

An Update on the Area Wide BMSB and Natural Enemies Project in Pennsylvania

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Stink bug, agricultural pest, and natural enemy evaluation

Plant survey

- Conducted around each trap

BMSB monitoring

- BMSB pheromone traps (Trécé) were deployed in May
- Visual assessments began when BMSB numbers increased

Monitoring of agricultural pests at sites

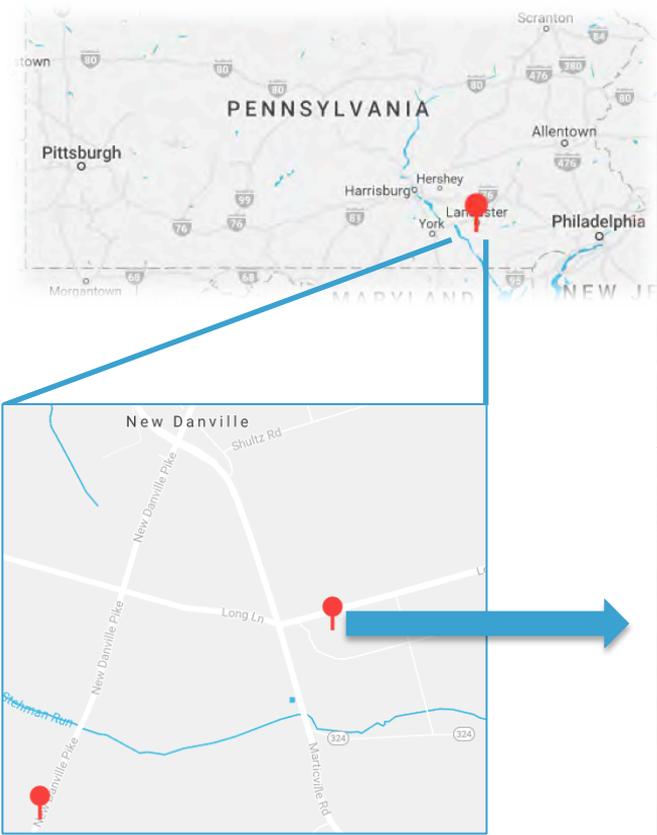
- Mite counts on fruit trees
- Soy pest sweep assessments
- Soy harvest evaluation
- Apple fruit evaluation – BMSB damage, San Jose scale, and woolly apple aphid

BMSB natural enemies surveys

- BMSB sentinel eggs (72 hour deployment)
 - Predation categorized (*Morrison et al. 2016*)
- Yellow sticky cards (*Tj* and other natural enemies search)

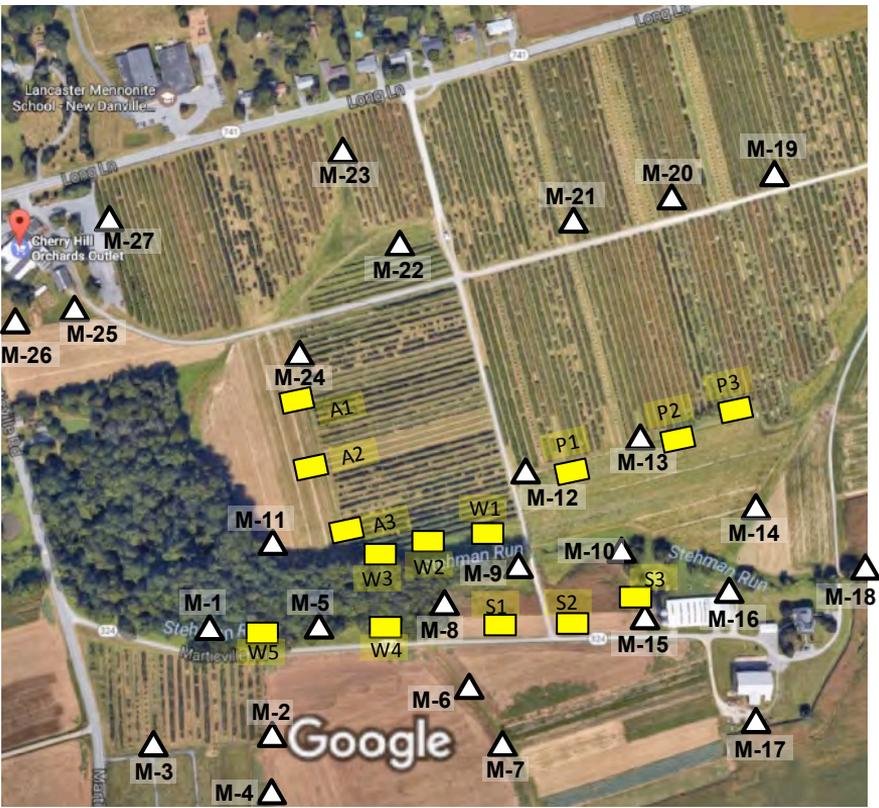


Study Sites – Cherry Hill Orchards, Lancaster PA



“Management Site”

△ Clear Sticky Traps
■ Yellow Sticky Traps



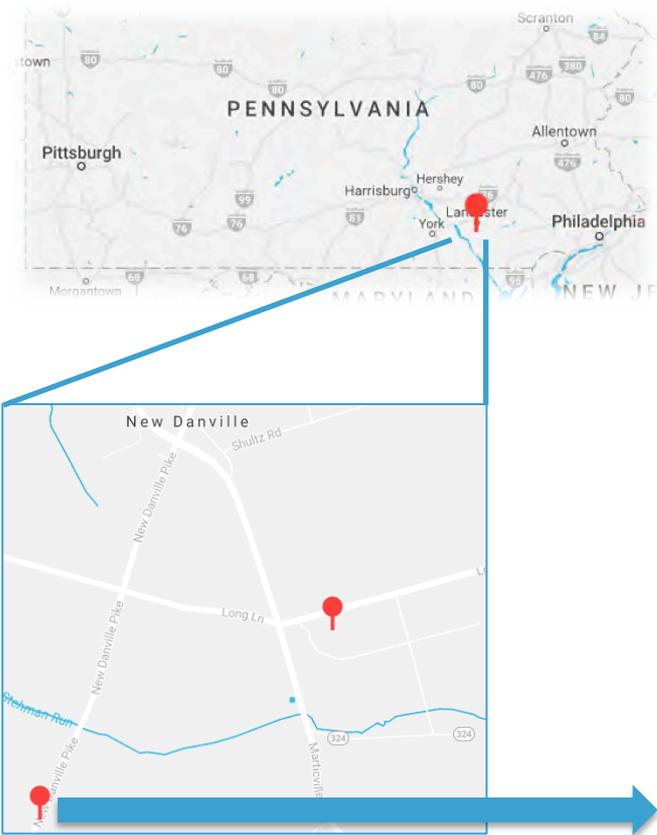
Clear Sticky Traps

- Checked weekly from May 10 to October 19
- Placed along different landscape categories

Yellow Sticky Traps

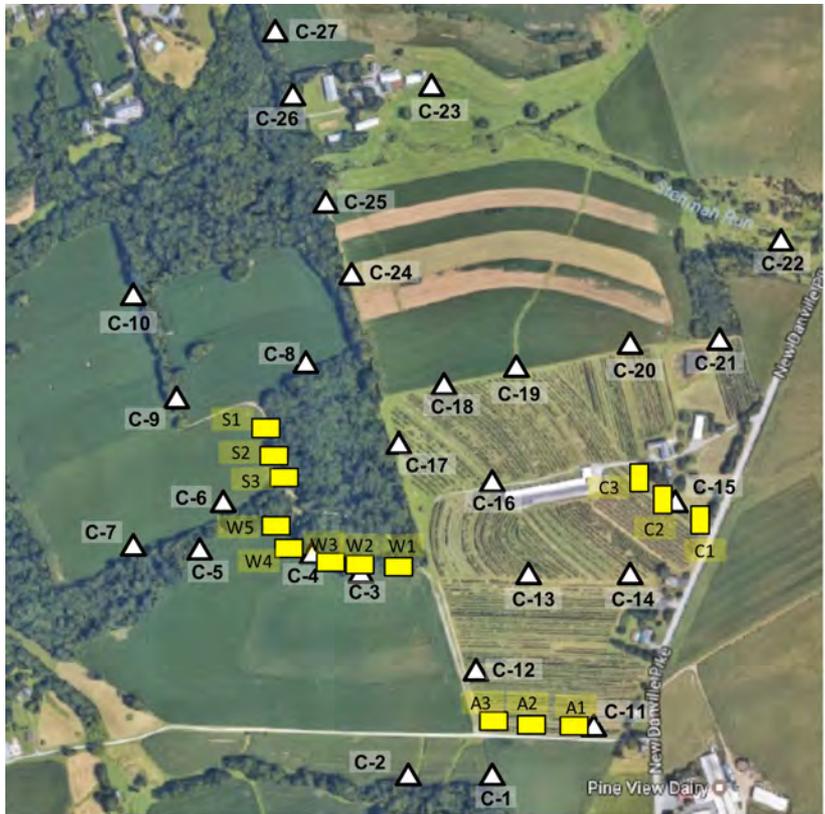
- Deployed at week long intervals in July and August

Study Sites – Cherry Hill Orchards, Lancaster PA



“Comparison Site”

△ Clear Sticky Traps
■ Yellow Sticky Traps



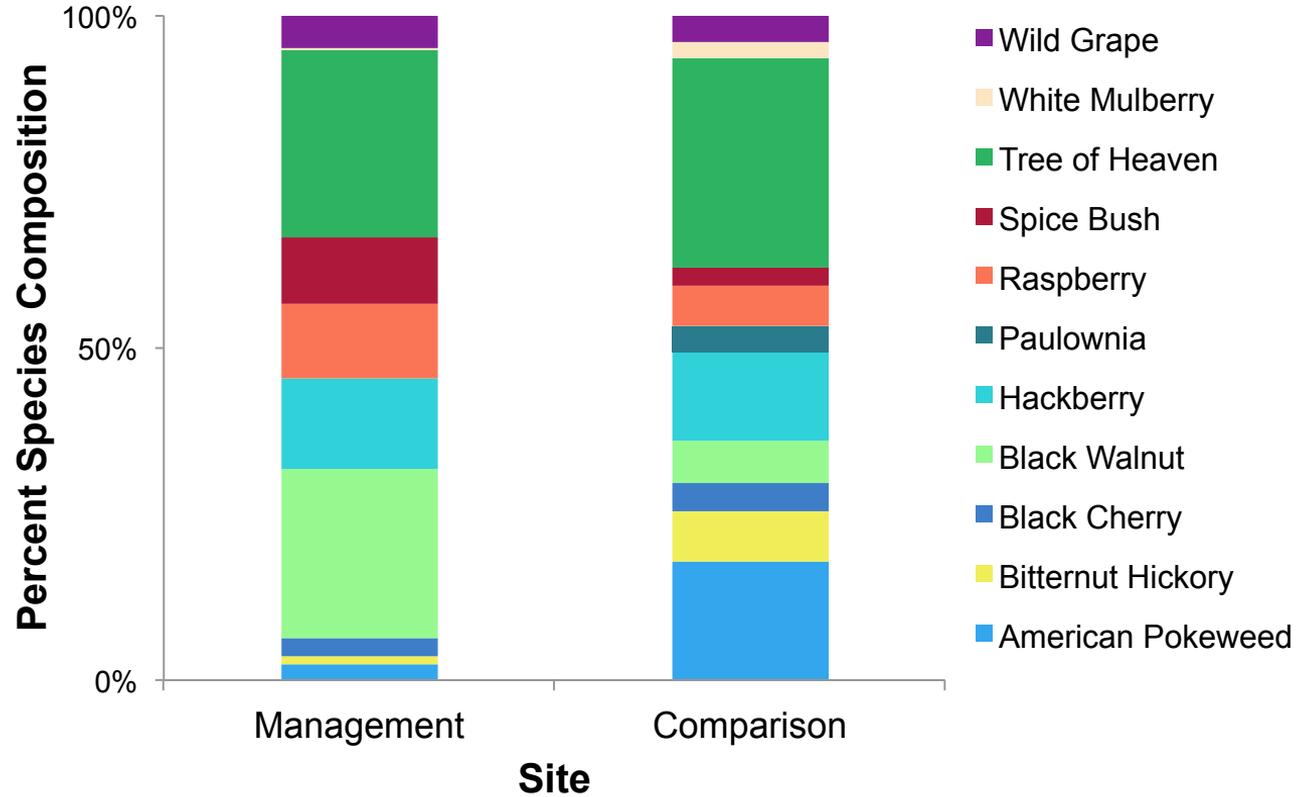
- Clear Sticky Traps**
 - Checked weekly from May 10 to October 19
 - Placed along different landscape categories
- Yellow Sticky Traps**
 - Deployed at week long intervals in July and August

Plant Survey

38 Plant Species
27 BMSB Hosts



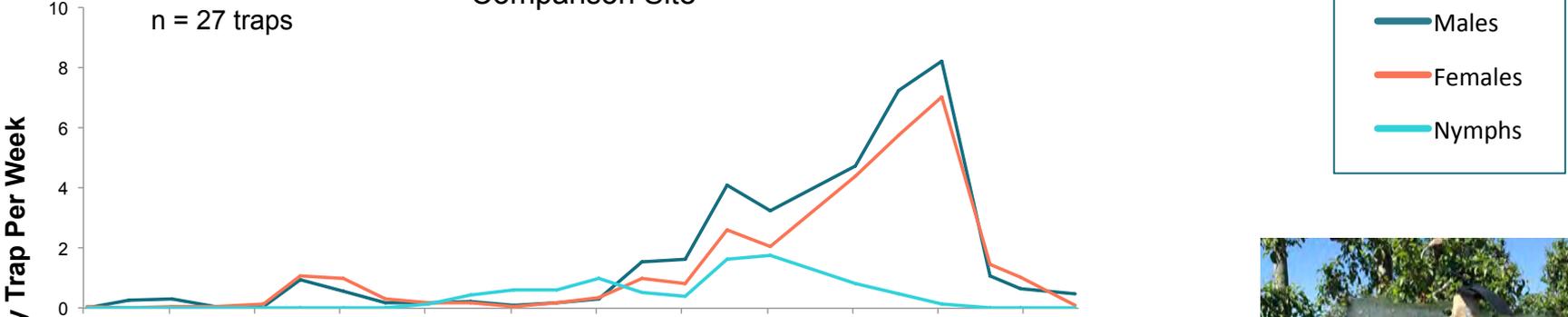
Common BMSB Host Plant Composition



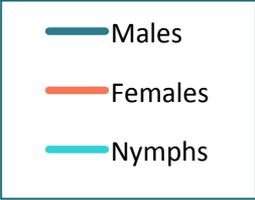
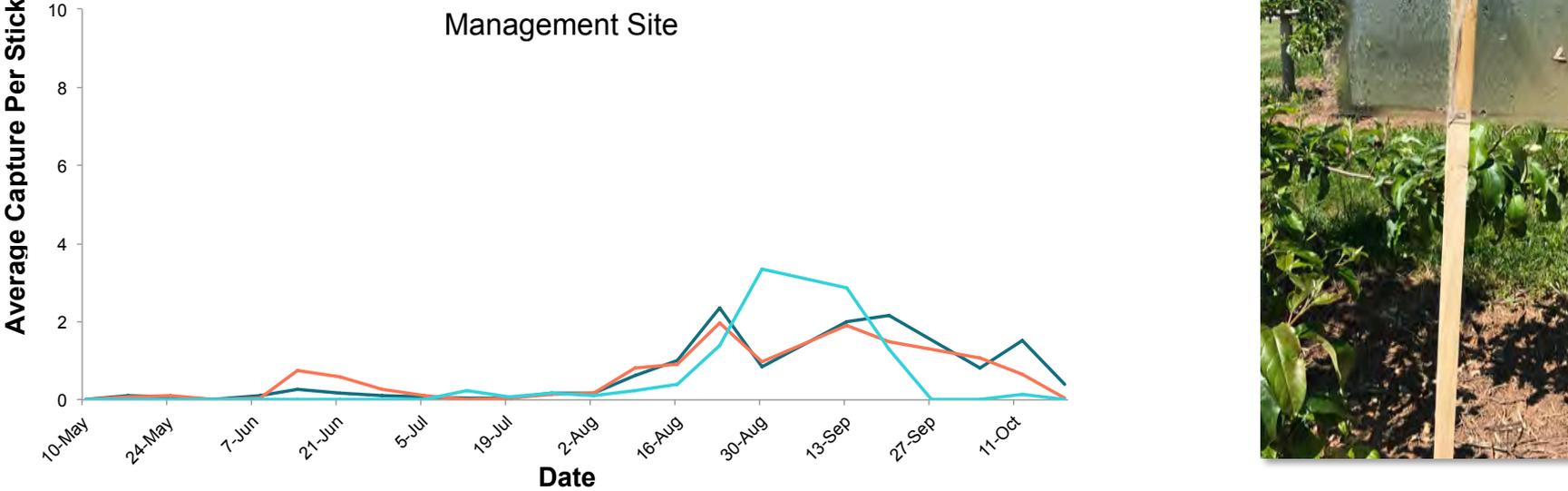
BMSB Population – Monitoring Results

Average Weekly BMSB Captures Comparison Site

n = 27 traps



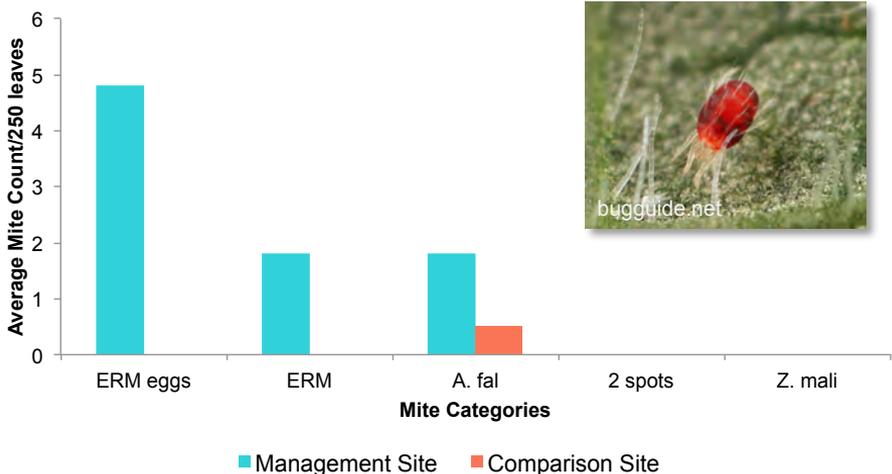
Management Site



Mite Counts on Fruit Trees Within Sites

Average Mite Count Data

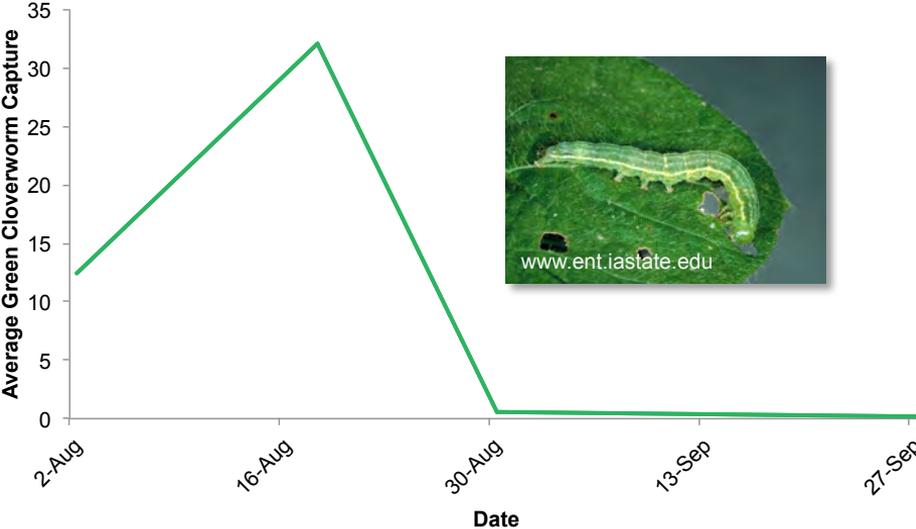
10 Blocks
25 leaves/block



- Overall low numbers present
- European red mite most abundant

Average Weekly Green Cloverworm Sweep Capture

15 sweeps/5 locations



- Low numbers of green stink bug, dusky stink bug, and BMSB
- Soy harvest evaluation showed an average stink bug injury of **14.2%**

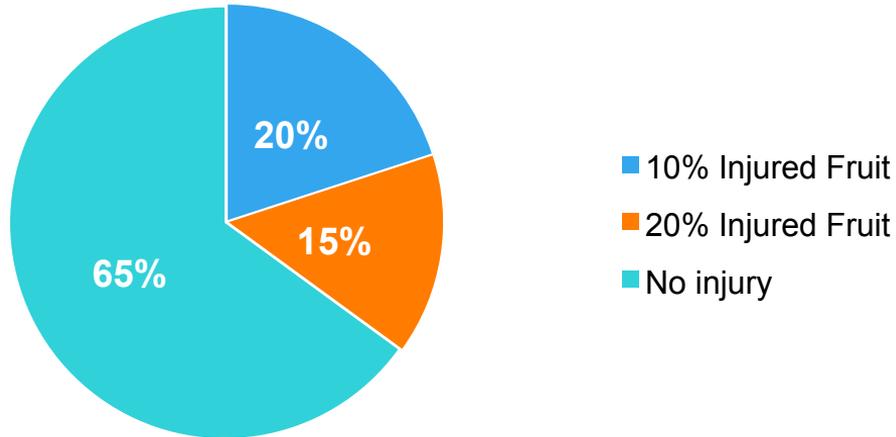
Fruit Pest and Injury Assessments (Apple)

Wooly apple aphid → no colonies found

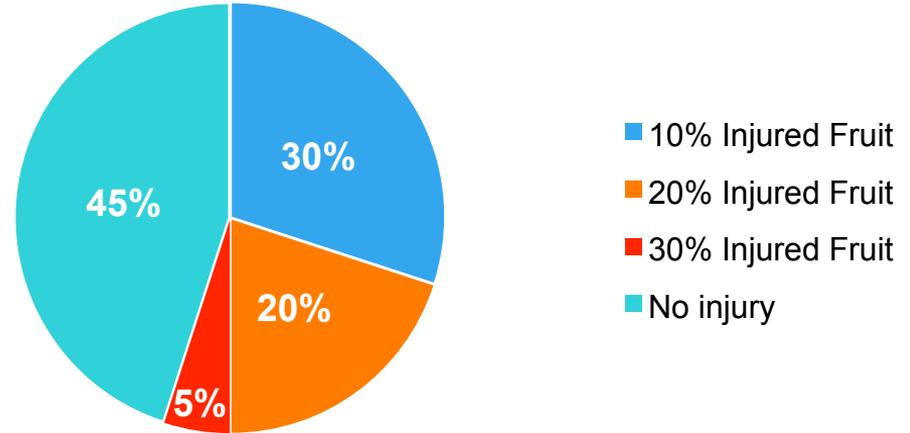
San jose scale → only one tree in the management block with injured apples

BMSB Injured Fruit

Management Block Injury



Comparison Block Injury



BMSB Natural Enemies – Sentinel Egg Masses

	Fresh	Frozen	Total
Deployed	114	149	263
Emerged	2	6	8
% Emerged	1.75%	4.03%	3.04%



Telenomus podisi

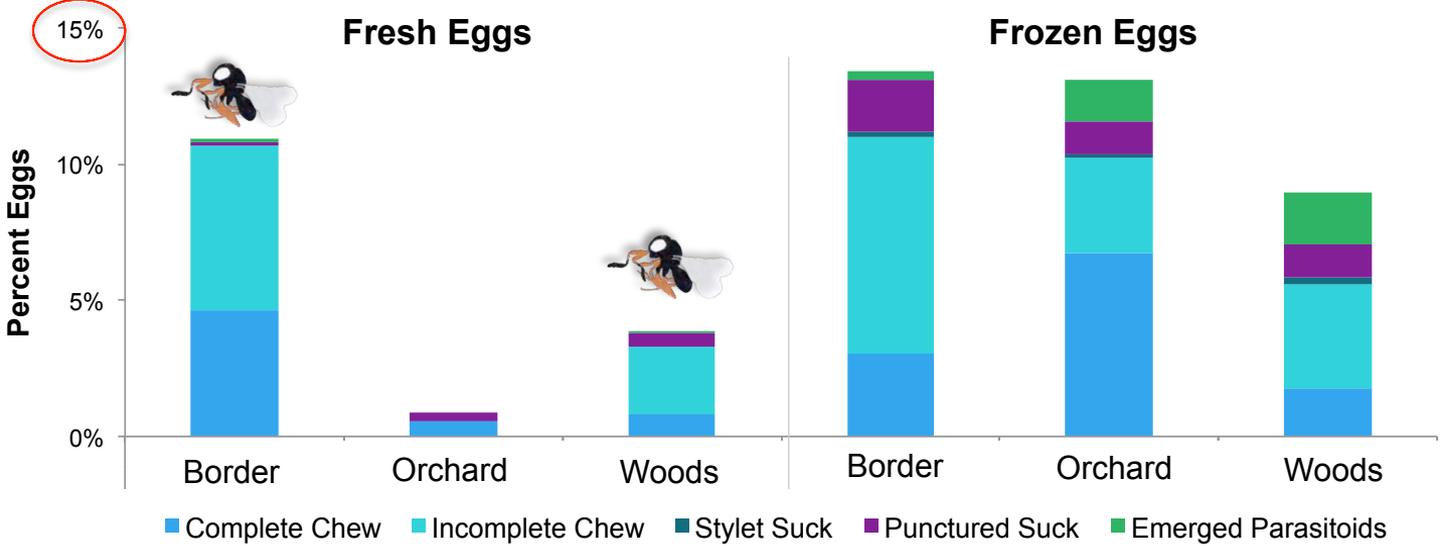


Anastatus sp.



Trissolcus brochymenae

Damage of BMSB Egg Masses

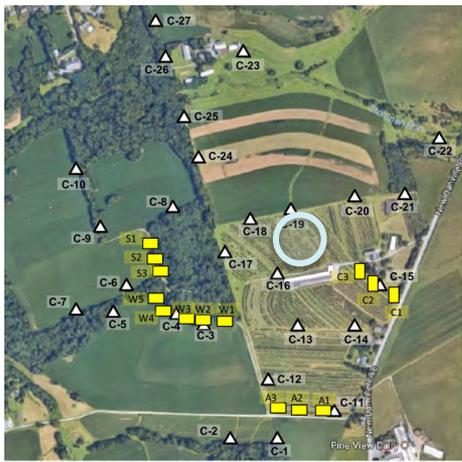


BMSB Natural Enemies – Yellow Sticky Cards

Still processing – common taxa include:

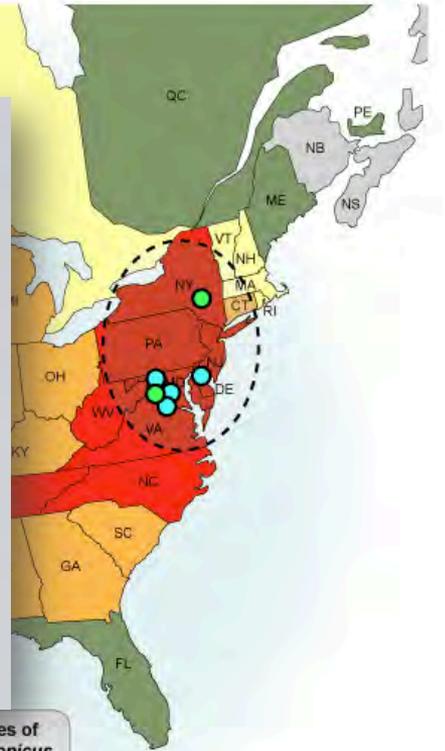
- Tachinidae
- Syrphidae (Hover flies)
- Dolichopodidae (Long-legged flies)
- Coccinellidae (Lady beetles)
- Anthocoridae (Minute pirate bugs)
- Ichneumonidae
- Braconidae
- Scelionidae (*Trissolcus*, *Telenomus*)
- Eupelmidae (*Anastatus* sp.)
- **All other parasitic hymenoptera**
- Spiders





U.S. Map of Field Recoveries of *Trissolcus japonicus*

8/19-8/26



- BMSB detected / intercepted
- Nuisance problems only
- Agricultural and nuisance problems
- Severe agricultural and nuisance problems reported

- Field Recoveries of *Trissolcus japonicus* 2015
- 2016

Updated: 9/20/2017

Acknowledgments

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USDA ARS BMSB Area-Wide Project



Questions?

