PENNSTATE
College of Agricultural Sciences • Cooperative Extension
Entomological Notes
Department of Entomology

BROWN MARMORATED STINK BUG

Halyomorpha halys

DISCLAIMER

The brown marmorated stink bug (BMSB), an insect not previously seen on our continent, was apparently accidentally introduced into eastern Pennsylvania. It was first collected in September of 1998 in Allentown, but probably arrived several years earlier. As of September 2010, Halyomorpha halys has been recorded from the following 37 counties, although it is probable that they are in all counties:

Adams, Allegheny, Armstrong, Beaver, Berks, Blair, Bucks, Butler, Cambria, Carbon, Centre, Chester, Clinton, Columbia, Cumberland, Dauphin, Delaware, Franklin, Indiana, Lackawanna, Lancaster, Lebanon, Lehigh, Luzerne, Mercer, Mifflin, Monroe, Montgomery, Northampton, Northumberland, Perry, Philadelphia, Pike, Snyder, Washington, Westmoreland and York

It is also recorded from many other states such as:

California, Connecticut, Delaware, Indiana, Kentucky, Maine, Maryland, Massachusetts, Mississippi, New Hampshire, New Jersey, New York, North Carolina, Ohio, Oregon, Pennsylvania, Rhode Island, South Carolina, Tennessee, Virginia, Washington, D.C. and West Virginia

Sightings have also been reported in the following states however this is not to imply that there are reproducing populations in those states:

Alabama, Arizona, Colorado, Florida, Georgia, Illinois, Iowa, Michigan, Minnesota, Missouri, Nebraska, Vermont, Washington, and Wisconsin

This true bug in the insect family Pentatomidae is known as an agricultural pest in its native range of China, Japan, Korea and Taiwan. Recently, the BMSB has become a serious pests of fruit, vegetables and farm crops in the Mid-Atlantic region and it is probable that it will become a pest of these commodities in other areas in the United States.

BMSB becomes a nuisance pest both indoors and out when it is attracted to the outside of houses on warm fall days in search of protected, overwintering sites. BMSB occasionally reappears during warmer sunny periods throughout the winter, and again as it emerges in the spring.

DESCRIPTION

Adults are approximately 17 mm long (25 mm = one inch) and are shades of brown on both the upper and lower body surfaces (Fig. 1). They are the typical "shield" shape of other stink bugs, almost as wide as they are long. To distinguish them from other stink bugs, look for lighter bands on the antennae and darker bands on the membranous, overlapping part at the rear of the front pair of wings. They have patches of coppery or bluish-me-

Figure 1. Adult brown marmorated stink bug.

Figure 2. BMSB nymphs on Trumpet Creeper.

tallic colored puntures (small rounded depressions) on the head and pronotum. The name "stink bug" refers to the scent glands located on the dorsal surface of the abdomen and the underside of the thorax.

The eggs are elliptical (1.6 x 1.3 mm), light yellow to yellow-red with minute spines forming fine lines. They are attached, side-by-side, to the underside of leaves in masses of 20 to 30 eggs.

There are five nymphal instars (immature stages). They range in size from the first instar at 2.4 mm to the fifth instar that is 12 mm in length. The eyes are a deep red. The abdomen is a yellowish red in the first instar and progresses to off-white with reddish spots in the fifth instar. Protuberances are found before each of the abdominal scent glands on the dorsal surface. The legs, head and thorax are black. Spines are located on the femur, before each eye, and several on the lateral margins of the thorax (Fig. 2).

LIFE HISTORY

This species probably has a single generation per year in Pennsylvania depending on the temperatures. Warm spring and summer conditions could permit the development of two or three generations. However, in parts of sub-tropical China, records indicate from four to possibly six generations per year. Adults will emerge sometime in the spring of the year (late April to mid-May), and mate and deposit eggs from May through August. The eggs hatch into small black and red nymphs that go through five molts. Adults begin to search for overwintering sites starting in September through the first half of October.

DAMAGE

In its native range, it feeds on a wide variety of host plants. Fruits attacked include apples, peaches, figs, mulberries, citrus fruits and persimmons. This true bug has also been reported on many ornamental plants, weeds, soybeans and beans for human consumption. Feeding on tree fruits such as apple results in a characteristic distortion referred to as "cat facing," that renders the fruit unmarketable as a fresh product.

Apple Damage

Sweet Corn Damage

Peach Damage

This insect is becoming an important agricultural pest in Pennsylvania. In 2010, it produced severe losses in some apple and peach orchards by damaging peaches and apples. It also has been found feeding on blackberry, sweet corn, field corn and soybeans. In neighboring states it has been observed damaging tomatoes, lima beans and green peppers.

These insects are not known to cause harm to humans, although homeowners become alarmed when the bugs enter their homes and noisily fly about. The stink bug will not reproduce inside structures or cause damages. If many of them are squashed or pulled into a vacuum cleaner, their smell can be quite apparent.

MANAGEMENT FOR BMSB IN HOMES

Before Bugs Enter a Building

Mechanical exclusion is the best method to keep stink bugs from entering homes and buildings. Cracks around windows, doors, siding, utility pipes, behind chimneys, and underneath the wood fascia and other openings should be sealed with good quality silicone or silicone-latex caulk. Damaged screens on doors and windows should be repaired or replaced.

Exterior applications of insecticides may offer some minor relief from infestations where the task of completely sealing the exterior is difficult or impossible. Applications should consist of a synthetic pyrethroid (i.e. deltamethrin, cyfluthrin, lambda-cyhalothrin, cypermethrin, sumithrin or tralomethrin) and should be applied by a licensed pest control operator in the fall just prior to bug congregation. Unfortunately, because insecticides are broken down by sunlight, the residual effect of the material will be greatly decreased and may not kill the insects much beyond several days or a week.

After Stink Bugs Have Entered the Structure

If numerous bugs are entering the living areas of the home, attempt to locate the openings where the insects gain access. Typically, stink bugs will emerge from cracks under or behind baseboards, around window and door trim, and around exhaust fans or lights in ceilings. Seal these openings with caulk or other suitable materials to prevent the insects from crawling out. Both live and dead stink bugs can be removed from interior areas with the aid of a vacuum cleaner - however, the vacuum may acquire the smell of stink bugs for a period of time.

It is not advisable to use an insecticide inside after the insects have gained access to the wall voids or attic areas. Although insecticidal dust treatments to these voids may kill hundreds of bugs, there is the possibility that carpet beetles will feed on the dead stink bugs and subsequently attack woolens, stored dry goods or other natural products in the home. Although aerosol-type pyrethrum foggers will kill stink bugs that have amassed on ceilings and walls in living areas, it will not prevent more of the insects from emerging shortly after the room is aerated. For this reason use of these materials is not considered a good solution to long-term management of the problem. Spray insecticides, directed into cracks and crevices, will not prevent the bugs from emerging and is not a viable or recommended treatment.

WARNING

Pesticides are poisonous. Read and follow directions and safety precautions on labels. Handle carefully and store in original labeled containers out of the reach of children, pets, and livestock. Dispose of empty containers right away, in a safe manner and place. Do not contaminate forage, streams, or ponds.

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