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Project Title:  
Regional Pest Alert on the Brown Marmorated Stinkbug, *Halyomorpha halys* (Stal)

(Regional IPM Publication)

*Halyomorpha halys* (Stal) (Heteroptera: Pentatomidae) is a pest in eastern Asia on soybeans and woody plants, including broadleaved trees and fruit trees. A population was discovered in Allentown, PA in 2001 but had been established since 1996. It is documented as a nuisance pest in this area emitting an unpleasant odor as it invades homes and landscapes. *H. halys* is now reported from five counties in PA and two abutting counties in NJ. In 2003, isolated populations were discovered in Harrisburg, PA and Hagerstown, MD. Infestations are limited so far to landscaped urban areas where woody plants, including ornamentals and trees, are primary hosts. However the probability is high that *H. halys* could become a significant agricultural pest in the United States as the population expands through natural and artificial means. This proposal seeks funding to publish a regional Pest Alert to advise stakeholders in the northeast region of the risks presented by *H. halys* as both a nuisance and agricultural pest, to reduce artificial spread, to raise awareness among growers, and to help extension specialists and government regulators identify research and regulatory priorities for this emerging pest.

## **Literature Review, Previous Work, and Related Experience**

In September 2001, Karen Bernhard (Lehigh County Cooperative Extension, Pennsylvania) collected specimens of *Halyomorpha halys* (Stal), brown marmorated stinkbug, in Allentown Pennsylvania (Hoebeke 2003). This was the first documented occurrence of this Asian pentatomid in North America. The earliest confirmed U.S. sighting of *H. halys* was near Allentown in the fall of 1996. It was first collected in New Jersey in 1999 but went unidentified until 2003 when specimens collected at three additional sites in northwestern New Jersey were positively identified as *H. halys* (G. Hamilton, pers. comm.) These discoveries indicating establishment and range expansion in New Jersey was described as a “disaster waiting to happen”. *H. halys* was detected in Washington County, Maryland on October 8, 2003, as confirmed by Thomas J. Henry of the USDA Systematic Entomology Laboratory (T. Henry, pers. comm.) This is the first isolated breeding population outside of the Allentown, PA infestation; another has since been discovered in Harrisburg, PA (Bernon, et. al. 2004). Currently, it is believed that *H. halys* is in lag phase and is increasing its local populations prior to rapid range extension. *H. halys* is likely to expand its range to other states in the northeast in the near future (G. Bernon, pers. comm.). *H. halys* can also be readily transported great distances as a hitchhiker in vehicles and on equipment, creating nationwide potential for distribution.

In its native Asian range, *H. halys* has an extensive host range and is a major pest of soybeans, fruit, ornamentals and many other plants. It is expected to become a serious agricultural problem in the northeastern United States (P. Shearer, pers. comm.). *H. halys* is recorded as a nuisance pest for aggregating in dwellings certain times of the year (Hoebeke 2003). Gary Bernon, *H. halys* USDA APHIS PPQ CPHST project leader, was able to document severe damage on fruit in the Allentown PA area in 2003, confirming that this damage can be positively associated with feeding by *H. halys*. Infestations are limited so far to landscaped urban areas where woody plants, including ornamentals and trees, are primary hosts (Bernon, et. al. 2004). However the probability is high that *H. halys* could become a significant orchard pest, and its management could pose considerable increases both in orchardists’ costs and the amount of pesticides applied to their acreages (G. Bernon, pers. comm.). After observing the behavior of this stink bug for two seasons, state, federal, and university entomologists in Pennsylvania, New Jersey, Maryland, and Connecticut have concluded that the brown marmorated stink bug does feed on stone fruit and has the potential to cause economic damage on commercial stone fruit (Leiby 2003). Additionally, this stink bug has the potential to become a serious pest on soybeans and a wide range of other crops, as it has in its native range. Presently, no regulatory action has been taken by state or federal officials. It is unlikely that USDA APHIS will take such action. However, if *H. halys* becomes established in commercial nurseries, internal or external quarantines may be imposed by state officials. There is a readiness by those currently working on this issue to be proactive, conduct further research, curtail the spread, and develop a pest management program for *H. halys* (G. Bernon, pers. comm.).

The Pennsylvania State University (Hoebeke 2002) published a fact sheet in 2002 recognizing *H. halys* as a nuisance pest in Pennsylvania. Articles appearing in local Maryland and Pennsylvania newspapers resulted in hundreds of calls reporting additional sites and damage. Maryland Department of Agriculture officials have expressed an interest in producing a fact sheet on *H. halys* to alert Maryland growers, nurserymen, and homeowners to this emerging pest. In 2003, Carol Holko worked with the North Central IPM Center to initiate and develop a National Pest Alert for Sudden Oak Death (attached). While *H. halys* does not meet the NC IPMC national pest alert criterion of having immediate national implications, a Northeastern regional pest alert is warranted.

### **Objective**

To produce an informational regional Pest Alert to advise stakeholders in the northeast region of the risks presented by *H. halys* as both a nuisance and agricultural pest, to reduce artificial spread of *H. halys* in the United States, to raise awareness among growers potentially impacted by *H. halys*, and to help extension specialists and government regulators identify research and regulatory priorities for this emerging pest.

### **Procedures**

A 2-page color glossy flyer will be developed with the assistance and critical review of state and federal regulatory officials and state extension specialists in Maryland, Pennsylvania, New Jersey, and Connecticut; other states may be included in the review process as interest is piqued. Stakeholder needs will be gleaned by contacting Cooperative Extension in the infested areas and determining the nature of inquiries that are being received. This publication will be developed in the style of the North Central IPM Center National Pest Alerts and with assistance from Susan Ratcliff, North Central IPM Facilitator, to ensure consistency among IPM Center publications. Information presented will include background, pest status in Asia, current and potential pest status in U.S., reporting mechanisms, the most current recommended remediation methods, and references. The NE IPM Center and CSREES will be clearly identified as supporting the publication.

### **Literature Cited**

Bernon, G., K. M. Bernhard, E. R. Hoebeke, M. E. Carter, L. Beanland. 2004 (in press). *Halyomorpha halys*, (Heteroptera: Pentatomidae) the brown marmorated stink bug; are trees the primary or reservoir hosts for this new invasive pest. Poster. Proceedings of the 15<sup>th</sup> USDA interagency research forum on gypsy moths and other invasive species.

Hoebeke, E. R. 2002. Brown marmorated stink bug *Halyomorpha halys* (Stal). Pennsylvania Dept. of Agriculture Regulatory Horticulture Entomology Circular No. 204.

Hoebeke, E. R. and M. E. Carter. 2003. *Halyomorpha halys* (Stal) (Heteroptera: Pentatomidae): A polyphagous plant pest from Asia newly detected in North America. Proceedings of the Entomological Society of Washington. 105(1)

Leiby, R. 2002. New insect in Pennsylvania; evidence shows damage to tree fruit. Fruit Times 22(14). Pennsylvania State University. pp.4-5.

### **Probable Duration**

The project duration will be January 1, 2004 - December 30, 2004.

### **Evaluation Plans**

As the project develops, the Project Leaders will set reasonable goals and deadlines for preparation and review. Marks of progress will include meeting these deadlines and, ultimately, successful transmission of information (document and pdf) to stakeholders in the 2004 season. Project leaders will document feedback received by collaborators from stakeholders regarding confirmed host and geographical range expansion. Success will also be measured by the number of regional collaborative research and demonstration initiatives inspired by this publication.

January – March	Project leaders will solicit input from stakeholders and collaborators, prepare text and images.
April	Project leaders will have draft document prepared.
May - June	Draft will go through extensive review process via email; reviewers will be encouraged to solicit additional comments from other interested parties.
July	Final draft will be prepared and sent out for final review.
August	Hard copies of the document will be printed and distributed through appropriate regional stakeholder, cooperative extension, and regulatory distribution channels. A Web ready pdf version will also be made available and posted on appropriate Web sites.