Integrated BMSB Management in Organic Pepper
HVRL, Highland NY  2013

BMSB use of Deciduous Host Trees

Adult BMSB movement to Jalapeno Pepper
2nd gen. development

Trap and Kill Station
Adult Reduction

Use of *Beauveria bassiana* strain GHA in organic mgt.
The species was first documented in NY in the Hudson Valley Region in 2008. In 2012 the pest cause significant injury to pome fruit in three NY counties.
2012 Commercial apple
Campbell Hall, NY

22% BMSB Injury ‘Pink Lady’
2013 BMSB Injury to Organic Pepper
Hudson Valley, NY

• On August 12\textsuperscript{th}, 15\% injury was observed in a 1-acre organic planting of Jalapeno Pepper in Marlboro, NY.

• Nymph population averaged 4 per plant.
Studies of the Brown Marmorated Stink Bug, *Halyomorpha halys* (Stål), in New York State

BMSB Trap Captures; #10 + MDT & Black Light
Campbell Hall, NY 2013

BMSB Trap Captures; #10 + MDT & Black Light
Marlboro, NY 2013

BMSB Trap Captures; #10 + MDT & Black Light
Milton, NY 2013

Seasonal hours of RH above 90%
- 2012 < 150 hours
- 2013 > 1200 hours
BMSB in Jalapeno Pepper
12th August, Marlboro, NY
15% feeding injury
Averaging 4 nymphs per plant
• On August 12\textsuperscript{th}, 15\% injury was observed in a 1 acre organic planting of Jalapeno Pepper.

• Integrated pest management using 4 components employed to reduce BMSB field populations.
  • Netting
  • Halogen light
  • Pheromone blend
  • Biological control (\textit{Beauveria bassiana})
2013 BMSB Injury to Pepper

• Employing 3 applications of Mycotrol-O @ 16 oz./A were made on 14 August, 1 & 14 September. Applications on 1 & 14 Sept. timed post rain events.

• 2 nets attached to 8’ posts were positioned along the north eastern edge of the field, 30m apart.

• 2 pheromone lure sets (USDA # 10 + MDT) placed along top edge of 7’ x 14’ netting, used to attract BMSB away from agricultural commodity as trap and kill stations.
Procedure:

- Nets were of Blockade™ Insect Screen 36 x 25 mils by PAK Unlimited, INC.
- To a single trap was added a 500W light.
- On day 0 (7 September), each net were sprayed with 0.75 gal. of Bifenthrin 10DF solution using 3.0 oz./gal.
- On days 0-1, nets were monitored with no captures of BMSB observed.
- On day 2 (9 September), lures and 500w Halogen light were added.
- Sampling of netted traps were made through October.
Procedures Con’t

• Generator driven 500W Halogen light directed toward the field population of BMSB.
• Plastic sheets were used to define location and number of BMSB trap and kill data.
• Study was designed to:
  1. Determine the attractiveness of lights with net relative to net alone
  2. Determine the number of BMSB observed coming from field versus forest sides of trap
Ailanthus altissima

Juglans nigra

• BMSB populations were observed on Black Walnut and Tree of Heaven, appearing to have acted as intermediate hosts, fostering migrations.

• BMSB locations on netting traps with only pheromone were equally dispersed on the field and forested sides of net.

• Nights when lights were on, BMSB were heavily concentrated on the field side in front of the light with higher numbers observed.

Ailanthus altissima

Juglans nigra
Studies of the Brown Marmorated Stink Bug, *Halyomorpha halys* (Stål), in New York State

Combined Seasonal Trap Captures Using Pheromone and Pheromone + Light

Total BMSB = 12,894
Adult BMSB Capture Locations Along the Base of Netting
Of Two Trap Types on morning of 11 September, 2013

#10 + MDT Lure only

#10 + MDT Lure + 500W Halogen Lamp
Pheremone only Net

Pheremone + Lighted Net

- Net 1 Crop Side
- Net 1 Tree Side
- Light on

Net 2 Crop Side
Net 2 Tree Side

Dates: 9/9/13 to 10/15/13
BMSB Infested With
*Beauveria bassiana* strain GHA
(*Mycotrol-O @ 16 oz./A*)
**B. bassiana** expression over time

The graph shows the percentage of insects expressing *B. bassiana* over time. The x-axis represents the dates from 8/22/13 to 10/15/13, and the y-axis represents the percentage of insects expressing the fungus. The graph includes three lines, each representing different groups:

- **Net 1 infection**
- **Net 2 infection**
- **Population**

### Table of Data

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<thead>
<tr>
<th>Date</th>
<th>Net 1 infection</th>
<th>Net 2 infection</th>
<th>Population</th>
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*Beauvaria bassiana* strain GHA applications (*Mycotrol-O @ 16 oz./A*)
2013-14 Use of nets for orchard monitoring

Active baited trap (left)

Passive trap (right)
Thanks to the staff at the HVL for all their support:

Technical Assistant.................................................. Allen Clayton
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PT Summer Intern .................................................. Brianna Flonc

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Administrative Assistant ................................. Donna Clark
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