bugs per ten plants at green fruiting stage of tomato. A key management strategy to reduce stink bugs is the elimination of weed hosts from within and around the fields. This is because several weed plants serve as overwintering hosts for stink bugs and leaf-footed bugs.. Good weed management around the field helps to reduce the nymphs on plants. Cover crops serve as good hosts for both stink bugs and leaf-footed bugs; if grown they should be carefully monitored and plowed under to prevent the migration of these pests into the main crop. A few species of parasitic wasps feed on stink bug eggs. Even though insecticidal soaps and pyrethrins are recommended for the management of stink bugs and leaf-footed bugs, they have been reported to provide only a short-term control of these pests. There are currently no highly effective organic insecticides for the management of stink bugs. Stink bugs are difficult to manage especially in organic systems. Preliminary research suggests that trap cropping may be a useful strategy to manage them. Sorghum, millets, buckwheat and sunflowers are recommended as main species of trap crops for the management of stink bugs.

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