

# Researchers develop stink bug monitoring tool

May 4 2011

---



The brown marmorated stink bug caused extensive losses to Pennsylvania fruit growers in 2010.

(PhysOrg.com) -- As crop growers and homeowners brace for another year of infestations by the brown marmorated stink bug, Penn State researchers have released a Web-based tool that they hope will help enhance their understanding of this invasive insect pest. Developed in collaboration with the Pennsylvania Department of Agriculture, the mapping tool is embedded in a website found at [stinkbug-info.org/](http://stinkbug-info.org/) online.

"The goal of this tool is to give us another source of information about

the population dynamics of the brown marmorated stink bug," said John Tooker, assistant professor of entomology in the College of Agricultural Sciences. Tooker developed the tool with Douglas Miller, associate professor of geography and director of the Center for Environmental Informatics in the College of Earth and Mineral Sciences.

Miller said the mapping tool will enable fruit and vegetable growers, field-crop growers, nursery operators and homeowners to report the location and size of infestations and the estimated dollar value of damages, if any, caused by the pest.

The website, which researchers will update and enhance over time, also acts as a portal for information about the stink bug, including photos, a description and management tips for homeowners. "We're looking at homes as point sources for potential agricultural infestations," said Miller.

Tooker said in the short term, data collected could provide an early warning for growers about where stink-bug populations are occurring so they can take appropriate action to protect their crops. "In the long term, we hope to learn more about how the pest spreads and moves between crops, with an eye toward developing better management strategies."

To report an infestation, visitors to the site first register to create a user name and password. They then will be able to enter information about their infestation, including the county and municipality, date and the number of stink bugs observed per plant or in and around a home. Growers also can report infestations in the two previous seasons to document economic loss.

"To get maximum benefit from the tool, we need as many people as possible to report their infestations," said Tooker.

A native of Asia, the brown marmorated stink bug first was found in the United States in Lehigh County in 1998, and it since has become a perennial nuisance to homeowners as the bugs seek winter shelter -- sometimes by the thousands -- in and around houses and other structures. But the insect has become a serious agricultural pest as well, last year causing extensive damage in some Pennsylvania apple and peach orchards.

This species of stink bug also has been found feeding on blackberry, sweet corn, field corn and soybeans. In all, it can attack an estimated 300 host-plant species. It has no known natural enemies in the United States, allowing its populations to grow unchecked.

The large number of host plants for the brown marmorated stink bug makes it even harder to manage, according to Greg Krawczyk, tree fruit extension entomologist at Penn State's Fruit Research and Extension Center in Biglerville, Pa.

"After emerging from overwintering sites -- sometimes as late as early June -- they move on to any green plant with succulent growth," he said. "Eventually, they will start moving into crops, but we have not yet seen a large number of these stink bugs in orchards this year."

Krawczyk said in 2010, an estimated 20 percent of all fruit grown in Pennsylvania was injured by the pest, with some growers experiencing losses as high as 40 percent or more. A fruit industry group has said losses last year reached \$37 million for mid-Atlantic apple growers. Krawczyk explained that fruit damaged by the Asian stink bug is not destroyed, but it must be diverted to the processing market, yielding growers about 1/10th the income they would have received on the fresh-fruit market.

Because populations of brown marmorated stink bug at the time of

overwintering were higher in 2010 than they were the previous year, Krawczyk expects them to be more plentiful in 2011, though he cautioned that nobody really knows what will happen due to variable weather and other environmental factors. But he said it's a matter of time until they begin moving into orchards, requiring action on the part of fruit growers.

"As a result of laboratory research over the winter, we now know which pesticides are most effective against these stink bugs," he said. "We've also identified some selective pesticides that are effective against stink bugs but have lower toxicity so they'll preserve the beneficial insects that growers rely on to control other pests as part of integrated pest management programs."

Such integrated pest management, or IPM, programs are credited with helping growers to reduce pesticide use by as much as 75 percent in the last two decades, through the use of natural enemies, pheromones for mating disruption and other tactics. Controlling the brown marmorated stink bug with broad-spectrum pesticides threatens that progress.

"But part of integrated pest management is economic sustainability, and sometimes pesticides are needed," Krawczyk said. "Having beneficial insects in the orchard doesn't do much good if you have no fruit to sell."

Krawczyk said research priorities now center on developing a better understanding of the brown marmorated stink bug's biology and behavior, developing effective monitoring tools such as traps and lures, and coming up with alternative management methods that are site-specific and allow growers to treat only those areas that need it.

"Right now, we're using monitoring tools developed for native species of stink bug, and these tools are not very effective for the Asian stink bug," he said. "But other stink bugs have been studied for 50 or 100 years, and

we've only studied the brown marmorated stink bug for a couple of years. So we learn as we go."

Provided by Pennsylvania State University

Citation: Researchers develop stink bug monitoring tool (2011, May 4) retrieved 23 March 2023 from <https://phys.org/news/2011-05-bug-tool.html>

This document is subject to copyright. Apart from any fair dealing for the purpose of private study or research, no part may be reproduced without the written permission. The content is provided for information purposes only.