



Brown Stink Bug in Field Corn

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Distribution and Hosts:

The brown stink bug, *Euschistus servus* (Hemiptera: Pentatomidae), is a native pest to North America, ranging from Mexico to Canada. It has historically been a sporadic pest in agricultural settings. Recently, it has emerged as a perennial pest of field corn in southeastern and coastal Virginia. The brown stink bug feeds on a wide range of agricultural crops including wheat, peanut, corn, cotton, soybean, and vegetables. The reduced use of broad-spectrum insecticides, the close proximity of host plants, and minimal tillage practices, have created an ideal environment for this pest to persist throughout the growing season.

Identification:

The brown stink bug is a brownish-yellow, shield-shaped insect about 10-15-mm long and 7-9-mm wide (Fig. 1). The underside of the insect can range from green to pale yellow during mature stages. The adult can be distinguished from the invasive brown marmorated stink bug by a lack of white bands on antennae and



Figure 1. Adult brown stink bug (Herb Pilcher, Agricultural Research Service, Bugwood.org)



Figure 2. Nymph brown stink bug (Tim Bryant)

legs, and the margin of the abdomen does not have white markings. The nymphs lack wings and are green, often with a brown patch vertically along the abdomen (Fig. 2). Eggs are pale yellow and when they near hatching they develop red spots on the top margins.

Scouting and Injury to Field Corn:

The brown stink bug can feed on corn throughout the growing season. This feeding is most damaging to field corn in two plant development periods, during early growth and during ear formation. Winter cover crops and crop residue often serve as overwintering material, and upon breaking diapause in the spring, herbicide burn downs of cover crops or a lack of suitable hosts can lead to early infestations in corn. Early-season infestations have the potential to cause growth deformities in seedling corn and in turn, delayed maturity and a reduction in yield. Common deformities in seedling corn associated with stink bug feeding are window pane leaf injury and tillering/suckers (Fig. 3). The brown stink bug will

commonly move from a winter grain (e.g., wheat) during harvest into susceptible reproductive stages of corn development. Feeding during ear formation and early grain-filling stages of corn development can cause aborted kernels, discolored kernels, and severe deformity of ears. Ear deformity often manifests itself in the form of banana shaped ears with discolored and aborted kernels (Fig. 4). All of these factors can lead to a reduction in yield and/or quality of the harvested grain. Scouting for brown stink bug is important in making management decisions. For seedling corn, search 10 entire plants in at least five sections of the field, making sure to check inside the whorl and around the base of the plant. Chemical treatment of seedling corn is recommended when there are bugs on 10% of the scouted plants (1 bug/10 plants). For reproductive stages of corn, scouting efforts should be focused on the portion of the plant where the ear is developing. Ten consecutive plants should be searched in at least five sections of the field. Scouting during reproductive stages should be conducted between the last vegetative stages prior to tassel and blister. Currently, chemical treatment of reproductive corn has been recommended when there are bugs on 25% of plants (1 bug/4 plants).



Figure 3. Tilling of seedling corn (Tim Bryant)



Figure 4. Damage to ears of corn, note banana shape (Tim Bryant)

Control:

Cultural: Minimal or no-tillage systems can provide suitable overwintering material for the insect and may influence the levels of infestation seen throughout the year. The planting of wheat in close proximity to corn could also play a role in infestations in corn. These are important factors to consider in planting and soil management in areas where there is a history of infestation.

Biological: Brown stink bug eggs can be parasitized in much of its natural distribution. It is important to scout fields and make chemical application decisions based on thresholds, as they are toxic to many egg parasitoids. Up to 50% of brown stink bug eggs have been found to be parasitized in field studies, which is potentially sufficient to prevent economic damage.

Chemical: Seed treatments and in-furrow applications may provide early protection against stink bug feeding on developing seedlings. Systemic neonicotinoids have the largest potential for protection. Infestations during reproductive

stages of corn development can be managed with aerial pyrethroid applications. Bifenthrin is the most commonly applied foliar insecticide for brown stink bug infestations. Low residual activity and failure to penetrate the canopy may lead to re-infestation of treated areas. Refer to Virginia Cooperative Extension publication no. 456-016, "Pest Management Guide: Field Crops" for additional information.