Phenology and Distribution of Brown Marmorated Stink Bugs

Pear Research Meeting
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Brown Marmorated Stink Bug
(Halyomorpha halys)

Photos: Baldo Villegas
Female

5 Nymphal Instars

- Each adult lives 6-8 months
- Female can lay about 250 eggs
- ~2 generations in Mid-Atlantic states, 4-6 in southern China; California ???
Established populations in:
Butte
Los Angeles
Sacramento
San Joaquin
Santa Clara
Sutter
Yolo

Courtesy of Charlie Pickett, CDFA
BMSB Finds
Sacramento County

Jan. 1, 2014

Dec. 31, 2014
Host Plants
Crops

- Stone fruits (esp. peach), pome fruits, citrus, persimmon, fig
- Berries
- Grapes (not a major host)
- Eggplant, tomato, okra, pepper, corn, beans (esp. soy), cucurbits, sunflower
Host Plants
Selected Ornamentals

- Catalpa
- Chinese pistache
- Elm
- Maple
- Holly
- Princess tree (Paulownia)
- Pyracantha
- Redbud
- Rose
- Tree of heaven
- Waxleaf privet
Chinese Pistache

*Pistachia chinensis*

Charlie Pickett
Trident Maple
*Acer buergerianum*
Waxleaf Privet
*Ligustrum japonicum*
Tree of Heaven

*Ailanthus altissima*
BMSB Adults & Nymphs on Tree of Heaven

Graph showing the number of BMSB (Brown Marmorated Stink Bug) Adults & Nymphs on marked branches from 20-May to 2-Sep. The graph indicates peaks in activity during different weeks with the highest numbers occurring around 17-Jun.
Stink Bug Feeding

Photo: Jay Brunner

Photo: Tracy Leskey
BMSB Damage

Peach, 5/22

Nectarine, 6/3

Asian pear, 7/2

Plum – no damage
Lures (MDT) and Insecticide Strips

Lures:

- AgBio Combo lure (6 wks.) – $7.95
- Rescue (2 lures) (9 wks.) – $10
- Vaportape (kill bugs in trap): $2.85

![Image of trap with Vaportape and Rescue lure]
Phermone Trap
Dead-Inn Traps (AgBio, Inc.)

Grower
48” tall, $30

Professional
24” tall, $20

Homeowner
16” tall, $17
Phermone Traps
Rocket Trap (Rescue): $17 each
2014 Trap Locations & Counts
Midtown Sacramento

Adults/Nymphs

- 64/532
- 90/691
- 11/9
- 219/155
- 3/4
- 7/7
- 0/0
Adults and Nymphs Trapped
Sacramento, 2014

BMSB/day/trap
Avg. of 4 traps, 2014
Male vs. Female BMSB Adults
Sacramento, 2014

BMSB/day/trap
Avg. of 4 traps, 2014
Trap Placement Locations
So. Sacramento County, 2014

- South of Sacramento (4)
- Pear orchards near residence of a Sacramento commuter (6)
- Farms that host visitors (5)
  » Wine tasting, agritourism, schools
No BMSB found
Insecticide Efficacy
Field Study (Leskey et al., 2013)

- High mortality on day of application: Endosulfan (e.g., Thiodan), methomyl (Lannate), thiamethoxam (Actara), and bifenthrin (e.g., Brigade)
- Fenpropathrin (Danitol) and dinetofuran (Venom, Scorpion): strong anti-feeding effect for 7+ days
- Peaches in Mid-Atlantic: 10-12 weekly applications, alternate-row, late May-harvest using pyrethroids and neonicotinoids
- Effective insecticides in lab: only 60% average mortality in the field when applied late early July, 40% in Aug., and 20% in September
Sprayed orchard perimeter with insecticides → 75% of adult BMSB were stopped at the edge.

Products and timings that worked well:
- Early season: Danitol
- Mid-season: Voliam Xpress, Perm-Up Assail
- Late July: Actara
- Pre-harvest: Actara, Danitol, Lannate, Venerate
Products that have shown good effectiveness against BMSB include:

- **Pyrethroids**: Baythroid XL (B-cyfluthrin), Danitol (fenpropathrin), Warrior II (Beta-cyfluthrin), products containing permethrin (e.g. Pounce)
- **Neonicotinoid**: Belay (clothianidin)
- **Carbamate**: Lannate (methomyl)
- **Premixtures**: Endigo ZC (Beta-cyfluthrin + thiamethoxam) and Leverage 360 (imidaclorpid + cyfluthrin)
Conclusions

- BMSB spread is slow – 4-5 yrs. from 1st intro
- Egg laying begins early May, extends for weeks
- Trapping inefficient in early season
- Check trees in Sept. (maple, pistache, privet, ToH)
- Two generations in Sacto.
- Many products may provide control (think IPM)
  » Edge spraying may be sufficient
- May not be as severe as in mid-Atlantic states
  » No neighboring forests, no soybeans
  » But pears – Old trees, rattail fruit
Questions?

Important Web Sites

StopBMSB.org
ucipm.ucdavis.edu
cesacramento.ucanr.edu