



Brown Marmorated Stink Bug

Halyomorpha halys Stål (Hemiptera: Pentatomidae)

Introduction:

The Brown Marmorated Stink Bug (BMSB) is an exotic invasive bug that probably entered the U.S. in packing crates originating in Asia, where it is a serious pest of soybeans and many fruit trees. It was first reported as a nuisance pest invading homes in Allentown, PA, in 2001, but was likely present there since the mid-1990s. BMSB, unlike other stink bug species, invades warm buildings in the fall to seek overwintering sites. BMSB was recently confirmed as a significant agricultural pest in the U.S. as well, when it appeared in many commercial crops in 2010.

U.S. Distribution/Spread:

BMSB has been detected in over 20 eastern and southern states ranging from Maine to Mississippi, as well as Ohio, California and Oregon. Most believe the distribution is much wider than currently documented, and that detections will increase with greater public awareness of this pest. BMSB is a strong flyer and readily hitchhikes on vehicles, contributing to the rapid spread of this pest over great distances.

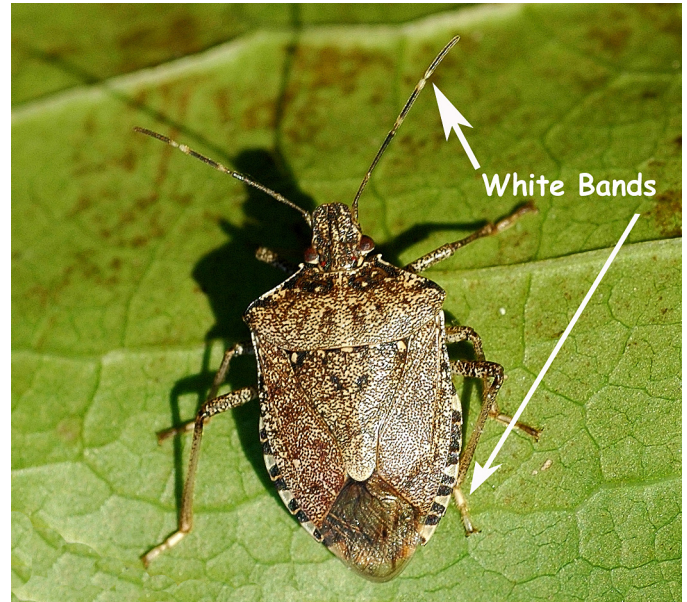
Host Plants:

BMSB is polyphagous, and feeds on many different species of fruit trees, ornamental plants, vegetables and legumes. In Asia, it is considered a major agricultural pest of fruit trees, particularly citrus, and of legumes, especially soybeans. In the U.S., BMSB has been found feeding on a wide array of fruit and ornamental trees, herbaceous plants, vegetable, field, and other fruit crops. Unlike native stink bug nymphs, BMSB nymphs as well as adults have been observed feeding on plant leaves, stems, and fruit. The list of hosts that BMSB feeds on continues to grow.

Biology and Damage:

In China, BMSB have only one generation per year in cool northern regions, but up to six per year in southern areas. A similar pattern is expected in the U.S. as BMSB spread north and south. BMSB overwinter as adults, primarily inside houses and other sheltered locations. Adults emerge throughout spring, and may appear during warm sunny periods during the winter. Adults begin feeding upon emergence, and are very active, dropping off plants or flying away if disturbed.

After mating, each female may lay up to 250 pale green or white, spherical-shaped eggs, deposited in clusters of 20-30 on the underside of host plant leaves at about one week intervals from June to September. Eggs hatch in 4 to 5 days into nymphs that will complete five instars (developmental stages), each lasting about one week. Different nymphal instars are often seen on the same host plant throughout the season. Nymphs tend to be solitary feeders, but may congregate on leaves, bark or fruit. New adults begin to appear in mid to late summer.



Adult BMSB. Note white bands on antennae and legs, and alternating white and dark markings along the outer edge of the abdomen. Michael Raupp, UMD

BMSB adults and all nymphal stages damage plants by puncturing fruit or leaf surfaces with their piercing-sucking mouthparts and sucking out liquid nutrients in a straw-like fashion. This leads to scarred fruit and damaged leaves, and may make plants more susceptible to secondary infections. Although not known to harm humans, BMSB are considered a nuisance inside homes and emit a distinctive odor when crushed or disturbed. From mid-September until first frost, hundreds of BMSB may try to enter homes, clustering on outer walls or inside near windowsills and doors. Homeowner complaints about BMSB invading homes will likely help in detecting this pest as it spreads to new locations.

Identification:

- Adults are shield shaped, dark “mottled” brown colored with a darker spot at the tail where the wings overlap.
- Adults range from ½-¾” (13-19 mm) long and ¼-2/5” (6-10 mm) wide.
- **The best field identifying characteristic is the pattern of alternating dark and light bands on the last two antennae segments.**
- The outer edges of the abdomen have a pattern of alternating white and dark markings.
- The underside is pale, sometimes with grey or black markings; the legs are brown and may have faint white bands.
- Like all stink bugs, adult BMSB emit a pungent odor when disturbed.

- Eggs are tiny, spherical-shaped, white or pale green, found in clusters of 20-30 on the undersides of leaves from June to late summer.
- There are 5 nymphal instars: all lack fully developed wings, and range in size from 1st instar at ~0.09" (2.4 mm) to 5th instar at ~0.5" (12 mm).
- 1st instar nymphs: orange/red bodies with black markings; black head, thorax, legs; dark red eyes; dark antennae.
- 2nd instar: black, tick-like appearance; reddish/black eyes.
- Later instar nymphs: marbled brownish/black with dark and pale markings on the back; alternating dark/pale markings along margins of abdomen; abdomen pale; dark eyes; alternating black/white bands on antennae and at times on the legs.

BMSB eggs and newly hatched 1st instar nymphs. Michael Raupp, UMD



What to Look For:

BMSB are usually identified by the bug itself, by its feeding damage, or by entering buildings in the fall. BMSB can generally be distinguished from other stink bugs by the alternating dark/white markings on the antennae and outer edge of the abdomen.



BMSB 2nd instar nymph (lower left) and later instar nymphs feeding on ripening tomato. Michael Raupp, UMD

Symptoms of BMSB infestation include:

- Feeding damage appearing as small, roughly circular stippled areas, and/or necrotic areas on leaves of some plants.
- Fruit damage may include water-soaked lesions, discoloration, pitting, dimples, puckering (“catfacing”), and/or depressed areas on mature fruit. Injury extends deeper into fruit than does that of native stink bugs.
- Whitish-yellow “cloudy spots” on some vegetables such as tomatoes and peppers.
- Pimples or wart-like growths on okra and bean pods; deformation or shriveling of pods.
- Early feeding may cause incomplete kernel fill of sweet corn; later feeding may cause kernel collapse and brown discoloration.
- In fall, huge numbers of adult BMSB may congregate on building walls and invade homes.

How to Report a Possible Sighting/Infestation

In Maryland:

University of Maryland Cooperative Extension Exotic Pest Threats Website:

http://www.PestThreats.umd.edu/content/pestreport_form.cfm

Maryland Department of Agriculture: call 410-841-5920 to report suspect pests; visit http://www.mda.state.md.us/plants-pests/invasive_species.php for information.

Nationally: USDA-Animal and Plant Health Inspection Service (APHIS) at http://www.aphis.usda.gov/services/report_pest_disease/report_pest_disease.shtml

Adult BMSB Actual Size:



Where to Get More Information:

UMD Cooperative Extension Exotic Pest Threats Website: <http://www.PestThreats.umd.edu/index.cfm>

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Issued in furtherance of Cooperative Extension work, acts of May 8 and June 30, 1914, in cooperation with the U.S. Department of Agriculture, University of Maryland, College Park, and local governments. Cheng-i Wei, Director of Maryland Cooperative Extension, University of Maryland.

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