RUTGERS
New Jersey Agricultural Experiment Station

Northeast Regional Update

George Hamilton

BMSB Working Group Summer Meeting
June 11-12, 2013

Project Updates

- BMSB Working Group
- USDA Regional IPM Project
- USDA NIFA SCRI Project
- USDA NIFA OREI Project
- NE SARE Project
- BMSB Multistate Project

BMSB Working Group

- First funded in 2010
- Intended to bring together university and industry personnel, and stakeholders to discuss BMSB
- Minutes of all meetings posted at the NE IPM Center website
- http://www.northeastipm.org/working-groups/bmsb-working-group/
- Funding continued in 2014

Northeastern IPM Center

USDA Regional IPM Project

- Funded in 2011
- Two year project to examine the impact of BMSB in peppers
- Participants – DE, MD, NJ
- Objectives
  - Examine phenology and damage in bell peppers
  - Examine varietal differences in susceptibility
  - Look at the impact of natural enemies
  - Insecticide efficacy

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

Biology, Ecology, and Management of Brown Marmorated Stink Bug in Orchard Crops, Small Fruit, Grapes, Vegetables, and Ornamentals

Funding

USDA United States Department of Agriculture

National Institute of Food and Agriculture

Specialty Crop Research Initiative

Grant #2011-01413-30937

Collaborating Institutions

University of Delaware

ARS

Penn State

The State University of New Jersey Rutgers

Northeastern IPM Center

Washington State University

Cornell University

University of Maryland

Virginia Tech

OSU Oregon State University

NC State University

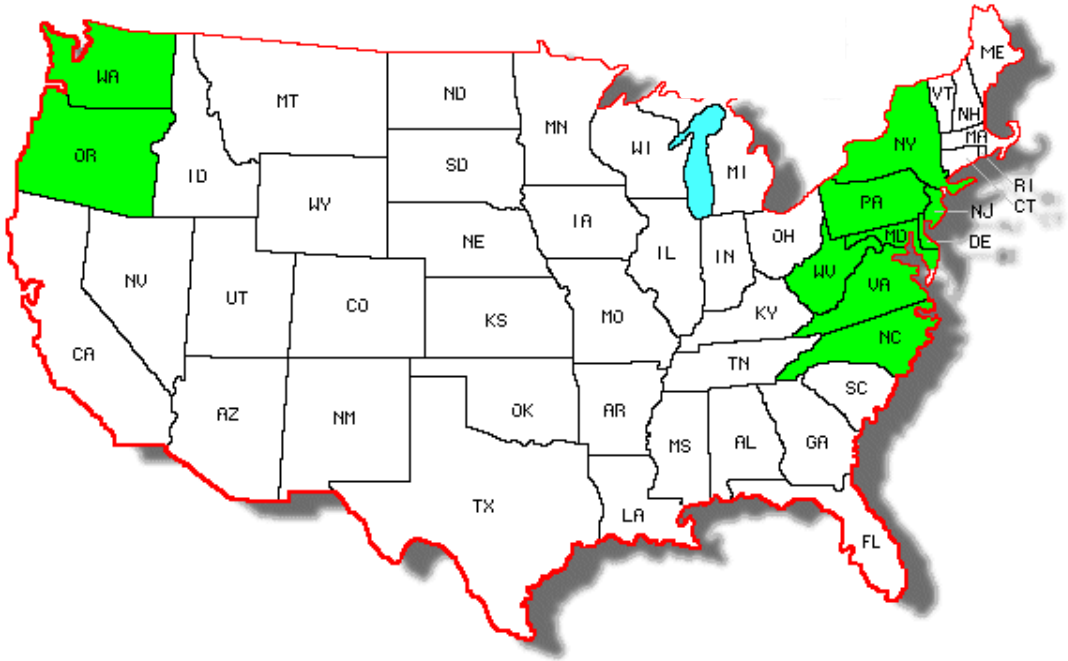
StopBMSB.org

Particulars of Funded Project

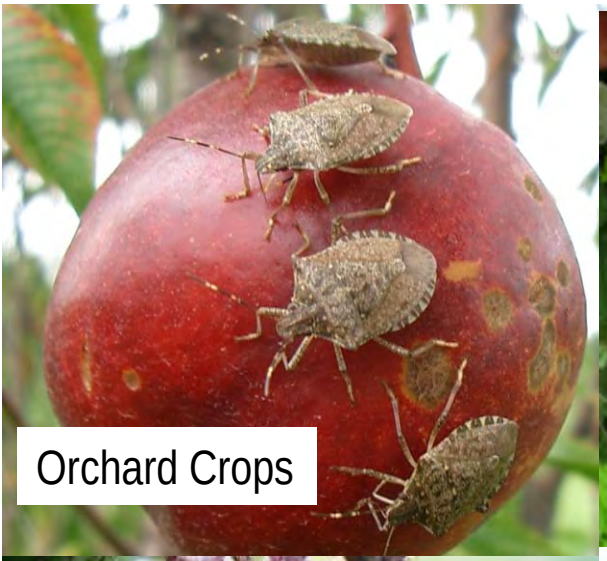
- Funded for 3 years with opportunity for renewal.
- September 2011 – September 20144
- Total Federal Award $5,739,966.
- Matching Funds $ 7,325,637.

Cooperating Institutions

1. USDA-ARS
   - Appalachian Fruit Research Station, Kearneysville, WV
   - Beneficial Insects Introduction Research Unit, Newark, DE
   - Invasive Insect Biocontrol and Behavior Laboratory, Beltsville, MD
   - Horticultural Crops Research Unit, Corvallis, OR
2. The Pennsylvania State University
3. Washington State University
4. North Carolina State University
5. Virginia Polytechnic Institute and State University
6. Rutgers University
7. Northeastern IPM Center
8. Oregon State University
9. University of Maryland
10. University of Delaware
11. Cornell University



At-Risk Specialty Crops



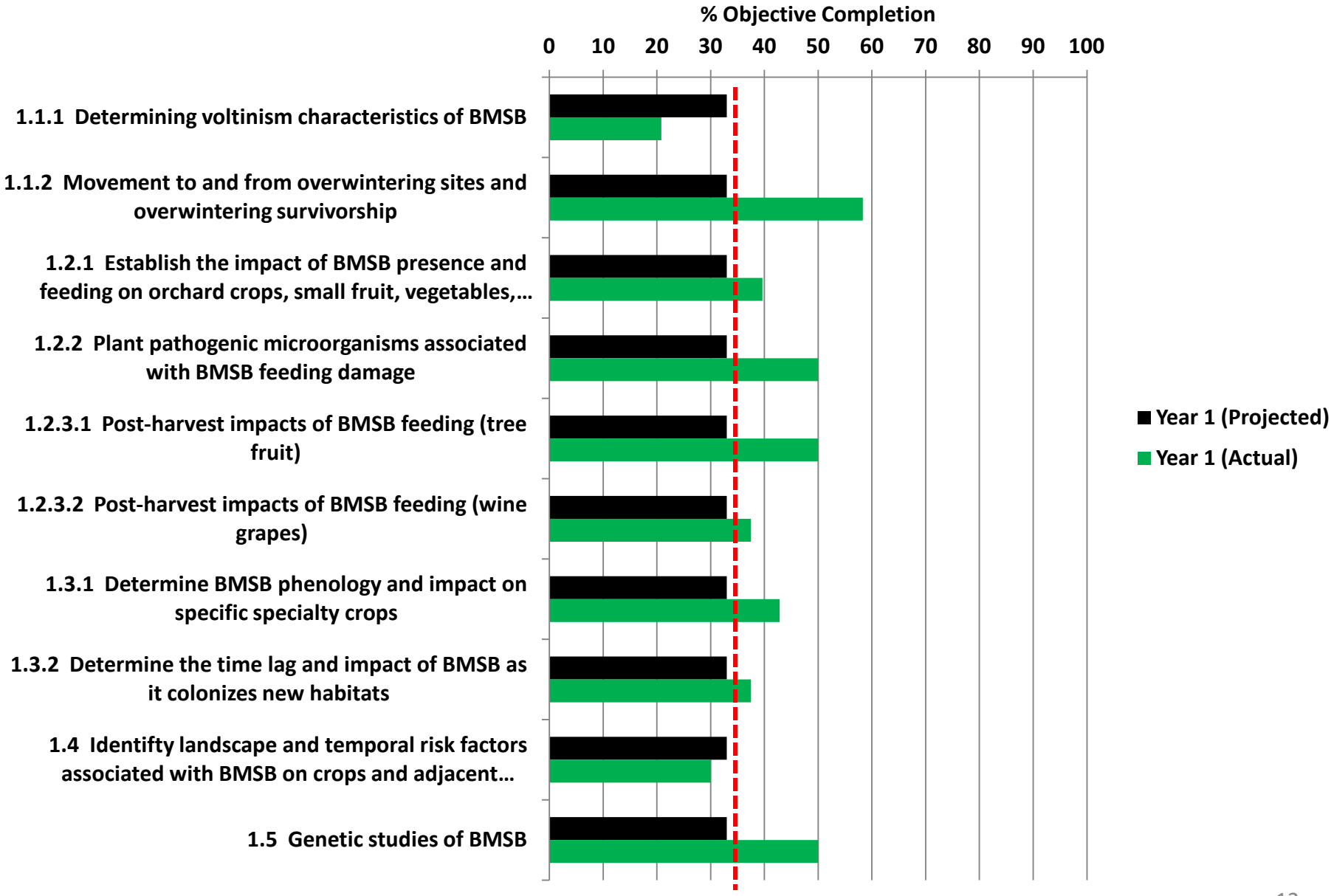
Landscape Level Threat to Specialty Crops

Overall Objectives

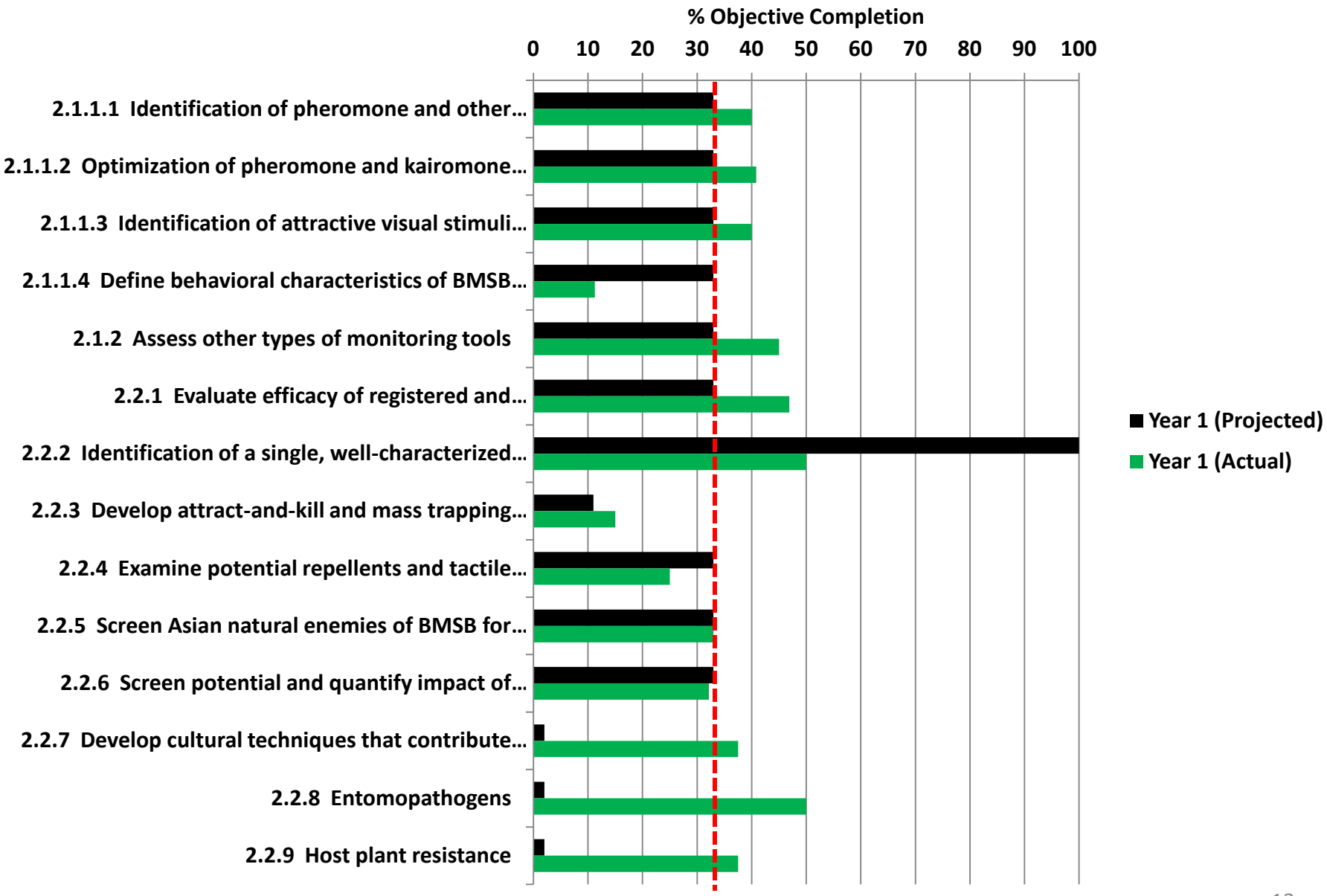
- Objective 1. Establish biology and phenology of BMSB
- Objective 2. Develop monitoring and management tools
- Objective 3. Establish effective management programs
- Objective 4. Integrate stakeholder input and research findings to form and deliver practical outcomes.
- Each has several sub objectives

Progress Through November 2012

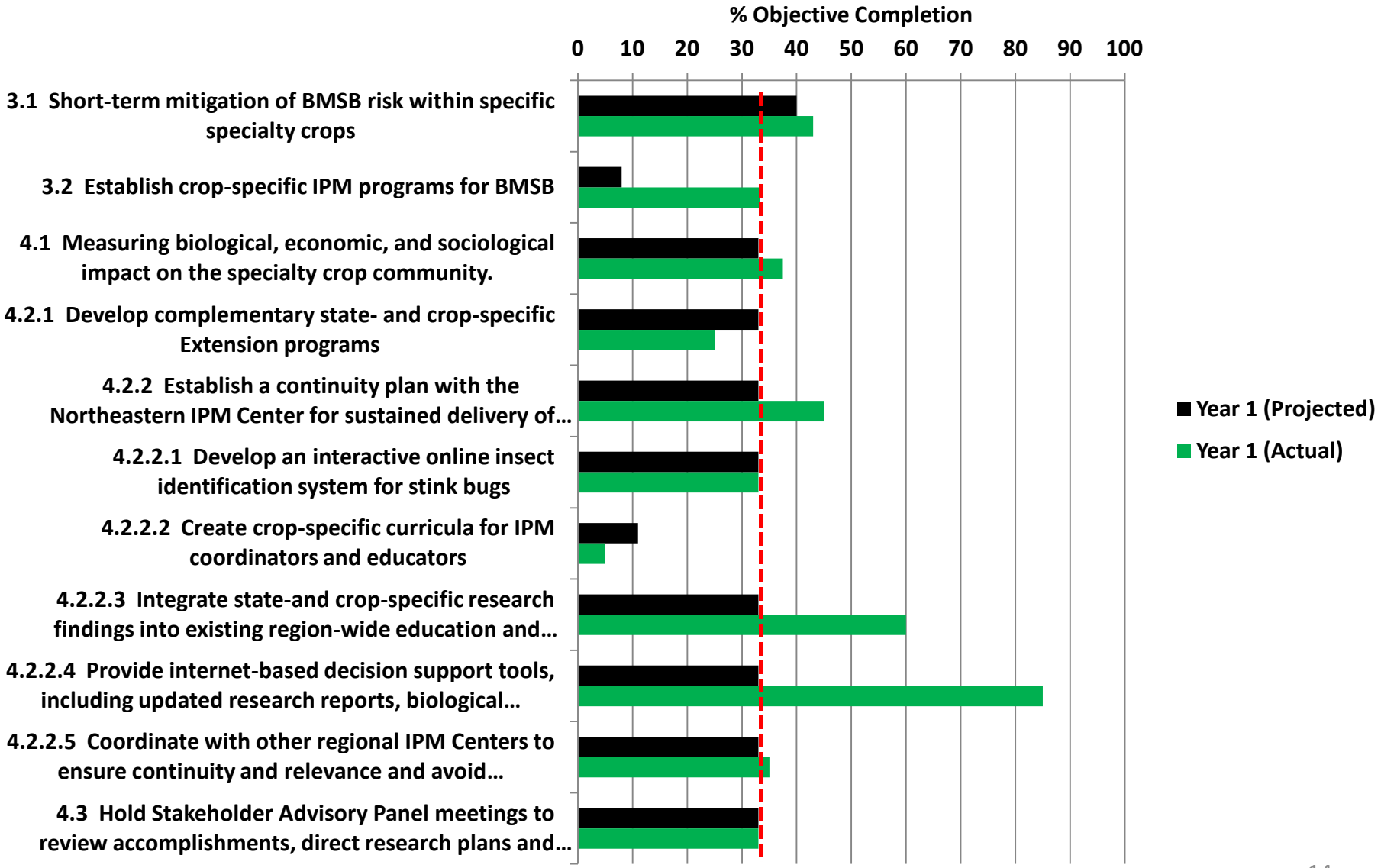
Objective 1: Establish Biology and Phenology of BMSB in Specialty Crops



Objective 2: Develop Monitoring and Management Tools for BMSB



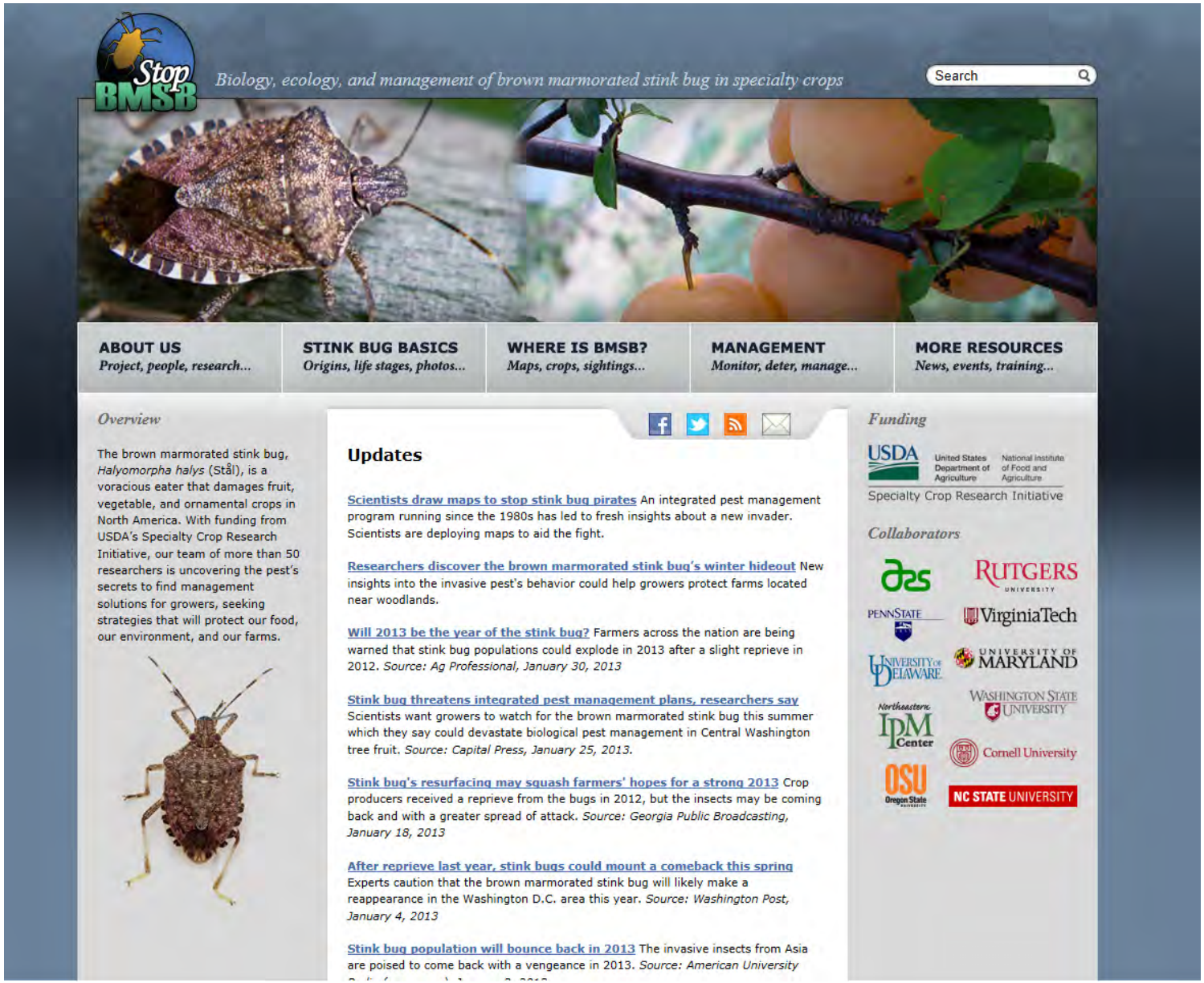
Objective 3: Establish Effective Management Programs for BMSB in Specialty Crops
Objective 4: Integrate Stakeholder Input and Research Findings to Form and Deliver Practical Outcomes



Key Personnel Trained To Date

M.S.	Ph.D.	Post-Doc
9	5	9

What's Next?


Stop BMSB
Biology, ecology, and management of brown marmorated stink bug in specialty crops
Search
ABOUT US
Project, people, research...
STINK BUG BASICS
Origins, life stages, photos...
WHERE IS BMSB?
Maps, crops, sightings...
MANAGEMENT
Monitor, deter, manage...
MORE RESOURCES
News, events, training...
Overview
The brown marmorated stink bug, Halyomorpha halys (Stål), is a voracious eater that damages fruit, vegetable, and ornamental crops in North America. With funding from USDA's Specialty Crop Research Initiative, our team of more than 50 researchers is uncovering the pest's secrets to find management solutions for growers, seeking strategies that will protect our food, our environment, and our farms.
Updates
Scientists draw maps to stop stink bug pirates An integrated pest management program running since the 1980s has led to fresh insights about a new invader. Scientists are deploying maps to aid the fight.
Researchers discover the brown marmorated stink bug's winter hideout New insights into the invasive pest's behavior could help growers protect farms located near woodlands.
Will 2013 be the year of the stink bug? Farmers across the nation are being warned that stink bug populations could explode in 2013 after a slight reprieve in 2012. Source: Ag Professional, January 30, 2013
Stink bug threatens integrated pest management plans, researchers say Scientists want growers to watch for the brown marmorated stink bug this summer which they say could devastate biological pest management in Central Washington tree fruit. Source: Capital Press, January 25, 2013.
Stink bug's resurfacing may squash farmers' hopes for a strong 2013 Crop producers received a reprieve from the bugs in 2012, but the insects may be coming back and with a greater spread of attack. Source: Georgia Public Broadcasting, January 18, 2013
After reprieve last year, stink bugs could mount a comeback this spring Experts caution that the brown marmorated stink bug will likely make a reappearance in the Washington D.C. area this year. Source: Washington Post, January 4, 2013
Stink bug population will bounce back in 2013 The invasive insects from Asia are poised to come back with a vengeance in 2013. Source: American University
Funding
USDA United States Department of Agriculture National Institute of Food and Agriculture
Specialty Crop Research Initiative
Collaborators
Rutgers University
Penn State
Virginia Tech
University of Delaware
University of Maryland
Northeastern IPM Center
Washington State University
Cornell University
OSU Oregon State University
NC State University

Next Steps

- Assessment of progress and objectives in Fall 2013.

- Development of a renewal application to be submitted in January 2014.

Whole-farm Organic Management of BMSB and Endemic Pentatomids Through Behavior-based Habitat Manipulation

United States Department of Agriculture

National Institute of Food and Agriculture

USDA NIFA OREI

PD: Nielsen

RUTGERS UNIVERSITY

OREI PI's

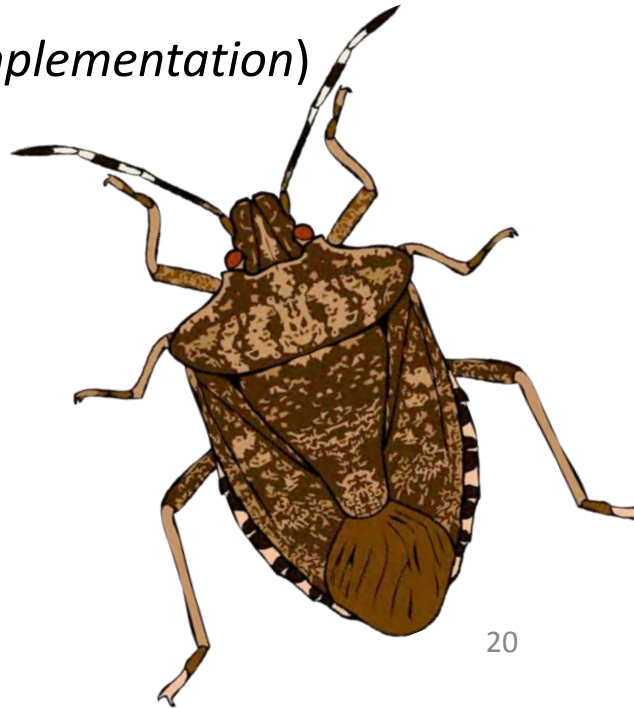
1. Rutgers University – Nielsen and Hamilton
2. West Virginia University – Park and Kotcon
3. Redbud Farm- Mathews
4. University of Tennessee - Rogers
5. University of Kentucky - Bessin
6. University of Maryland – Hooks and Dively
7. USDA – AFRS and BIIR – Leskey and Hoelmer
8. Rodale Institute – Zinati
9. Michigan State University - Grieshop
10. University of Florida - Mizell
11. North Carolina State University – Walgenbach
12. Ohio State University – Welty
13. Virginia Tech – Pfieffer
14. *e*Organic – Stone

$ 2.67 million

3 years

OREI Goals

- Investigate dispersal behavior within the farmscape
- Integrate behavior with core organic pest management strategies:
  - Trap Crops (*selection, management and implementation*)
  - Conservation biological control
  - Natural enemy surveys
  - Physical barriers



OREI Goals

- Identify integrated management tactics that could be employed by organic farmers for BMSB and endemic species
- Investigate management of BMSB at different “invasion” levels
- Incorporate field crops
- Compliment and build off of SCRI, not duplicate!!

Progress – Year 1

- Beginning first field season
- Ric Bessin has identified barrier fabrics for field testing
- Currently conducting on-farm movement studies in WV and NJ to identify sequence of host plants and hot spot
- Dispersal behavior studies in laboratory on going
- Trap crop comparison trial is planted at 4 geographic sites
- Sentinel egg mass surveys started in all locations
- Video is being used to investigate natural enemy complex and behaviors
- Website hosted through eOrganic (linked to STOPBMSB.org)

eOrganic

Dashboard My Groups Log out

HOME GROUPS ARTICLES ABOUT US HELP

Search

Brown Marmorated Stink Bug in Organic Farming Systems

Home About Resources Participants

About the Brown Marmorated Stink Bug in Organic Farming Systems Project

View Edit Revisions

Brown marmorated stink bug (BMSB) poses a significant threat to organic production, and farmers have expressed an urgent need for effective organic pest management strategies. We have assembled a transdisciplinary team of organic researchers, farmers and extension educators that will coordinate the development and delivery of whole-farm organic management practices for BMSB and endemic stink bugs. This website will continue to evolve with the addition of social media to help organic farmers.

BMSB has proven to be one of the most devastating pests of Mid-Atlantic agriculture in the past 50 years. It was introduced into eastern PA in the late 1990's and is now present in 35 states. Conventional farmers, who have access to powerful synthetic insecticides, have struggled to manage BMSB. The pest has a wide host range and has damaged a diversity of crops, including; tree fruits (apple, peach), small fruits (caneberries, grapes), vegetables (pepper, tomato, eggplant, sweet corn) and row crops (soybean and corn). With high populations in soybean, sweet and field corn, fruit and vegetables, BMSB has fully exploited the niche of diverse plantings common on organic farms near urban areas in the Mid-Atlantic and Southern regions.

BMSB has rapidly become a devastating pest of conventional and organic agriculture in Southern and Mid-Atlantic regions and is expanding to surrounding states. Management of this pest with conventional/synthetic insecticides has proven extremely challenging and there are currently no viable organic management tactics. The programs developed in our project will be based on BMSB dispersal and whole-farm movement integrated with core organic pest management strategies —*i.e.* conservation biological control, habitat manipulation and the use of trap crops and crop barriers.

Our specific objectives are:

1. *Develop habitat manipulation tactics based upon how host plant phenology impacts BMSB preference and dispersal.*
2. *Determine biotic and abiotic factors affecting adult and juvenile BMSB whole-farm movement.*
3. *Determine the identity and importance of extant natural enemies of stink bugs and their impact on BMSB populations.*
4. *Evaluate integrated management plans for BMSB and endemic stink bugs specific to organic production systems.*
5. *Develop and deliver extension materials for organic growers.*

Who's online

There are currently *1 user* and *2 guests* online.

Online users

- Anne.Nielsen

Project website hosted at eOrganic

- Investigating border spray applications (targeting BMSB) combined with OFM mating disruption and ground cover management

- Peach

- Year 1 results showed significant reduction in cost, amount of a.i. applied and injury

BMSB Multistate Project

- USDA/AES support for projects that foster cooperation between states on a regional or national basis
- Rapid response project (NE508) in 2011 – 2 years
- Ten states participating
- Objectives similar to SCRI objectives
- Annual meeting
- Being converted to five year standard project

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