

The background of the slide is a solid red color. In the top left corner, the word "RUTGERS" is written in a large, white, serif font. Below it, in a smaller, white, sans-serif font, are the words "THE STATE UNIVERSITY OF NEW JERSEY". A large, faint, circular seal of Rutgers University is visible in the background, centered behind the text. The seal features a sunburst design and the words "RUTGERS UNIVERSITY" around the perimeter.

RUTGERS

THE STATE UNIVERSITY
OF NEW JERSEY

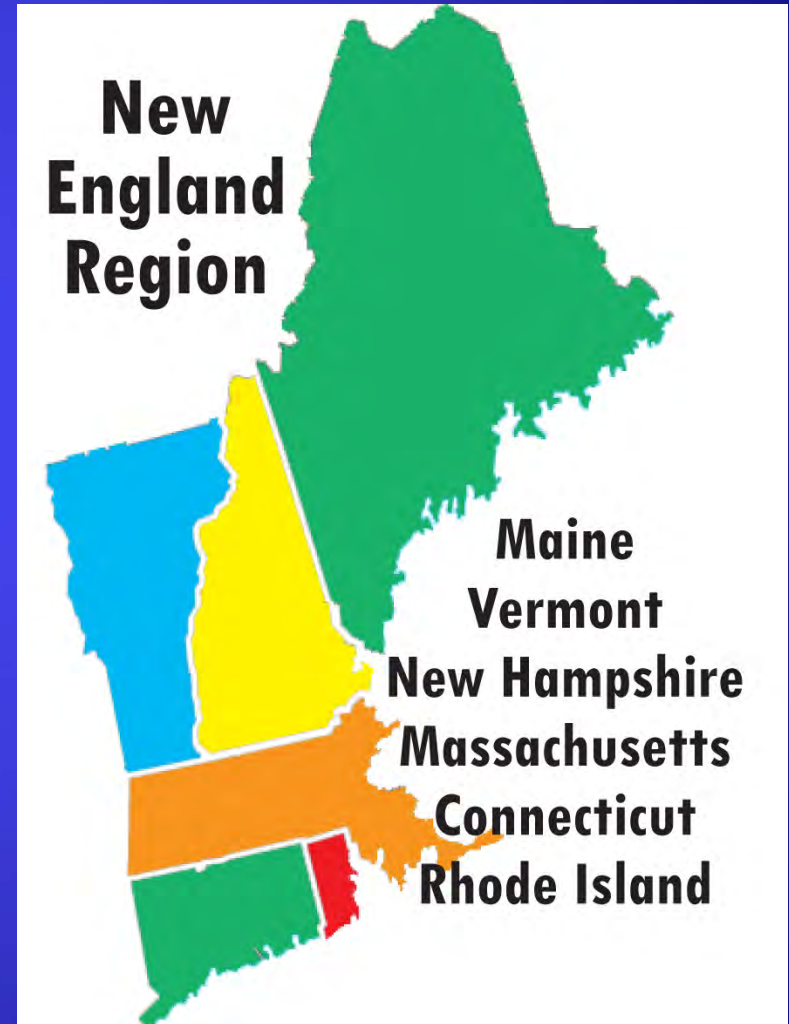
NE BMSB Update for 2015

George C. Hamilton
Department of Entomology
Rutgers University

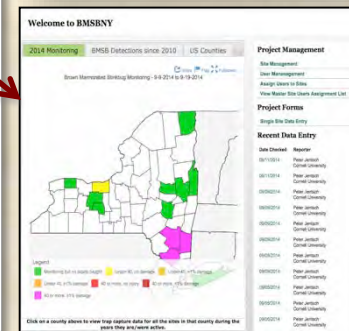
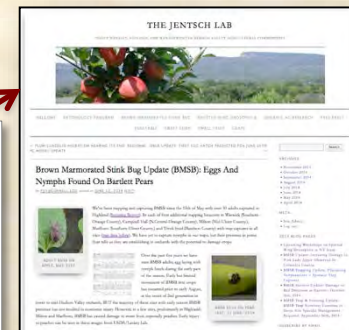
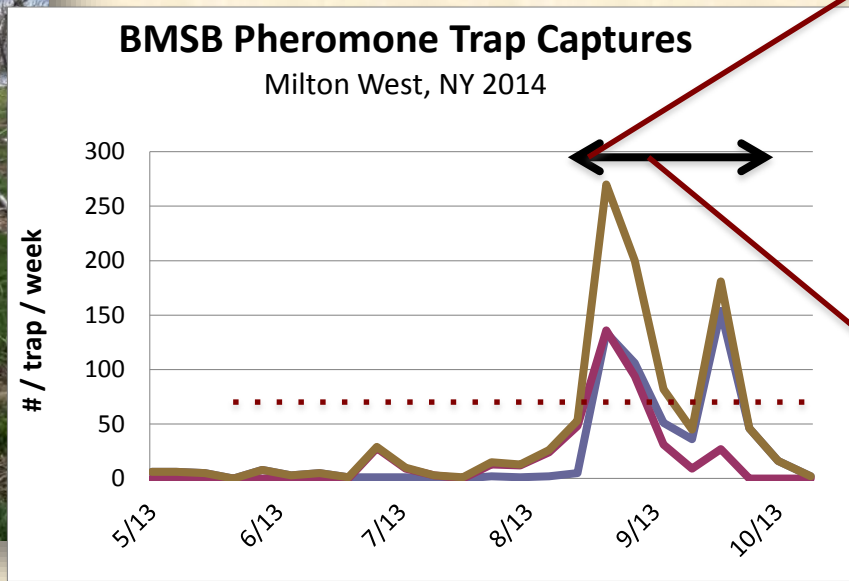
BMSB WG Meeting
December 2, 2015

New England States

- Nuisance Pest Only
- Very little if any Ag damage except CT
- VT – would like to know the average time from state introduction until AG problems begin to occur
- Nielsen et al. 2013



The Invasive Brown Marmorated Stink Bug, *Halyomorpha halys* (Stål): (Pentatomidae) In NY Tree Fruit.



Art Agnello
Professor – Entomology

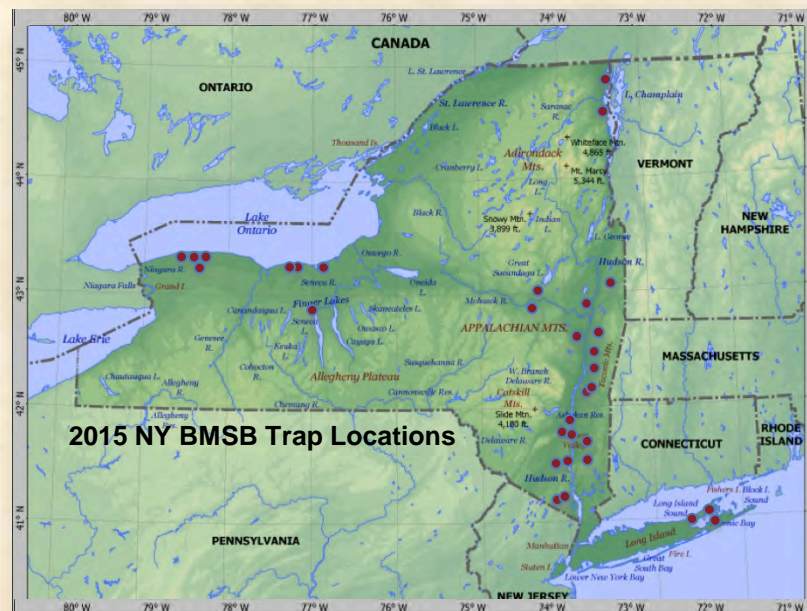
Peter Jentsch
Senior Extension Associate – Entomology

The Invasive Brown Marmorated Stink Bug, *Halyomorpha halys* (Stål): (Pentatomidae) In NY Tree Fruit.

State-wide Trap Monitoring of BMSB in NY in 2015

Conducted in 30 commercial agricultural farm sites throughout

- Western NY (8)
- Champlain Valley (2)
- Hudson Valley (17)
- Long Island (3)
- Occurrence, distribution, and levels of BMSB and natives.
- Single BMSB generation in NY in in Geneva and Highland, NY voltinism studies

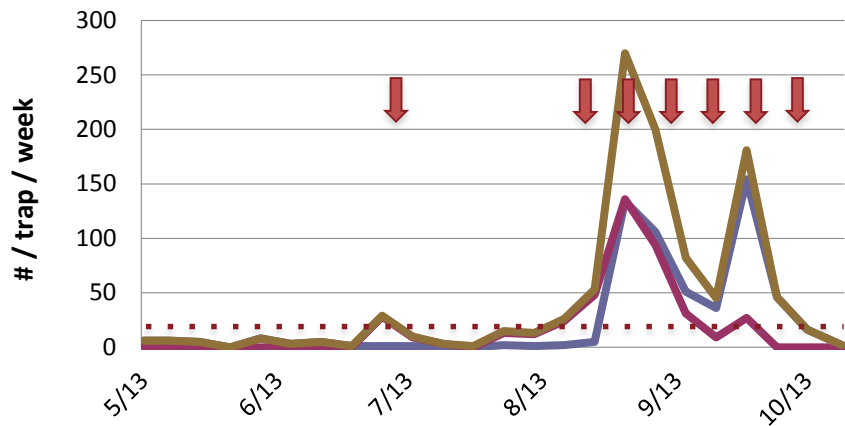


The Invasive Brown Marmorated Stink Bug, *Halyomorpha halys* (Stål): (Pentatomidae) In NY Tree Fruit.

Lower populations than in 2012-14

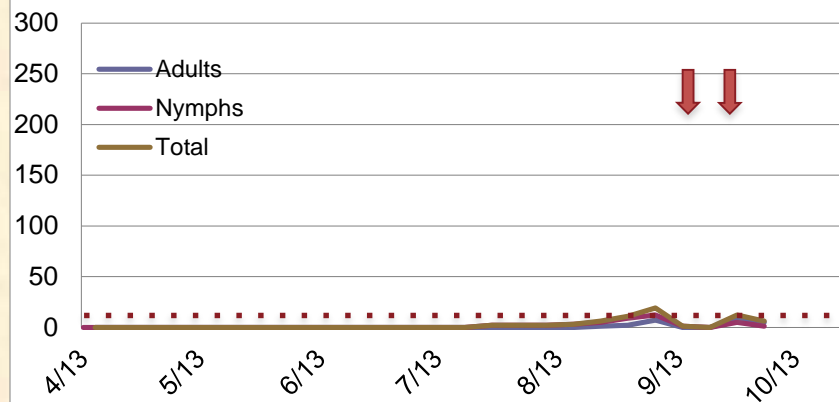
BMSB Pheromone Trap Captures

Milton West, NY 2014



BMSB Pheromone Trap Captures

Milton West, NY 2015



Fewer sprays required across the region, especially late season.



BMSB Management Threshold: Communication

EDDMapS Early Detection & Distribution Mapping System

Hudson Valley Research Laboratory
Supporting the NYS Agricultural Community

Welcome: Peter Jentsch, Cornell University
Logout

EDDMapS Home

Welcome to BMSBNY

2014 Monitoring | BMSB Detections since 2010 | US Counties

Brown Marmorated Stinkbug Monitoring - 7-29-2014 to 8-8-2014

Share | Flag | Fullscreen

Legend

- Monitoring but no adults caught
- Under 40, no damage
- Under 40, <1% damage
- Under 40, >1% damage
- 40 or more, no injury
- 40 or more, <1% damage
- 40 or more, >1% damage

Click on a county above to view trap capture data for all the sites in that county during the years they are/were active.

Project Management

- Site Management
- User Management
- Assign Users to Sites
- View Master Site Users Assignment List

Project Forms

- Single Site Data Entry

Recent Data Entry

Date Checked	Reporter
08/08/2014	Peter Jentsch Cornell University
08/08/2014	Peter Jentsch Cornell University
08/08/2014	Peter Jentsch Cornell University
08/08/2014	Peter Jentsch Cornell University
08/08/2014	Peter Jentsch Cornell University
08/08/2014	Peter Jentsch Cornell University
08/08/2014	Peter Jentsch Cornell University
08/08/2014	Peter Jentsch Cornell University
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08/08/2014	Peter Jentsch Cornell University

Partnered with EEDMaps for Extension Outreach

- Early Detection & Distribution Mapping of Invasive Insects
- Provides regional invasive species tracking
- Provides customized data outputs for threshold development

Updated Weekly by NY County

- Trap data per county
- Presence in degrees of risk
- Threshold levels



Welcome to BMSBNY

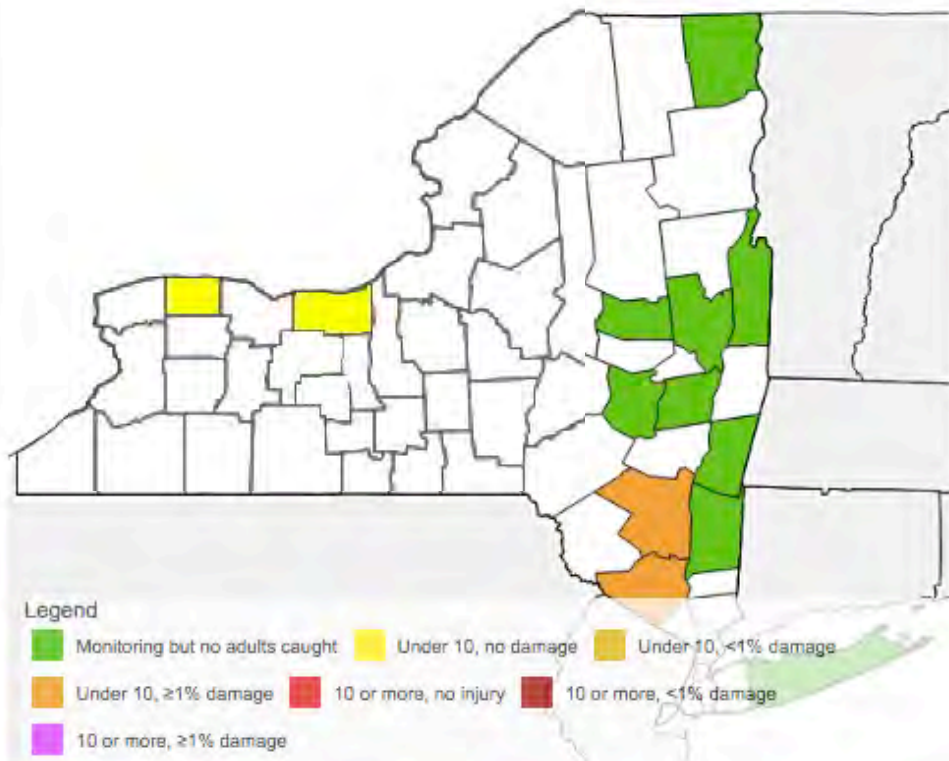
2014 Monitoring

BMSB Detections since 2010

US Counties

Share Flag Fullscreen

Brown Marmorated Stinkbug Monitoring - 10-10-2015 to 10-20-2015



15 NYS counties / 27 Sites (44 Traps)

Use of County Color for Threshold



•Absence (Green)
Monitoring but no adults caught



•Presence (Yellow)
Under 10, no damage



•Presence + Damage Levels
Under 10, <1% damage



•Presence + Damage Levels
Under 10, ≥1% damage



•BMSB Threshold + Damage Levels
10 or more, no injury



•BMSB Threshold + Damage Levels
10 or more, <1% damage



•BMSB Threshold + Damage Levels
10 or more, ≥1% damage

BMSB Management Threshold: Communication

Extension Outreach Use of Blog Site E-Alerts

Use of 10 Adult Threshold Alerts & Recommendations

THE JENTSCH LAB
INSECT BIOLOGY, ECOLOGY, AND MANAGEMENT IN HUDSON VALLEY AGRICULTURAL COMMODITIES

WELCOME ENTOMOLOGY PROGRAM BROWN MARMORATED STINK BUG INVASIVES ORGANIC AG. RESEARCH TREE FRUIT VEGETABLE
SWEET CORN SMALL FRUIT GRAPE IN THE NEWS

MONTHLY ARCHIVES: SEPTEMBER 2015

Anchors Away: Keeping Support Systems From Failing
by PIJS@CORNELL.EDU posted on SEPTEMBER 30, 2015

The crop load of late varieties appears to be robust in most orchards this season. Predictions are for a record crop in the Hudson Valley with many blocks exceeding 1000 bushels to the acre. In tall spindle systems with trees ... [Continue reading ->](#)

posted in [UNCATEGORIZED](#) | [LEAVE A COMMENT](#)

3rd Generation Scale Emerging This Season
by PIJS@CORNELL.EDU posted on SEPTEMBER 25, 2015

The San Jose scale (SJS) is an established and tenacious pest of tree fruit. Trees attacked include apple, peach, and pear. The SJS may have up to 3 generations per year, depending upon the locality and the length of the ... [Continue reading ->](#)

posted in [UNCATEGORIZED](#) | [LEAVE A COMMENT](#)

Stink Bug Management in Red Delicious: September 22, 2015
by PIJS@CORNELL.EDU posted on SEPTEMBER 22, 2015

Traps captures of the adult brown marmorated stink (BMSB) continue to climb in Orange, Ulster and Dutchess Counties. However, from Columbia county north to the Canadian border and west to Buffalo few adults of the pest have been observed in ... [Continue reading ->](#)

posted in [UNCATEGORIZED](#) | [LEAVE A COMMENT](#)

ARCHIVES

- October 2015
- September 2015
- August 2015
- July 2015
- June 2015
- May 2015
- April 2015
- March 2015
- February 2015
- January 2015
- December 2014
- November 2014
- October 2014
- September 2014
- August 2014
- July 2014
- June 2014
- May 2014
- April 2014

META

- Log in

2014 BLOG PAGES

- BMSB News: *Tissolcus japonicus* recently found in Washington State
- Fuji & Zestar Collapse: The 'Perfect Storm' for Tree Stress at Harvest
- Late Season Two Spotted Spider Mite in Fuji
- Anchors Away: Keeping Support Systems From Failing
- 3rd Generation Scale Emerging This Season

THE JENTSCH LAB
INSECT BIOLOGY, ECOLOGY, AND MANAGEMENT IN HUDSON VALLEY AGRICULTURAL COMMODITIES

MONTHLY ARCHIVES: JUNE 2015

Obliquebanded Leafroller and Tufted Apple Bud Moth Management This Week in the Mid-Hudson Valley.
The first adult moth was collected in traps on Monday June 15th followed by a second flight with development in the 2nd or 3rd. Apprehension must not be slow the 1000 bud 1/4" of search on the night. [Continue reading ->](#)

San Jose Scale Damage Increasing on Hudson Valley Apple
The first San Jose Scale (SJS) was collected in traps on Monday June 15th followed by a second flight with development in the 2nd or 3rd. Apprehension must not be slow the 1000 bud 1/4" of search on the night. [Continue reading ->](#)

Fruit with Frass. Assessing 1st Generation Codling Moth Injury
Larvae with egg sacs and frass were found in the fruit of a 10-year-old apple tree in the Hudson Valley. The larvae were found in the fruit of a 10-year-old apple tree in the Hudson Valley. [Continue reading ->](#)

Brown Marmorated Stink Bug Trapping in the Hudson Valley: June 19th
The NY State Department of Agriculture (NYSDA) is addressing the general public's concern about the brown marmorated stink bug (BMSB) by providing information on how to identify and manage the pest. [Continue reading ->](#)

Controlling Potato Leafhopper To Reduce Fireblight and Maintain Growth on Young Apple Trees
The potato leafhopper (PLH) is a pest of young apple trees in the Hudson Valley. The PLH is a pest of young apple trees in the Hudson Valley. [Continue reading ->](#)

Time To Weigh In Hard On Scale This Week!
It is time to weigh in hard on scale this week! It is time to weigh in hard on scale this week! [Continue reading ->](#)

OBLR Update: First Egg Hatch Predicted For June 20th
We'll have updates on the adult stage weekly until the end of the season. [Continue reading ->](#)

Brown Marmorated Stink Bug Update (BMSB): Eggs And Nymphs Found On Bartlett Pears
We'll have updates on the adult stage weekly until the end of the season. [Continue reading ->](#)

BMSB Management Threshold: Communication

Subscriber: Email Searchable

The Jentsch Lab: New post

NO noreply@edublogs.org on behalf of The

Reply all |

Continue editing Discard
Tue 9/22/2015 4:44 PM
Tue 9/22/2015 4:44 PM

To: Peter J. Jentsch; ...

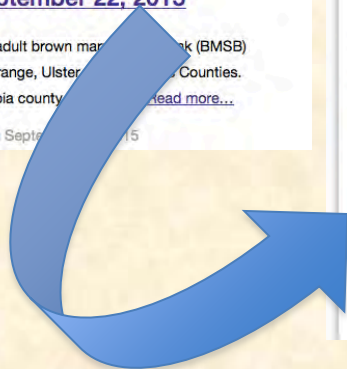
Inbox

THE JENTSCH LAB

Stink Bug Management in Red Delicious: September 22, 2015

Traps captures of the adult brown marmorated stink bug (BMSB) continue to climb in Orange, Ulster and Dutchess Counties. However, from Columbia county, we have not had any reports. [Read more...](#)

by pjj5@cornell.edu on September 22, 2015



THE JENTSCH LAB

— 10/11/2015 10:00 AM WELCOME TO THE JENTSCH LAB —
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As growers near the NY counties of Ulster, Orange, and Dutchess a few miles from Columbia County and neighboring Sullivan, Rensselaer, Schoharie, Hamilton, Delaware, Herkimer, Albany and West Albany counties, the BMSB has been found in the following areas:

The first of the most effective management for BMSB management is to use a NY-approved BMSB-resistant apple variety. The BMSB-resistant apple varieties are available in five categories including: new apple varieties.

Developing a management plan for BMSB management in NY is a complex task. It is very difficult to manage the pest in New York State, a total of 11,000 sq. mi. of land. The most effective management plan for BMSB management in NY is to use a NY-approved BMSB-resistant apple variety. The BMSB-resistant apple varieties are available in five categories including: new apple varieties.

Apple Variety	Management	Yield (lb/acre)	Quality	Resistance
Golden Wonder	Traditional	1,000	High	Low
Empire State	Traditional	1,200	High	Low
Red Delicious	Traditional	1,500	High	Low
Gravenstein	Traditional	1,800	High	Low
Jonagold	Traditional	2,000	High	Low
Liberty	Traditional	2,200	High	Low
Red Rambo	Traditional	2,400	High	Low
Empire State	Traditional	2,600	High	Low
Golden Wonder	Traditional	2,800	High	Low
Empire State	Traditional	3,000	High	Low
Golden Wonder	Traditional	3,200	High	Low
Golden Wonder	Traditional	3,400	High	Low
Golden Wonder	Traditional	3,600	High	Low
Golden Wonder	Traditional	3,800	High	Low
Golden Wonder	Traditional	4,000	High	Low
Golden Wonder	Traditional	4,200	High	Low
Golden Wonder	Traditional	4,400	High	Low
Golden Wonder	Traditional	4,600	High	Low
Golden Wonder	Traditional	4,800	High	Low
Golden Wonder	Traditional	5,000	High	Low

- Timely
- Use of Video
- Expandable imagery
- Web Links

The Invasive Brown Marmorated Stink Bug, *Halyomorpha halys* (Stål): (Pentatomidae) In NY Tree Fruit.

Use of PAK Unlimited Blockade 3625 Nets as Attract and Kill Stations in Late Varieties

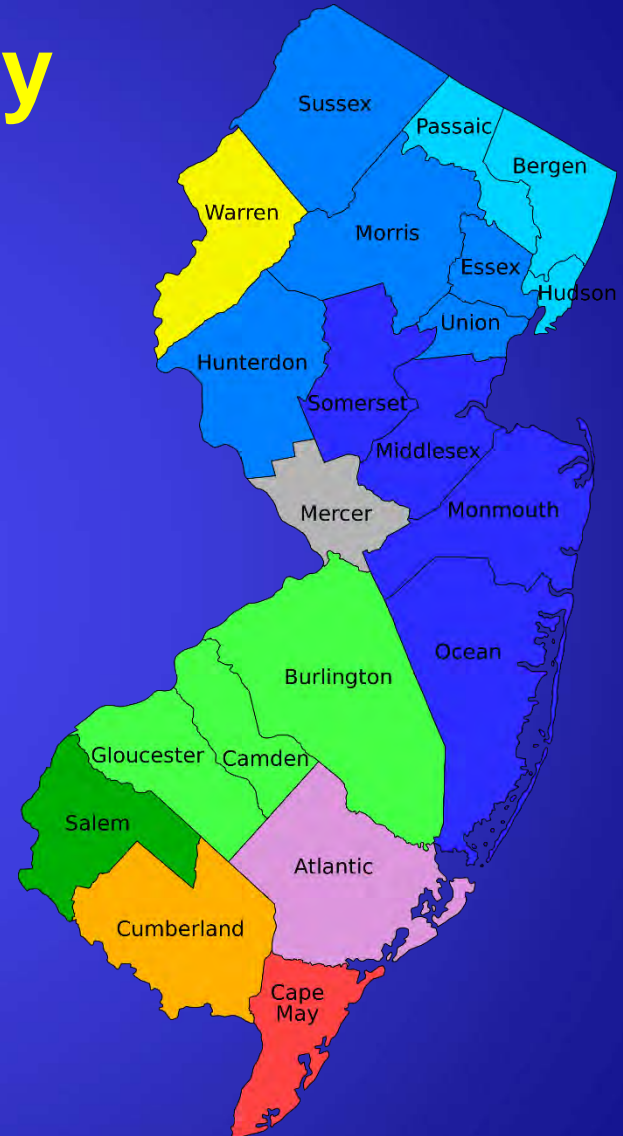
Augment insecticide control during 7d pre-harvest window of reduced residual.

- Used near harvest of Red Delicious - Pink Lady to reduce BMSB migration into orchards.
- 7' X 14' stations on perimeter deer fencing along wooded borders
- Baited with dual pheromone
- Sprayed weekly with Bifenthrin
- No late harvested fruit injury in 2015 where nets were employed



New Jersey

- Populations lowest since 2011
- No blacklight trap maps
- Damage to peaches
- Participated in the pheromone trial and overwintering study
- Very few website reports



Pennsylvania

- Lowest BMSB pressure in 5 years – cold winters and cool springs
- No new commodities impacted
- Ag-Bio, Rescue traps caught very low numbers until September
- Very few applications based on nymphal presence



Challenge – Interpreting new monitoring tools

The background features a large, light blue watermark of the University of Delaware seal. The seal is circular and contains the text 'UNIVERSITY OF DELAWARE' around the top edge and '1743' at the bottom. In the center, there are two open books. The left book is labeled 'GRAMM PHILOL RHETOR ETHICA' and the right book is labeled 'METAPH LOGICA MATHEN'.

BMSB Status in Delaware

2015

Joanne Whalen
Department of Entomology and Wildlife Ecology



Agricultural and Nuisance Pest Status

- Agricultural Status – present but generally populations were low again; highest populations still in New Castle County
- Nuisance – higher levels in houses in Sept. 2015 compared to 2014 in New Castle County; more reports of detections in houses statewide

Agricultural Crops- 2015

- Crops with Significant Problems Late Season: Tomatoes, Pole Lima Beans and Apples
- Crops with Detections – not treating specifically for BMSB but for BMSB in the mix with Native Stink Bugs : Peaches, Processing Lima Beans, Soybeans, and Peppers

Tactics Used in Agricultural Crops

- Growers, Private Consultants and Agribusiness all scout for BMSB in- season
- Consultants/Agribusiness using UD BLT trapping information to identify new areas of detection
- Insecticides still the primary approach for management
- Edge treatments with insecticides used in soybeans – only in areas of state where BMSB is the primary species

Gaps in Knowledge

- Guidelines on best way to use pheromone traps to monitor
- Alternative Insecticides
- Economic thresholds

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BMSB Status in Agricultural Crops – Maryland

- ❑ Well below economic levels in the major vegetable host crops; however, native stink bug populations were higher and caused significantly more damage to peppers and tomatoes.
- ❑ At research farms in central and western MD where populations have been very high in past years, infestations were barely detectable ... well below levels in trials to vigorously test insecticides.
- ❑ In agronomic crops, BMSB was virtually absent in field corn in late July when ears were most attractive for feeding. Likewise, infestations in soybeans were well below economic levels throughout western MD, with no perimeter treatments applied according to local agri-service companies.
- ❑ Fall populations of adult BMSB coming at favorite overwintering sites were about 2 weeks late and levels were down by at least 80%.

West Virginia & Maryland

- Ongoing agricultural and nuisance problem, but less so in 2013 and 2014
- Potentially from high levels of overwintering mortality.
- In some locations where we would normally observe up to 50% mortality, we observed up to 90% (and sometimes 100%) mortality



Management

Crop	Growers Treat	Severity
Pome Fruit (apple, pear)	Yes	In recent years, still severe late season, less so early and mid season (in high pressure years – season-long issue)
Stone Fruit (peach, nectarine)	Yes	Still severe all season
Brambles (raspberry, blackberry)	Rarely	Minor (SWD driving the sprays)
Field Crops (soybeans, corn)	Yes in Soybean – perimeter spray	Injury limited to perimeter, light in 2014
Vegetables	Occasionally	Moderate to severe just before harvest

Management

- Management is almost entirely insecticide-based.
- Some organic growers using hand removal, protective covering, or companion plants.
- Many growers ask workers to alert them if BMSB observed in the trees during thinning, summer pruning, or harvesting.
- Growers involved in research projects are using monitoring traps to help guide management decisions.
- Some growers have curbed their use of pyrethroids to intentionally protect beneficial insects.

Knowledge Gaps

- Finalized insecticide spray guide by crop
- Decision support tools such as treatment thresholds for various crops
- Trap deployment strategies for monitoring and management (i.e., number of traps per acre, where to put the trap)
- Forecasting of pest densities
- Utility of alternative management strategies (e.g., trap cropping, attract-and-kill, border sprays with embedded attract and kill sites) and how can they be improved

Knowledge Gaps

- Cultural control – Host removal and managing woodlines.
- Identification of BMSB adults and nymphs for growers and scouts
- Spread and impact of *T. japonicus*
- Development of management programs in absence of neonics (regulatory changes)

Acknowledgements

- Ane Hazelrigg
- U of Vermont
- Art Agnello & Peter Jentsch
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- U of Maryland
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