

# Fruit & Vegetable IPM Fact Sheet:

## Brown Marmorated Stink Bug

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Adult BMSB

### Introduction to US and North Carolina

The brown marmorated stink bug (*Halymorpha halys*; BMSB) is an invasive pest native to eastern Asia. It was first detected in the US in Allentown, Pennsylvania, in 1998. Since then, BMSB has spread across the nation, and populations have built to large numbers throughout the mid-Atlantic region. It was first detected in North Carolina in 2009 near Winston-Salem. Initial invasions to new areas usually occur in urban areas.

### Description

BMSB is similar in appearance to the native brown and dusky stink bugs, but can easily be distinguished by white bands on the antennae and legs. This is apparent in both adult and immature forms. BMSB eggs are generally larger than those of native stink bugs, and are laid in masses that usually contain 28 eggs.

### Host Plants

#### Agriculture

- ◆ Apples
- ◆ Peaches
- ◆ Tomatoes
- ◆ Peppers
- ◆ Soybeans
- ◆ Corn

#### Non-Agriculture

- ◆ Tree of Heaven
- ◆ Paulownia
- ◆ Catalpa
- ◆ Black Cherry
- ◆ Black Walnut

### Annual life cycle in North Carolina

BMSB overwinters in dry structures. In nature, this will typically be standing dead trees, but BMSB will eagerly enter homes and buildings, often aggregating in attics and other dark spots. It is the only stink bug species that seeks out human made structures as overwintering sites. In the spring, adults emerge from overwintering sites in April and May and move into wooded areas, where they feed and reproduce. In the early summer months, many adults and nymphs migrate to other habitats, including agricultural fields and home gardens. Both adults and juveniles will move among crops, and soybeans are among the preferred hosts late in the season (September). By mid-September, adults disperse to overwintering sites, and on sunny days are often observed aggregating on the outside of buildings.

### Distribution in North Carolina

As of March 2014, BMSB was present in 61 of North Carolina's 100 counties. The largest populations were concentrated in the piedmont and mountain regions. There have been very few reports of BMSB in the coastal plain.



BMSB aggregating on a home searching for entry points.



Updated March 2014

## Damage in Agriculture

The brown marmorated stink bug has a wide host range and potentially can become a major agricultural pest in many fruits, vegetables and row crops. Stink bugs have piercing, sucking mouth parts. In addition to removing plant cell contents while feeding, they also secrete enzymes that kill tissue. Damage has been most commonly observed on tomatoes, peppers, okra, apples, peaches, and corn, and is expressed as misshaped, discolored fruit. On some crops, such as peaches and corn, damage may not be apparent on the exterior of the fruit, and is only observed when the fruit is cut open. There is also evidence that BMSB can transmit microorganisms that cause some fruits, such as pepper and tomato, to rot.



**Discoloration caused by BMSB on Tomato and Pepper**



**BMSB nymphs feeding on a peach**



**Internal damage to peach, not observed externally**



**BMSB damage to exterior and interior apple**



**Starting left: BMSB egg mass, 1<sup>st</sup> instars on egg mass, 2<sup>nd</sup> instar, 4<sup>th</sup> instar and adult**

## Management



**BMSB eggs consumed by predators.**

Insecticides are currently the most effective option for managing BMSB in agricultural and home garden settings. Insecticides belonging to the pyrethroid and neonicotinoid classes are most effective. Naturally occurring biological control agents, primarily predators, can help to reduce populations. BMSB eggs are the stage that is most vulnerable to biological control. Research is being conducted to develop additional management strategies, including the use of trap crops, pheromones to attract and kill stink bugs, and other cultural management approaches.



**Pheromone trap to monitor BMSB presence.**