



Stink Bugs

Introduction

Kansas crops can be infested by several stink bug species, but it is usually the green stink bug, *Acrosternum bilare*, and to a lesser extent, the brown stink bug, *Euschistus servus*, that cause problems. Both immatures (nymphs) and adults are *polyphagous*, meaning they feed on many types of vegetables and row crops.

Description

Stink bugs belong to the order Hemiptera (family Pentatomidae). Both nymphs and adults use piercing-sucking mouthparts to puncture plant tissue and suck out fluids. They feed anywhere they can penetrate tissue but prefer young, tender, more succulent plant parts or developing seed. The stink bug life cycle consists of barrel-shaped eggs, five nymphal stages (instars), and the adult. Green and brown stink bugs behave similarly but can be identified in all nymphal stages by their physical characteristics.



Figure 1 – Adult green stink bug



Figure 2 – First instar green stink bug nymphs

Green stink bug (Figure 1). First instar nymphs are reddish brown and tend to remain clustered on the egg mass unless disturbed. They do not appear to feed on plant tissue (Figure 2). Second and third instars are pale to dull green with black and white stripes on the dorsal surface of the abdomen (Figure 3). Second-instars also remain near the egg mass but begin to feed on plant tissue, especially around tender shoots and reproductive

structures. Third instar nymphs begin to move away from the egg mass but remain clustered. Fourth and fifth instars may disperse widely and are either green with yellow and black stripes on the abdomen or are pale yellow-green with a black pronotum (shoulders) and a black area in the center of the dorsal abdomen. Adults are $\frac{1}{16}$ to $\frac{11}{16}$ inch long. Margins of the pronotum are straight and yellowish or pale. Eggs are initially yellow to green (Figure 4) but gradually turn pink to gray (Figure 5).

Brown stink bug All five instars of the brown stink bug are yellow to tan. They have a brown pronotum and brown spots down the middle of the abdomen. Adults are $\frac{1}{2}$ to $\frac{5}{8}$ inch long and are dull brown to yellow (Figure 6). Eggs are kettle-shaped and white. Brown stink bugs are widely distributed but not as common as the green stink bug in Kansas.



Figure 3 – Green stink bug nymph



Figure 4 – Green stink bug eggs



Figure 5 – Green stink bug eggs just before hatching



Figure 6 – Adult brown stink bug

Life cycle

Stink bugs overwinter as adults under leaf litter, crop residues, bark, or other protective materials. When temperatures warm in the spring, adults move out of winter cover and begin feeding

on available plants such as clover, vegetables, corn, and weeds. After feeding for a few days, they mate. In mid to late June, females deposit up to several hundred eggs in clusters of approximately 30 to 40 eggs each. Clusters can be found on almost any plant part, but usually on leaves and stems. Stink bugs reach the adult stage approximately five weeks after they hatch. There are two generations per year in Kansas.

Damage

Both nymphs and adults use piercing, sucking mouthparts to puncture plant tissue and imbibe fluids. They commonly attack stems, foliage, blooms, and most importantly, the seeds of soybean plants. Brown to black spots may appear at puncture sites a few days later.

Feeding can result in fluid loss, injection of digestive enzymes, deformation and abortion of fruiting structures, and pathogen establishment. Large stink bug populations can cause delayed leaf maturity, foliage retention, and proliferation of abnormal leaflets and pods near the main stem.

Stink bug feeding during the early stages of soybean seed formation can result in shriveled, deformed, and undersized seeds. Feeding on fully developed seeds causes only minor shriveling and seed discoloration. A significant quantity of bug-damaged kernels can reduce market values or prevent the sale of seed. Significantly damaged kernels have slightly higher protein, less oil and altered fatty acid composition, and will not germinate. Lightly and moderately damaged seed will germinate unless damage occurred on the hypocotyl of the seed.

Management

Stink bugs have a few natural enemies, including several common species of birds and some parasites that attack eggs and nymphs. As their name suggests, they emit a foul odor that repels many predators.

Stink bugs may be sampled in soybeans by shaking plants over a white ground cloth or into a bucket and counting the number of dislodged bugs. Early season populations in vegetative soybeans are randomly dispersed or localized on field borders. As soybeans begin to bloom and set pods, female stink bugs are strongly attracted to the plants and move into fields to lay eggs.

Using insecticides to control stink bug populations is not warranted except during the time from pod fill until seed maturity. Apply labeled insecticide treatments only when there are 10 or more bugs per 30 feet of row. Because females are drawn to blooming soybeans, planting small trap crops of early maturing varieties can attract large numbers of females, which can be controlled with an insecticide to prevent them from dispersing to the main crop.

Photo Credits

Figures 1, 2 and 3 – Phil Sloderbeck

Figures 4, 5 and 6 – Holly Davis

Authors

R. Jeff Whitworth, Entomologist

Holly Davis, Insect Diagnostician and Research Assistant

Brand names appearing in this publication are for product identification purposes only. No endorsement is intended, nor is criticism implied of similar products not mentioned.

Publications from Kansas State University are available at www.bookstore.ksre.ksu.edu

Contents of this publication may be freely reproduced for educational purposes. All other rights reserved. In each case, credit R. Jeff Whitworth, and Holly Davis, *Stink Bugs*, Kansas State University, September 2009.