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Determining the distribution of a new invasive pest, the Brown Marmorated Stink Bug, in key vegetable and small fruit crops (2011124)

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The Brown Marmorated Stink Bug (BMSB) is a relatively new invasive pest found in Ohio that has the potential to become a major pest of millions of acres of vegetable, tree fruit, small fruit, and field crops. In addition to attacking crops and increasing the use of insecticides to manage it, this insect is known to invade buildings in the fall and has become a general nuisance to homeowners and renters. By understanding the distribution and density of this pest across Ohio, we can better prepare growers and homeowners to recognize and manage this pest.

To determine the spread of this insect, we developed a statewide network of 30 field locations to monitor for BMSB using a combination of pheromone (insect sex attractants) and blacklight traps (Figure 1). The pheromone trap portion of the network consisted of 25 field sites in tomato, sweet corn, pepper, and brambles. In addition to the pheromone traps, there were blacklight traps in the monitoring network set up at OARDC research stations in Fremont, South Charleston, and Piketon, and OSU's Waterman Farm in Columbus, plus one at the Meigs County Extension office in Racine. The pheromone traps were checked weekly and blacklight traps were monitored every 1-4 days by Extension educators and state specialists from mid May through mid October. To speed compilation of the data collected from the traps, a BMSB data entry website was developed by the IT staff at OARDC and utilized by all members of the trapping network.

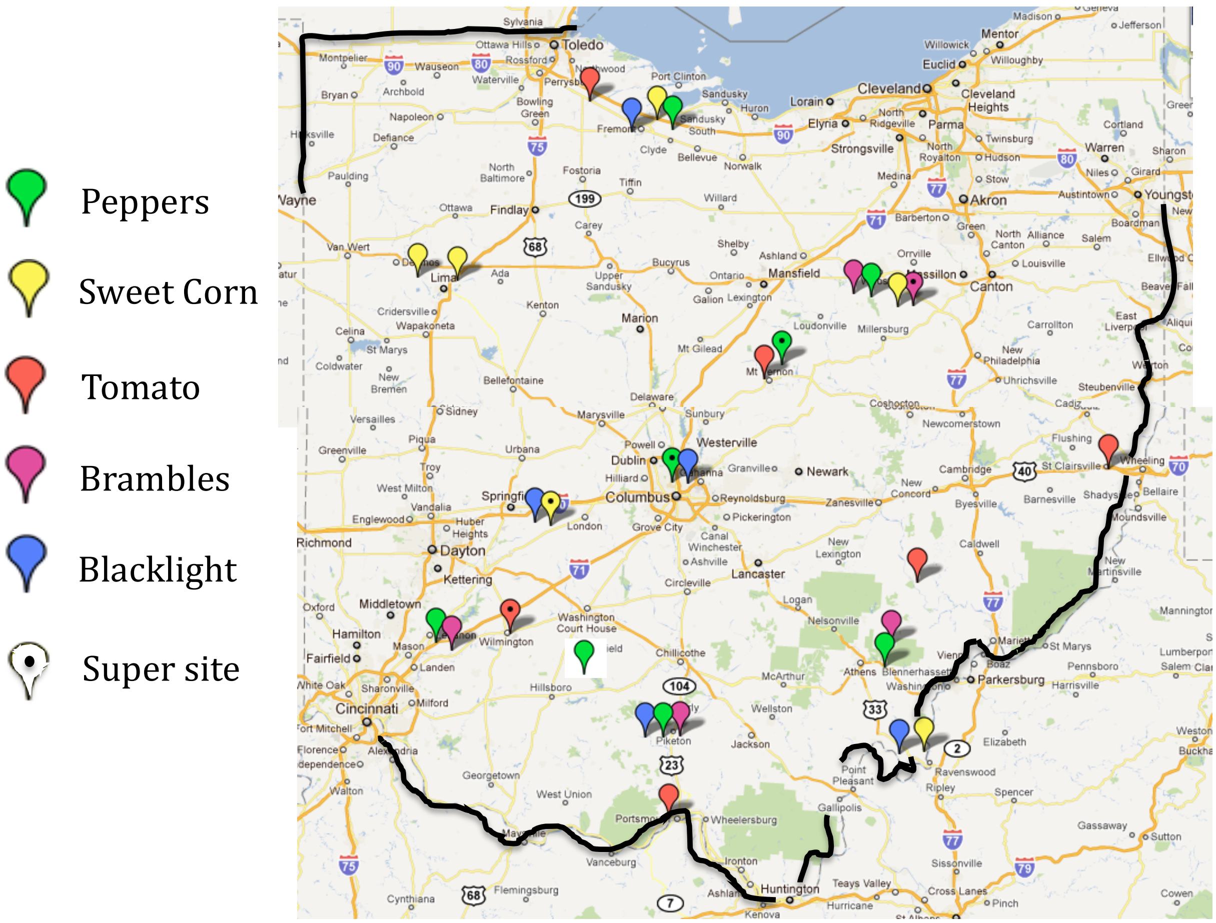

Figure 1. Location of 30 Brown Marmorated Stink Bug pheromone and blacklight monitoring sites. Super sites include black pyramid, yellow pyramid, and "Dead-Inn" pheromone traps.

Over the nearly five month trapping season and across the 88 pheromone trap network, only 18 BMSB's were captured at two locations; 15 were trapped in a pepper field at OSU's Waterman Farm and 3 were trapped in a tomato field in Scioto county. Of the five blacklight traps used in the statewide monitoring network, all 148 BMSB's were caught at the OSU Waterman Farm, within a few yards of the Rothenbuhler Bee Lab. One reason for low BMSB catches in the pheromone traps may have been related to improper lure mixture and formulation at the manufacturer.

No stink bug damaged fruits or vegetables were found at any of the locations outside of Columbus. Brown Marmorated Stink Bugs were observed damaging soybean pods and seeds at the Waterman Farm. Apples inspected from an orchard at the Waterman farm had signs of severe stink bug injury, likely due to BMSB as well as two other species.

Overall, the number of BMSB trapped would seem to indicate that populations are still low in Ohio except for a hot spot around Columbus, and that this new pest posed only a small risk of damaging fruit and vegetable crops in 2011. We have no way to predict the threat level of this insect in 2012, but are pursuing funding to re-establish the monitoring

network, using both pheromone and blacklight traps. In 2012, we expect to trial on a limited basis a new pheromone lure that is much more attractive to BMSB than the original lure. For renters or homeowners, we will continue to monitor a website developed to track invasions of this pest into dwellings (http://www.surveymonkey.com/s/bmsb) so we have a better understanding of where this pest exists outside of croplands.