

Calendar Year: 2005

State: Connecticut

Name of Project: Brown Marmorated Stink Bug Survey

Project Category: Part II

Pest: Brown Marmorated Stink Bug

Project Coordinator: Donna Ellis, State Survey Coordinator, University of Connecticut, Department of Plant Science Unit 4163, Storrs, CT 06269

I) Objectives and Need for Assistance

The brown marmorated stink bug (*Halyomorpha halys*) is ranked by the Eastern Pest Survey Committee as a high priority pest for survey in the Eastern U.S. during 2005. This exotic pest has the potential to impact agricultural production, plant resources and our Nation's overall health and environment. Surveys are proposed to best accomplish Homeland Security. Visual surveys and limb jarring will be conducted to determine the range of this potential new pest to Connecticut. In Asia, *H. halys* is regarded as a major pest of agricultural crops, attacking many types of fruit trees, including apples, pears and peaches, as well as other crops that are a vital component of Connecticut agriculture. This exotic insect pest was recently found in the U.S. in Pennsylvania and New Jersey and was estimated to have been accidentally introduced in the 1990s. It is well suited to conditions in the Northeast and has adapted alarmingly well in Pennsylvania. Based on a rapid rate of establishment there, it is likely to produce high numbers of offspring. In apple trees, for example, *H. halys* attacks the fruit and causes 'cat-facing', a condition that makes the crop unmarketable. It is likely that this insect species may vector diseases and become a potential threat to human health. Adult stink bugs seek shelter in large numbers in and on homes, becoming a nuisance pest. This project is proposed as a collaboration between Donna Ellis at the University of Connecticut (UConn) and Chris Maier at The Connecticut Agricultural Experiment Station (CAES).

II) Results or Benefits Expected

Outreach information provided to orchard producers, homeowners, Integrated Pest Management personnel, Cooperative Extension Specialists, researchers, and other educators will increase their level of knowledge about these insect pests. The educational resources will provide useful information and enable people to be able to identify this pest if it moves into Connecticut and learn about control options. Distribution data obtained from the proposed survey will provide APHIS and agricultural producers in the state with relevant information about the range of this potential new exotic pest in Connecticut, with a goal of preventing or limiting its movement and establishment. These results may help APHIS in any decision-making processes regarding regulation of this exotic pest.

III) Approach

Plan of Action and Work to Be Accomplished. Internet research will be conducted and other references examined between January and May 2005 to compile educational materials on *H. halys*. These materials will be made available to orchardists, homeowners, Integrated Pest Management (IPM) personnel, Extension Educators, and researchers during the survey period. Surveys will be conducted using a limb jarring technique (200 times per site) in unsprayed apple and crabapple trees in abandoned or low-spray orchards, along roadsides, parks, or other sites in late summer. A minimum of 24 sites in four counties (Fairfield, Hartford, Litchfield, and New Haven Counties) where host fruit trees are produced will be surveyed. Visual surveys to inspect fruit for the presence

of stink bugs or their feeding damage may also occur. Sites in Fairfield and Litchfield Counties will be surveyed by CAES staff and those in Hartford and New Haven Counties will be surveyed by UConn staff.

Taxonomic recognition is ranked as medium to high, as these insects are relatively easy to identify from other stink bugs found in the region. Suspect insects (adults or nymphs) will be collected and stored in ethanol-filled vials. Suspect insect specimens will be screened by the Project Coordinator and Dr. Maier. Positive identification of brown marmorated stink bugs will be confirmed by UConn staff, CAES staff, Richard Hoebeke at Cornell University and/or other USDA national specialist. A rapid response plan for new state and new county records for *H. halys* will be implemented by CAES staff, with assistance by UConn staff.

Personnel. This project is proposed as a collaboration between Donna Ellis at UConn and Chris Maier at CAES. D. Ellis, the Project Coordinator, will be funded by APHIS to conduct the survey. An undergraduate student from the UConn will be hired on a part-time basis to assist with surveys in eastern Connecticut. A part-time research technician will be hired at CAES to assist with surveys in the western part of the state. Under the supervision of the Project Coordinator, target suspect specimens from central Connecticut will be collected and screened at the University of Connecticut. Target suspects collected from western Connecticut will be collected and screened by Dr. Maier at CAES. Specimens identified as brown marmorated stink bugs will be confirmed by Dr. Maier or Richard Hoebeke prior to submitting data into NAPIS.

Equipment Needed. Departmental vehicles from the UConn may be available to make site visits during the survey period, although operational costs are requested (see **Travel Needs**). Vehicles will be provided at CAES for use by Dr. Maier and his technician, although operational costs are requested (see **Travel Needs**). Use of laboratory equipment, laboratories, and offices will be provided by the cooperator at UConn and by Dr. Maier at CAES. No funds are requested for equipment.

Travel Needs. In-state travel funds are requested from APHIS for rental of state vehicles or use of departmental vehicles from the University to make site visits during the survey period. During the survey period, ten site visits will occur within Connecticut at a cost of approximately \$60 per trip. Funds are also requested by CAES for vehicle operational costs, vehicle rentals, and gasoline.

Supplies Needed. Computers, printers, and digital cameras will be provided by the cooperator at UConn and by Dr. Maier at CAES. APHIS funds are requested to provide operational costs for these items (paper, toner cartridges, digital storage disks, software, etc.) to prepare educational materials for the outreach component of the project. APHIS funds for trapping and monitoring supplies, including collection vials, ethanol, hand lenses, references, and other miscellaneous items are requested by UConn and CAES.

Contracts. None.

Quantitative Projection of Accomplishments to be Achieved and Criteria for Project

Evaluation. Educational outreach materials provided to orchardists, educators, and researchers will increase their level of knowledge about the brown marmorated stink bug and will enable them to be able to identify this exotic pest if it is found in Connecticut. Presence/absence data and distribution information obtained from the proposed survey will be critical in learning about the range of this fruit

pest in Connecticut. A communication network will be established to exchange pertinent and timely information on brown marmorated stink bug occurrences.

Target Dates for Accomplishments. Educational materials on the brown marmorated stink bug will be procured and compiled between January and May 2005 and disseminated throughout the project period. Surveys will be conducted in late summer 2005. Suspect adults will be collected by the Project Coordinator, CAES staff, UConn undergraduate students, and/or CAES research technicians. Suspects will be screened at UConn and CAES laboratories and forwarded to a USDA APHIS specialist for confirmation.

Data Collection and Maintenance. The State Survey Coordinator will enter presence/absence survey data for brown marmorated stink bug into the NAPIS database. For positive occurrences, survey delimiting information, such as estimates of population size, developmental stage of the insects, and locality data will be collected and submitted to NAPIS.

- All survey data from the brown marmorated stink bug survey will be entered into the NAPIS database.
 - a. First record for the State and/or County will be entered within **48 hours** of confirmation of identification by a qualified identifier.
 - b. All other required records, both positive and negative, will be entered **within two weeks** of confirmation.
 - c. All records are to be entered into the NAPIS database by **December 1** of the year of survey so that these data are included in the yearly Plant Board Report.

Project accomplishments will be described in semi-annual narrative progress reports submitted in accordance with dates set forth in the APHIS Cooperative Agreement. Project results will also be disseminated via educational outreach to target groups described above (please see **Quantitative Projection of Accomplishments** section). Project results will therefore be archived in the narrative progress reports and the submitted NAPIS data.

List of Contributing Parties Who Will Work on the Project

1. Donna R. Ellis, Extension Educator, University of Connecticut, will serve as the principal point of contact for this survey. She is the CAPS State Survey Coordinator of the University of Connecticut's and The Connecticut Agricultural Experiment Station's efforts and will conduct brown marmorated stink bug surveys. A part-time technician may be hired to assist with surveys.
2. Chris Maier, Entomologist, The Connecticut Agricultural Experiment Station will also conduct brown marmorated stink bug surveys. A part-time research technician will be hired to assist with surveys.
3. Patricia M. Douglass, State Plant Health Director, USDA/APHIS will provide informational support and federal guidance.

IV) Geographic Location in Which Project is to Take Place

The project will take place in the state of Connecticut, with survey activities targeting low-spray or no-spray apple orchards, abandoned apple or crabapple trees, roadsides, parks, and other similar sites.

Unusual Features Which May Impact on Project or Activity. None.