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The Pest Potential of Brown Marmorated Stink Bug on Vegetable Crops

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The brown marmorated stink bug, *Halyomorpha halys* (Stål) (Fig. 1), is an invasive insect from east Asia that was first reported in the USA near Allentown, PA, in the late 1990s (3). Since that time, the pest has spread rapidly across the United States, although significant pest densities and concomitant crop damage have largely remained centered in the mid-Atlantic from New Jersey to Virginia (2). The insect is highly polyphagous (1) and has been reported as a serious pest of tree fruit in the United States (4,2), but its damage and risk to vegetable crops has not been well documented to date. Herein, we report our observations from the mid-Atlantic United States on the relative pest risk that *H. halys* poses to vegetable crops.

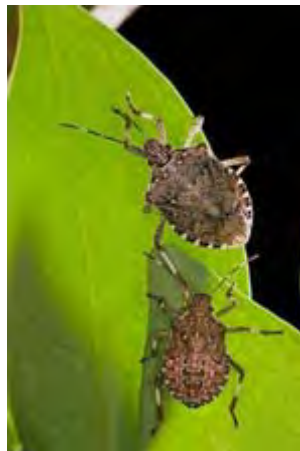


Fig. 1. Brown marmorated stink bug adult and 5th instar.

Halyomorpha halys is a piercing sucking feeder that inserts its stylets into fruit, pods, buds, and stems of plants. Our on-farm and research plot observations in 2010 and 2011 suggest that vegetable crops appear to be attacked by *H. halys* from mid July until mid September. Vegetable crops directly bordering woodlots are at the highest risk of attack. Sweet corn (*Zea mays* L.) is a strongly-preferred host crop, on which more than 20 nymphs or adults have been observed on a single ear (Fig. 2). Stylets are inserted through the husk and pierce the tender kernels, which may cause them to become aborted, collapsed, or discolored (Fig. 3). In Beltsville, MD, in 2011, nearly 100% of sweet corn ears in early to mid-season plantings were injured by *H.*

halys. Beans, in particular *Phaseolus vulgaris* L., are also attractive host plant. Feeding injury to beans may result in scarred, faded out sunken areas, and deformed pods (Fig. 4). Approximately 10 to 15% of snap bean pods were injured by this pest in Maryland and Virginia research plots in 2011. Later plantings of snap and lima beans and sweet corn in September and early October experienced less *H. halys* activity. These plantings possibly avoided injury because of the more attractive soybeans (*Glycine max* L. Merr.) grown nearby. Fruiting vegetables such as peppers (*Capsicum annuum* L.), tomatoes (*Solanum lycopersicum* L.), and eggplant (*Solanum melongena* L.) also can suffer heavy feeding damage from *H. halys*. Large numbers of stink bugs can build up in fields resulting in fruit rot and abortion (Fig. 5). Injury to fleshy fruit, like tomatoes and peppers, will produce white spongy areas on the skin and tissue damage internally where the feeding stylets were inserted into the fruit (Figs. 6 to 9). Okra (*Abelmoschus esculentus* Moench) is also fed upon by this pest resulting in deformed seed pods (Fig. 10). Almost 40% of okra pods were injured by *H. halys* and other bugs in Beltsville, MD, in 2011. Okra may be an indicator for potential feeding damage to another important crop in the Malvaceae family, cotton. Based on our observations thus far, the aforementioned crops have suffered the most damage from *H. halys* among the vegetables. Very little injury has been reported from cruciferous or cucurbit vegetables. However, these crops may be more attractive and susceptible if isolated and not grown close to more preferred host plants. Brown marmorated stink bug damage to other agricultural commodities also may become more extensive as the pest becomes further established in other areas.



Fig. 2. Brown marmorated stink bugs on sweet corn, a favored host plant.



Fig. 3. Brown marmorated stink bug feeding on corn can result in aborted and discolored kernels.



Fig. 4. Brown marmorated stink bug feeding injury on green bean pods.



Fig. 5. Severe infestations of brown marmorated stink bug can result in total loss of fruiting vegetable crops.



Fig. 6. Brown marmorated stink bug feeding scars on tomato fruit.



Fig. 7. Spongy area left by stink bug feeding on bell pepper.



Fig. 8. Brown marmorated stink bug feeding scars on bell pepper.



Fig. 9. Brown marmorated stink bug feeding injury on eggplant.



Fig. 10. Brown marmorated stink bug feeding injury on okra.

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