A Comparison of Two BMSB Sampling Techniques in Peaches & Nectarines

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The BMSB Invasion

• Introduced in the mid-1990’s

• Now established or detected in over 40 states and the District of Columbia

• Established in Canada

• Detected and/or established in Europe

• APHIS Florida find in flowers shipped from Columbia
Impact of Invasion

- 2009/10 explosion in the mid-Atlantic US
- Damage to field, nursery, tree fruit and vegetable crops
- Increased pyrethroid use
- Secondary pest outbreaks
- Need for effective monitoring techniques
Potential Monitoring Methods

Average Nightly Distribution of Adult BMSB for week ending July 27, 2011

Legend:
- 0 - 5
- 5 - 10
- 10 - 25
- >25
- No Data

Map of New Jersey showing distribution of adult BMSB with颜色编码 for different thresholds.
Potential Monitoring Methods

Leskey 2012
Potential Monitoring Methods
Study Design

- Cream Ridge Fruit Research Station
- Mixed block of peaches and nectarines
- Sampled once a week during the growing season in 2011 and 2012
- 1.5 minute visual samples, 5 beats per tree
Peaches 2011

Date of first ripe fruit

Mean Number of BMSB per plant

Date
Nectarines 2011

Date of first ripe fruit

Mean Number of BMSB per Plant


Nectarine Visual

Nectarine Beat
Peaches 2012

- Date of first ripe fruit
- Mean Number of BMSB per Plant

Graph showing the mean number of BMSB per plant over time, with peaks on dates 15-Aug and 29-Aug.
Nectarines 2012

Date of first ripe fruit

Mean Number of BMSB per Plant

Date


Nectarine Visual

Nectarine Beat
Beat Sampling vs. Visual Counts, Peaches

$y = 0.976x + 0.0448$

$R^2 = 0.31$

$P = 0.003$
Beat Sampling vs. Visual Counts, Nectarines

Mean Number of BMSB per 1.5 minute Count

Mean Number of BMSB per 5 Beats

\[ y = 1.2334x - 0.1294 \]

\[ R^2 = 0.63 \]

\[ P = 0.001 \]
Conclusions and Next Steps

- Beat sheets worked best in early season
- A significant relationship between beat samples and visual counts was found
- The models developed need further refinement
- Determine if the data can be combined
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