BROWN MARMORATED STINK BUG (BMSB)

Halyomorpha halys

Description:

Adults:

Typical stink bug shape, about 0.5 in (12 mm) long and marbled brown. Distinguishing characteristics include antennae with two white bands, blunt forward edge of the head, smooth margin of shoulders (thorax), marbled brown legs with faint white bands and dark bands at the tip of the forewings.

Eggs:

Barrel-shaped, white to pale green and laid in clusters of 20-30 on the underside of leaves.

Nymphs:

Newly hatched, first instars are orange in color and remain clustered around the egg mass where they feed from the egg before dispersing. Subsequent instars (second through fifth) are mostly black with a marbled brown head and thorax, reddish-brown, black and white abdominal markings, and distinct white bands on the antennae and legs.

Hosts:

Serious pest of fruit, vegetable, and some nut crops. Most affected specialty crops include apple, pear, peach, nectarine, fig, persimmon, grape, raspberry, blueberry, cherry, soybean, sweet corn, field corn, tomato, bean (green, pole, snap), pepper, hazelnut, and pecan. BMSB feeds on over 170 host plant species.

Left: Apple with internal necrosis from BMSB feeding.
Right: BMSB feeding on grape and feeding damage. (Source: stopmsb.org)

Damage:

- Adults and nymphs feed by inserting their mouthparts into fruit, nuts, seed pods, buds, leaves, and stems and suck juices out. Mouthparts can penetrate very hard and thick tissue, such as the hazelnut hull.
- Initial damage may appear as oozing of sap and damaged flesh under the skin turns hard and pithy. Feeding on younger fruit may cause discoloration and fruit distortion that may be mistaken for physiological disorders such as bitter pit and cork spot.

Orchard Crops

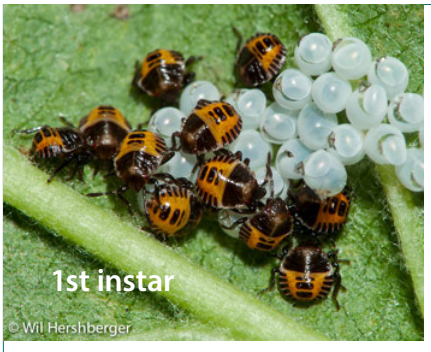
- Peach is considered a preferred and highly vulnerable host. Feeding causes gummosis at the feeding site, deformations on the fruit surface and brownish-red necrosis.
- Feeding through the skin of apples and pears leaves a tiny hole and can cause injury to the fruit surface and flesh. Most surface depressions are associated with an area of brown necrosis in the flesh beneath.
- Feeding during nut flesh formation can cause blank or shriveled nuts and feeding after nut flesh formation can result in corking at harvest.

Vegetables

- Injury to fleshy fruit, such as tomato and pepper, will produce white or yellow feeding marks on the skin and spongy tissue damage internally.
- BMSB feed on corn by inserting mouthparts through the husk and pierce kernels, causing them to become sunken, collapsed or discolored.

Grapes

- Direct feeding damage to clusters may cause an increase in berry drop, soft and discolored or necrotic berries.



Life stages of BMSB with nymphal instars and adult male and female. (Source: stopmsb.org)

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- Feeding can result in higher levels of plant diseases such as sour rot and may facilitate infestations by other pests, such as spotted wing drosophila.

Phenology:

- One to two generations per year depending on environment and location.
- Aggregate and overwinter as adults in sheltered locations; emerge in late spring using a 13.5-hour day as the biofix for spring emergence.
- Development from egg to adult requires approximately 538-degree days, with an additional 148-degree day period before eggs are laid.
- Migrates into orchards, vegetables, and field crops from overwintering sites and adjacent infested crops once they are harvested.

Lure Type and Maintenance:

- PHEROCON® BMSB Dual Lure or PHEROCON® BMSB Dual High Load Lure.
- Replace PHEROCON® BMSB lures every 12 weeks.

Lure Storage:

- Store in unopened factory sealed packages in a cool place (< 74° F or 24° C maximum).
- Refrigerate or freeze unopened packages to carry over for annual storage.

Trap Design:

- PHEROCON® BMSB STKY™ Dual Panel Adhesive Trap.

Placement Time:

- Adults can be detected throughout the active growing season.
- Traps should be placed in early spring and monitored through fall or harvest.

Placement Pattern:

- Traps should be placed on wooden stakes approximately 2-3 ft (0.6-1 m) above the ground.
- Ensure the trap has a reasonable surface contact with the stake by securing it horizontally along the stake.
- Do not hang trap in trees

Row Crops

- Only place traps along risky borders. Do not place traps in the middle of the block or where traps are touching the crop.
- Place traps closer to wooded habitats rather than up against the crop.
- If the crop is completely isolated, place traps at the edge of the crop.

Trap Density:

PHEROCON® BMSB Dual Lure

- At least two traps per planting; one trap on most susceptible border and one trap in the center of each block.

PHEROCON® BMSB Dual High Load Lure

- Most effectively used as a survey and detection tool in areas where populations are low or not yet established in areas deemed to be high risk.
- Traps should be placed near high-risk locations, facilities or in urban areas where there are potential origins and pathways for introduction and interception such as near transitional facilities, ports, airports, and postal centers.
- An array of two to three traps should be placed approximately 100 m apart.

Trap Maintenance:

- Check traps weekly.
- Replace traps every 3-4 weeks or whenever fouled with dust or debris.

Recommendations:

- The overwintering generation tends to be more susceptible to insecticides than the summer generations; therefore, products with the best effectiveness should be used later in the season.
- BMSB does not reside permanently in any single crop but is a landscape level pest that can invade from wooded habitats, nearby crops and humanmade structures.
- Pest pressure is often highest along orchard edges bordering woodlands and wild hosts. Use of pheromone trap-based thresholds may enhance management effectiveness and efficacy.
- The intensity of management required during each growing season can vary according to size of the adult population.

Source: Recommendations and certain other sections were sourced from StopBMSB.org and from Penn State Extension Brown Marmorated Stink Bug Fact Sheet.

Note, always:

- Use only one lure per trap.
- Count and record captures as recommended.
- Change trap as needed.
- Discard lures in trash far from the area of use and remove trash afterwards.
- Follow recommendations.
- Contact local extension authorities and consultants for regional advice.

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