The Brown Marmorated Stink Bug (BMSB) is a significant threat to US agriculture. The goal of this large, multi-state research project is to identify management tactics that will integrate a whole-farm, organic approach for BMSB management.

## Objectives

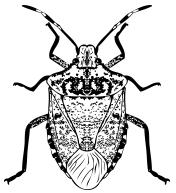
1. **Habitat Manipulation**
   Due to the broad feeding habits and mobile behaviors of BMSB we are evaluating potential trap crops for managing BMSB.

2. **BMSB Dispersal Behavior**
   Adults and nymphs have a high capacity for dispersing. We are investigating their movement at the field and landscape level, and the sequence of crops attacked.

3. **Impact of Natural Enemies**
   We are determining the identity and importance of natural enemies and their impact on BMSB populations.

4. **Evaluate Potential Row Covers**
   Evaluation of barrier fabrics has shown that fine mesh covers prevent BMSB damage and sunscald, resulting in the highest number of marketable fruit.

5. **Extension and Outreach**
   We are disseminating our results to growers through various in-person, print, and online formats.



## Our Collaborators

**Project Director:** Dr. Anne L. Nielsen, Rutgers University

**On-farm experiments:**
Muth Family Farm (NJ), Terhune Orchards (NJ), Rodale Institute (PA), Redbud Farm (WV), Strawberry Creek Farm (VA), Gladheart Farms (NC), Thatchmore Farms (NC), Brickel Creek Organic Farm (OH), Northridge Organic Farm (OH), Stratford Ecological Center (OH), and Three Brothers Orchards (MI)

**Co-Investigators:**
*Rutgers University* - Dr. George C. Hamilton and Dr. Brett R. Blaauw
*Michigan State University* - Dr. Matt Grieshop
*North Carolina State University* - Dr. Jim Walgenbach
*Redbud Farms* - Clarissa Mathews
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*University of Florida* - Dr. Russell Mizell
*University of Kentucky* - Dr. Ricardo Bessin
*University of Tennessee* - Dr. Mary Rogers
*University of Maryland* - Dr. Cerruti R. Hooks and Dr. Galen Dively
*USDA-ARS* - Dr. Kim Hoelmer and Dr. Tracy Leskey Virginia Tech - Dr. Doug Pfeiffer
*West Virginia University* - Dr. Jim Kotcon and Dr. Yong-Lak Park
*Rodale Institute* - Dr. Gladis Zinati and Jeff Moyer
*eOrganic* - Alexandra Stone

USDA United States Department of Agriculture National Institute of Food and Agriculture
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RUTGERS UNIVERSITY

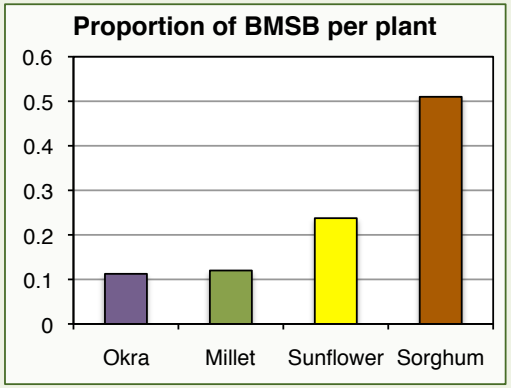
# Whole-farm Management Strategies for Brown Marmorated Stink Bug

http://eorganic.info/ brown-marmorated-stink-bug-organic

## Results: Habitat Manipulation

We tested four potential organic trap crops (millet, okra, sunflower, and sorghum) in four states for their effectiveness at attracting and retaining stink bugs.

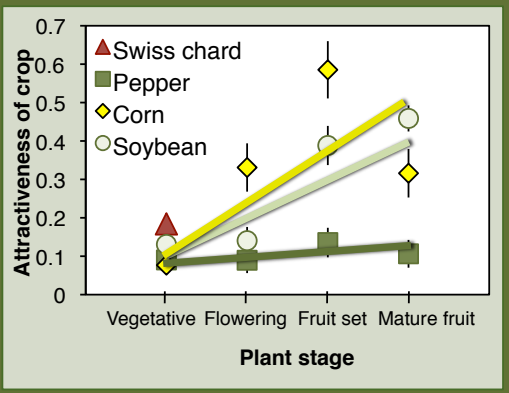
Trials across four states identified sorghum as the most attractive trap crop for BMSB with sunflower a close second. Sunflower also attracts many natural enemies which may enhance natural enemy services. We are currently recommending a trap crop of sorghum and sunflower for BMSB and will conduct multi-state on-farm trials of this recommendation.




## Results: Dispersal Behavior

At the field level we identified that nymphs will readily disperse to a more suitable crop depending on plant phenology. Comparing the attractiveness of four organic crops throughout the growing season (Swiss chard, bell pepper, sweet corn, and soybean) we found that generally plants became more attractive to nymphs as the stages progressed.

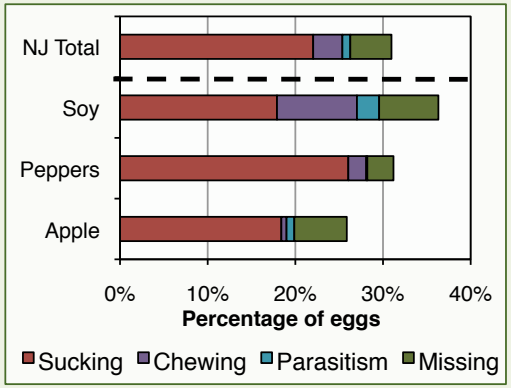
At the farm-scale, movement began within sheds, then to wooded areas, and then to blackberry hosts. Final movement prior to overwintering was to corn and black locust.




## Results: Impact of Natural Enemies

To determine the impact of natural enemies on BMSB, eight states participated in the evaluation of biological control of BMSB eggs in various cropping systems.

A diverse group of native predators and parasitoids were found to attack BMSB eggs. This led to a high level of predation by generalist natural enemies, as seen in the figure below, with field crops hosting the highest levels of predation. Although native parasitoids were present, only 38% of BMSB egg masses were parasitized, compared to 70% of native stink bug eggs observed.




For more information on this project please visit: **http://eorganic.info/brown-marmorated-stink-bug-organic**