Brown Marmorated Stink Bug

Halyomorpha halys
(Stål)

Description:
Immature stages – The eggs of the brown marmorated stink bug are a light green or light blue color, 1 mm in diameter, and are laid in clutches of approximately 28 eggs. Eggs are usually located on the underside of leaves of host plants. As the embryo develops it may become visible through the egg, with the eyes appearing as two red spots. The first instar nymphs are approximately 2.4 mm in length, with a black head and thorax and an orange-red abdomen. Following the transition to second instar, the nymphs lose a majority of their orange-red coloring. Second instar nymphs appear dark, with rough spiny projections along the lateral edge of the thorax. Wing buds begin to develop with each successive molt. Later instars have a black to gray base coloration with noticeable spines along the humeral margins, as well as white bands on the legs and antennae.

Nymphs

Adults of the brown marmorated stink bug are larger than those of most native stink bug species, ranging from 12 to 17 mm in length. The base color is a mixture of brown, dark red and black on the dorsal surface, with a beige or cream-colored ventral surface punctuated with metallic green markings on the ventral thorax. Key features for identification of the adult include white bands on antennae and legs, no humeral (shoulder) spines, and alternating dark and light bands on the margin of the abdomen.

Adult

Biology:
Life Cycle –Development from egg to adult takes approximately 40 to 60 days, depending on temperature and photoperiod. After hatching, first instar nymphs may aggregate around the egg clutch before molting and dispersing to feed. Adults can produce multiple egg clutches throughout their lifespan. Winter diapause is a crucial component of the brown marmorated stink bug life cycle. Brown marmorated stink bugs respond to shortening daylength during fall by entering into diapause. During this period adult reproductive activity ceases as the stink bugs conserve resources to survive the winter. Only adults enter diapause and survive through the winter. Increased temperatures and daylength in the spring signal an end to the dormant period and adult brown marmorated stink bugs will leave their overwintering sites in search of food. In warmer climates several generations per year are possible, though in most of its North American range the brown marmorated stink bug has one to two generations per year.

Damage on cotton

Damage to Crop:
The BMSB has the potential to cause damage to several crops, including tree fruit, nuts, vegetables and row crops. During outbreak years the BMSB has caused significant losses to tree fruit producers,

damaging apples, peaches and pears. Vegetable producers have experienced economic damage, with feeding reported on sweet corn, beans and tomatoes. Row crops such as field corn and soybean have also been affected, with damage occurring near field margins adjacent to wooded areas that serve as habitat for BMSB. Appearance of crop injury varies depending on crop type. Feeding on tree fruit, nuts and some vegetables can lead to corky spots in flesh directly below the feeding site. Feeding can also cause discoloration, necrosis or chlorotic spots due to tissue damage. Feeding on developing fruit, particularly peaches, can cause cat facing. In most cases feeding by nymph and adult stages renders the fruit unmarketable.

Management:

Management has primarily relied on use of broad-spectrum insecticides. Excessive chemical control has interrupted established IPM programs for several crops. Because pesticides that are most effective against BMSB are often toxic to natural enemies, pollinators and other beneficial insects, strategies to reduce the pesticides used for control have been developed, such as use of border sprays, which take advantage of increased pest densities observed on border rows of crops, especially when borders are adjacent to forested areas. Growers achieve equivalent control by directing sprays to areas where pest populations are highest and reducing amount of pesticides in areas where density is lower. Discovery of the aggregation pheromone has allowed researchers to design lures which attract BMSB to vicinity of the lure. Combined with traps, including black pyramid traps and sticky traps, lures can allow growers to determine when stink bug populations are at levels that warrant pesticide applications.

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