



## Pests and Pesticides in Child-serving Facilities: An IPM Newsletter

### School IPM Pest Management Strategic Plan—All Schools to Use IPM by 2015

Over the past two years, a broad group of stakeholders developed a national Pest Management Strategic Plan (PMSP) for IPM in schools. PMSPs are documents commissioned by the United States Department of Agriculture-Cooperative States Research, Education, and Extension Service and developed by stakeholders to identify needs and priorities, typically for specific commodities and regions. **The school IPM PMSP is different from others in that it sets a goal of all US public schools using High Level IPM by the year 2015.** Version 1.1 is posted at <http://www.ipmcenters.org/pmsp/pdf/USschoolsPMSP.pdf>. Plan updates and instruction to provide input can be found at [http://www.ipminstitute.org/school\\_ipm\\_2015.htm](http://www.ipminstitute.org/school_ipm_2015.htm).

### UT Seeks Sites to Conduct Fire Ant and School IPM Demonstrations

I believe we have successfully obtained extramural funding to help promote IPM in Tennessee's schools. To help reach the goal of all schools using IPM by 2015, we proposed hands-on school IPM demonstrations regarding indoor pest management in one school district in three TN Department of Education rural school regions (Southeast, Upper Cumberland and South Central). In the 2002 UT school survey ([utyeah.utk.edu/2002surveyReport.pdf](http://utyeah.utk.edu/2002surveyReport.pdf)), ants/fire ants were the third most frequent pest reported and tied for second in the most troublesome category. According to the 2008 school IPM online survey results, cockroaches and rodents were the most frequent pest problem. Although ants/fire ants were the 3rd most frequent pest, they were, by far, the most troublesome with 63% of respondents indicating so. We'd like to address the fire ant problem by including several



Ant mound against structure's foundation. Photograph: UT Extension, Houston Co.



Hybrid fire ant worker. Photograph: UT E&PP Bernard

schools in a fire ant management demonstration. If possible we will conduct both the indoor pest management and fire ant management demonstration at the same schools. If you have a school with a moderate to severe fire ant problem and would like to be included in the school IPM demonstrations, please contact Pat Barnwell at [pbarnwel@utk.edu](mailto:pbarnwel@utk.edu) or 865-974-5173.

#### Special points of interest:

- > [School IPM PMSP—All schools to use IPM by 2015](#)
- > [UT seeks schools needing fire ant control](#)
- > [Exotic, Invasive Insect found in Knox County](#)

#### This issue

PMSP 2015	1
UT Seeks Sites to Conduct Fire Ant and School IPM Demonstra-	1
Brown Marmorated Stink Bug	2



Eggs and first instar *H. halys*. Photograph: Karen Bernhard, Lehigh County Extension, Pennsylvania State University in Gyeltshen et al. 2009.



First and 2nd instar nymphs BMSB dispersing from an egg mass. Photograph: Gary Bernon, USDA-APHIS in Gyeltshen et al. 2009.



2nd instar BMSB nymph. Photograph: Deepak Matadha, Rutgers University in Gyeltshen et al. 2009.

## Another Invasive Exotic Pest, the Brown Marmorated Stink Bug, Discovered in Tennessee! By Karen M. Vail

The brown marmorated stink bug, *Halyomorpha halys* Stål, was found in Knox County, Tennessee on February 25, 2009. The apartment resident had first seen these in August, but it wasn't until late December that they noticed the bugs inside in large numbers. The next day one other brown marmorated stink bug (BMSB) was found 8 miles away possibly indicating that the bugs are established in Knox County.

### Why are we so concerned?

**Agricultural Pest.** The brown marmorated stink bug originates from Asia where it a pest of agricultural commodities such as tree crops and soybeans. In 1996, it was first discovered in the US in Allentown, PA and now has been recorded from California, Delaware, District of Columbia, Florida, New Jersey (throughout most of the state), Maryland, New York, Ohio, Pennsylvania, Oregon, Virginia and West Virginia (George Hamilton, Rutgers University, personal communication). I guess we can add Tennessee to the list.

BMSB, which suck plant juices, has been seen feeding on many ornamental plants, fruit trees, legumes, and vegetables in Pennsylvania and New Jersey. Entomologists are preparing for this insect to become an agricultural pest in the US too.

**Occasional invader.** More applicable to its pest status in Tennessee, at the moment, is the BMSB's ability to overwinter in structures, much like the multicolored Asian lady beetle. Adult bugs will seek overwintering sites in fall as the temperatures begin to cool. Once inside, they will become active on warm days throughout fall and winter. Unlike the lady beetle which is a beneficial insect throughout the growing season, BMSBs can be a pest throughout the year. If a BMSB is disturbed or crushed, it will release an obnoxious odor as is common with stink bugs.

### Identification

Other stink bugs may be found near structures, so don't assume all stink bugs are BMSB. Most stink bugs will have a shield shape. BMSB adults are about 5/8 inches (17 mm) long, just about as long as wide, mottled brownish grey with black antennae marked with a whitish band on the next to last segment, dark bands on the membranous part of the wings, and coppery or bluish-metallic punctures (small, round depressions) on the head and area behind the head (pronotum). Abdominal segments protruding from the wings are marked with black and white bands.

### What to do once the BMSB are established?

To prevent BMSB from entering structures in the fall, use exclusion methods. Seal cracks around doors, windows, utility pipes, siding, and underneath the wood fascia and other openings with appropriate materials, such as quality silicone or silicone-latex caulk. Remove window unit air conditioners by mid- September, if possible, as this is a common entry point. A vacuum cleaner can be used to remove the bugs but be prepared for the smell if large numbers are vacuumed at once. Put vacuumed bugs in a sealable storage bag and discard. If exclusion methods aren't working, a pest management professional could apply outdoor perimeter treatments of pyrethroids, such as b-cyfluthrin, bifenthrin, cyfluthrin, deltamethrin and  $\lambda$ -cyhalothrin, to reduce the number of bugs that enter. Insecticides will have limited persistence outdoors in the sunlight. Exclusion practices provide long term control. Please use perimeter spraying as a last resort, especially in schools, because IPM programs are designed to minimize the potential of pesticide exposure. Please do not spray when children are present and allow sprays to dry before occupants have access to the sprayed area. It will probably be years before many Tennesseans will need to treat structures for this pest.



Steven Jacobs PSU  
The adult stage of the brown marmorated stink bug (BMSB) overwinters in homes or other structures, such as schools.



Fifth instar BMSB nymph. Photograph: Gary Bernon, USDA-APHIS, in Gyeltshen et al. 2009.

**Don't spray indoors for BMSB! Once the bugs are inside, it is not advisable to apply insecticides.** Dusting wall voids may kill many bugs, but carpet beetles may feed on the dead stink bugs and then attack natural products, such as woolens, stored dry goods or others in schools, homes or other structures. Foggers will kill stink bugs that are exposed or outside of protected places, but they won't prevent the bugs from coming out of voids or cracks after the room is aerated. Thus indoor insecticide applications will not provide long-term control. Those insecticides sprayed into cracks and crevices probably will not prevent the bugs from emerging and is not a recommended treatment

### Report Any New Finds of Brown Marmorated Stink Bugs!

Please bring suspected brown marmorated stink bugs to your local county Extension office for identification. We intend for the agents to enter the identification and location information into the UT Distance Diagnostics web site with a comment indicating it is a new county record. Extension personnel should send the specimens to Karen Vail, at the UT Entomology and Plant Pathology Department in Knoxville for confirmation. After a number of BMSBs have been collected, they will be forwarded to the BMSB project at Rutgers University (<https://njaes.rutgers.edu/stinkbug/report.asp>) for further analysis.

#### Sources:

Hamilton, G. C., P. W. Shearer, and A. L. Nielsen. 2008. FS002 Marmorated Stink Bug -A Non-native Insect in New Jersey. Rutgers Cooperative Extension Service. <http://njaes.rutgers.edu/pubs/publication.asp?pid=fs002>

Gyeltshen, J., G. Bernon, and Amanda Hodges. 2005. EENY-346 Brown marmorated stink bug. [http://entnemdept.ufl.edu/creatures/veg/bean/brown\\_marmorated\\_stink\\_bug.htm](http://entnemdept.ufl.edu/creatures/veg/bean/brown_marmorated_stink_bug.htm)

Jacobs, S., Sr. 2009. Brown marmorated stink bug. <http://www.ento.psu.edu/extension/factsheets/brownMarmoratedstinkbug.htm>

Monitoring for the brown marmorated stink bug. <https://njaes.rutgers.edu/stinkbug/report.asp>



One green stink bug nymph among six brown marmorated stink bugs. Photograph: Gary Bernon, USDA-APHIS in Gyeltshen et al. 2009.

# UT YEAH Contact Information:

Karen Vail, Ph.D., Professor,  
Urban IPM Specialist, UT Extension  
205 Ellington Plant Sciences Bldg.  
2431 Joe Johnson Drive  
Knoxville, TN 37996-4560  
ph: (865) 974-7138  
fax: (865) 974-4744  
email: [kvail@utk.edu](mailto:kvail@utk.edu)  
web: [http://eppserver.ag.utk.edu/sch\\_ipm.htm](http://eppserver.ag.utk.edu/sch_ipm.htm)  
<http://eppserver.ag.utk.edu/personnel/Vail/vail.htm>



Martha Keel, Ph.D., Professor  
Housing & Environmental Health Specialist,  
UT Extension  
218 Morgan Hall  
ph: (865) 974-8197  
fax: (865) 974-5370  
email: [mkeel@utk.edu](mailto:mkeel@utk.edu)  
web <http://utyeah.utk.edu>

James P. Parkman, Ph.D.  
UTIA IPM Coordinator  
205 Ellington Plant Sciences Bldg.  
ph: (865) 974-7135  
fax: (865) 974-4744  
email: [jparkman@utk.edu](mailto:jparkman@utk.edu)

Mary Rogge, Ph.D., Assc. Professor  
UT College of Social Work  
225 Henson Hall  
ph: (865) 974-7500  
fax: (865) 974-4803  
email: [mrogge@utk.edu](mailto:mrogge@utk.edu)

**Comments or questions on this newsletter?  
Contact [kvail@utk.edu](mailto:kvail@utk.edu)**

**For more information about IPM in Tennessee schools and other facilities, or to view past issues of *Pests and Pesticides in Child-serving Facilities*, please visit [schoolipm.utk.edu](http://schoolipm.utk.edu) or [utyeah.utk.edu](http://utyeah.utk.edu)**

#### National IPM INFORMATION

National School IPM  
[schoolipm.ifas.ufl.edu/](http://schoolipm.ifas.ufl.edu/)

IPM in Schools Texas  
[schoolipm.tamu.edu/resources.htm](http://schoolipm.tamu.edu/resources.htm)

IPM Institute of North America  
[www.ipminstitute.org/](http://www.ipminstitute.org/)

National Pest Management Association  
IPM site  
[www.whatisipm.org/](http://www.whatisipm.org/)

EPA schools  
[www.epa.gov/pesticides/ipm/schoolipm/index.html](http://www.epa.gov/pesticides/ipm/schoolipm/index.html)

For further information about the IPM program at your school or in your county, contact your county Extension Agent or the school IPM Coordinator. For county agent contact information, please visit [www.agriculture.utk.edu/personnel/districts\\_counties/default.asp](http://www.agriculture.utk.edu/personnel/districts_counties/default.asp)

### **Precautionary Statement**

To protect people and the environment, pesticides should be used safely. This is everyone's responsibility, especially the user. Read and follow label directions carefully before you buy, mix, apply, store or dispose of a pesticide. According to laws regulating pesticides, they must be used only as directed by the label.

### **Disclaimer**

This publication contains pesticide recommendations that are subject to change at any time. The recommendations in this publication are provided only as a guide. It is always the pesticide applicator's responsibility, by law, to read and follow all current label directions for the specific pesticide being used. The label always takes precedence over the recommendations found in this publication.

Use of trade or brand names in this publication is for clarity and information; it does not imply approval of the product to the exclusion of others that may be of similar, suitable composition, nor does it guarantee or warrant the standard of the product. The author(s), the University of Tennessee Institute of Agriculture and University of Tennessee Extension assume no liability resulting from the use of these recommendations.

Programs in agriculture and natural resources, 4-H youth development, family and consumer sciences, and resource development. University of Tennessee Institute of Agriculture, U.S. Department of Agriculture and county governments cooperating. UT Extension provides equal opportunities in programs and employment.