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WHAT'S UP WITH STINK BUGS?

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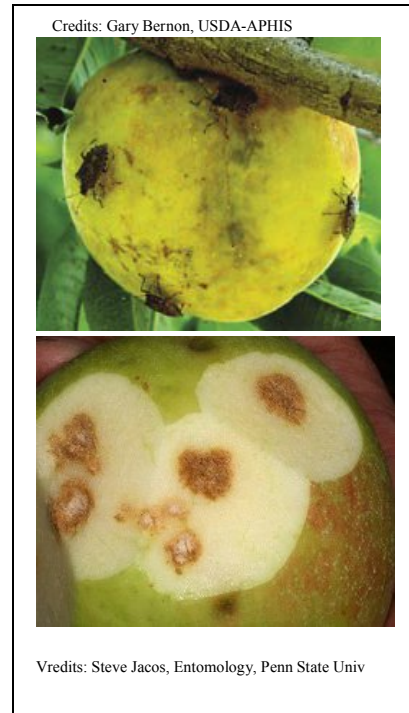
The invasive Brown Marmorated Stink Bug (BMSB) (*Halyomorpha halys*) is one of 200+ members of the *Pentatomidae* family that live in North America. The BMSB sucks sap from the stems, leaves and fruiting parts of plants. It may cause significant injury to plants, and is responsible for loss of some crops. And, it's a rapidly growing nuisance at your home.



WHAT'S UP WITH STINK BUGS?

Longwood's Integrated Pest Management (IPM) Team and our gardeners use a variety of measures to control these and other pests. Our preference is for natural methods and controls. Here we offer some ideas from a variety of sources that may help you cope with these pesky invaders.

The Brown Marmorated Stink Bug was apparently introduced accidentally into eastern Pennsylvania in 1988, in packing material from a shipment originating in Asia. BMSB infestations have been reported in 23 states. Stink bugs feed on and may damage leaves and fruit in apple and peach orchards. BMSB have been found feeding on blackberry, sweet corn, field corn, tomatoes, and soybeans, pear, apple, grapes, currants, lima bean and green pepper crops, and ornamental trees and shrubs including *Paulownia*, crabapple, persimmon, *Catalpa*, walnut, maple, basswood, sweet gum, redbud, American holly, butterfly-bush and serviceberry. Because of the warm weather in 2010 that stimulated higher reproduction rates, stink bugs were more numerous and destructive in orchards and garden plantings.



What's The Problem? Stink bugs pierce stems, leaves and fruit's outer surface and suck out juices while injecting saliva. The suction and saliva create a dimpling of the fruit's surface, rotting and corking of the flesh underneath. Damaged fruit is not salable because of its undesirable appearance, but the dimpled area is not poisonous to humans. While the bite is superficial, breaking the target plant's skin can open the way for a fungi to enter the plant.

BMSB is also a nuisance pest both indoors and out when it is attracted to the inside of houses on warm fall days in search of protected overwintering sites. Once inside, BMSB occasionally reappears during warmer sunny periods throughout the winter, and again as it emerges in the spring. Squashed bugs emit an unpleasant odor.

Life Cycle: In Pennsylvania, mating occurs two weeks after emergence from the winter resting period, and eggs first appear typically in June. Females may continue to lay egg masses until September.

The white or pale green barrel-shaped eggs are laid in clusters on the undersides of leaves. Egg masses have about 25 eggs that are only about 1 mm in diameter but become apparent when match-head sized nymphs have recently emerged, as they will stay at the egg mass for several days. Nymphs go through five stages (instars): first instars are colored orange or red and remain clustered around the egg mass. Second instars are black and by the third instar resemble small adults.

The interval from egg laying to adult maturity ranges from 30- 80 days, varying inversely with temperature. Adults may live more than one season.

Managing Stink Bugs

There are many methods of managing stink bugs to consider. For example, are they eating your orchard fruit or just inside your home? Decisions about your habitat/plantings and mechanical controls are the best line of defense. For chemical controls, see [What about Insecticides?](#)

Your Plantings: You can make your property less attractive to BMSBs by avoiding certain ornamental plants, including butterfly-bush (*Buddleia* spp), and the princess tree (*Paulownia. tomentosa*). Both adults and nymphs feed on the leaves of these two host plants which may attract stink bugs as they spread to new areas. Both are invasive exotic plants that one might not wish to encourage.

On Fruit trees: In early spring, application of a dormant oil spray may prevent stink bug eggs hatching. After pollination, one might lightly coat fruit trees with a slurry of kaolin clay (trade name “Surround”), spraying the trunk, branches and leaves using a garden sprayer. This won’t kill bugs, but may serve as a feeding barrier and the light color will make it easier to detect and remove bugs. Kaolin also deters other pests that attack fruit trees. As part of your management plan, you may need to re-apply the clay several times during the growing season.

From early June, monitor the undersides of leaves for eggs, and remove leaves that have them. Stink bugs prefer fleshy fruit, so when fruit is near to ripening, you should patrol your trees frequently, and remove bugs and eggs found. If your fruit trees are relatively small, after fruit forms you can use sheer curtain material to cover the entire tree. This method can be used to exclude Japanese beetles from foliar feeding, and birds as well. Be sure to enclose the entire tree and fasten the cover so that pests cannot enter by climbing the trunk.

In The Garden: Keep weeds out of beds and surrounding areas that may harbor stink bugs. Small garden plants can be protected by row covers if the plants do not need to be pollinated, or after the pollination season. Remove any bugs found daily -- they’re slower-moving in the morning and easier to track down.

Eggs and first instar nymphs



Credits: Karen Bernhard, Lehigh County Extension, Pennsylvania State University

Eggs and first and second instar nymphs



Credits: Gary Bernon, USDA-APHIS

What about Insecticides? It's tempting to use insecticides, but not very effective unless you're a professional fruit or vegetable grower. In the open, BMSB are difficult to kill with chemicals. Insect sprays are effective for only a few days, and they kill the natural enemies of aphids, spider mites and other leaf-feeding insects, such as lady beetles, lace wings, and assassin bugs.

Inside Your Home: Mechanical exclusion is the best course. Around early September, stink bugs will migrate to sheds, garages, and houses where they can over-winter. Cracks around windows, doors, siding, utility pipes, behind chimneys, and the roof fascia and other openings should be sealed. This will pay benefits in reduced energy costs as well. Damaged screens should be repaired or replaced. Make sure that all openings are screened, especially bathroom vents and attic fans. Stink bugs often congregate in window air conditioners, and are unwittingly transported indoors by homeowners, so consider bagging A/C units before storing them. Keep garage and shed doors closed.

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 (the odor can be countered with coffee grounds or vanilla extract). It is not advisable to use an insecticide after the insects have gained access to wall voids or attic areas. Although insecticidal dust treatments may kill stink bugs, there is the possibility that carpet beetles will feed on the dead bugs and subsequently attack woolens, stored dry goods or other natural products in the home.

Stink bugs are easy to catch with a fly swatter, or a wide-mouth jar with some water and a drop or two of dish detergent: hold the jar under the bug and poke it with a small stick or what-have-you and it will typically dive into the jar, from whence you can dispose of it. Stink bugs do not bite humans or pets.

Long-Term Solutions: Rutgers, Penn State, University of Maryland, U. S. Department of Agriculture and others are working to find long-term methods of managing the Brown Marmorated Stink Bug. Some promising techniques include a parasitic wasp known in China (*Trissolcus halymorphae*), a fungus, and traps to use outdoors and indoors. An effective biological control is probably several years away from reality. There are many things you can do now, and new information will be coming in the future. Some good sources of information are:

<http://edis.ifas.ufl.edu/pdf/IN/IN62300.pdf>,
http://en.wikipedia.org/wiki/Brown_marmorated_stink_bug,
<http://anr.ext.wvu.edu/r/download/74527>
<http://njaes.rutgers.edu/pubs/plantandpestadvisory/2010/vc092910.pdf>

Want to Know More?

Plant diseases and pest management are part of many of Longwood's Continuing Education courses. Go to <http://www.longwoodgardens.org/ContinuingEducation.html> for course information.