The Impact of Specific Management Programs on BMSB Injury in Commercial Orchards

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Mark Orr
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Dwight Baugher
Nathan Milburn
- Baited Perimeter Traps
- Sweep Netting
- Limb Jarring
- Visual Inspection
- Grower Observations
- Fruit Injury Sampling
Fruit Injury Inspection

• Non-Destructive (On-Tree) Sampling
  – Peripheral Zone and Interior Zone
    • Shuck Split Through 20mm Fruit

• Destructive (Lab Dissection) Sampling
  – Peripheral Zone
    • 20mm Fruit Through 40mm Fruit

  – Peripheral Zone and Interior Zone
    • 40mm Fruit Through Harvest
Fruit Injury Inspection

• Destructive (Lab Dissection) Sampling
  – Whole-Fruit Sampling
  – Presence of Feeding Injury Only
  – Qualitative Assessment of Severity, Quantitative Assessment of Severity Conducted Closer to Harvest
Key Question

• How do grower management decisions influence presence and severity of BMSB feeding injury?
  – Material Selection
  – Rate Selection
  – Coverage and Concentration (GPA)
  – Application Method (ARM)
  – Treatment Interval
  – Strategic Deployment (Peripheral Zone vs. Whole Plot)
  – Tank Mixes, Commercial Blends, and Synergists
Key Question

• How do grower management decisions influence presence and severity of BMSB feeding injury?
  – Material Selection

  – Treatment Interval
Key Question

• How do grower management decisions influence presence and severity of BMSB feeding injury?
  – Material Selection
  – Treatment Interval

• If the input equals the spray schedule, and the outcome equals the injury rate, can a commercial grower win by spraying?
Monitored Orchard WV2-O
Non-Destructive/Destructive Fruit Sampling (Peach)
Presence of Feeding Injury

Fruit Size (Diameter)

% Fruit Injury

Sample Date

4-­‐May
11-­‐May
18-­‐May
25-­‐May
1-­‐Jun
8-­‐Jun
15-­‐Jun

Peripheral Zone
Interior Zone
Historical Economic Injury Level
Monitored Orchard MD1-G
Non-Destructive/Destructive Fruit Sampling (Peach)
Presence of Feeding Injury

Fruit Size (Diameter)

<table>
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Peripheral Zone
Interior Zone
Historical Economic Injury Level
Monitored Orchard MD6-L
Non-Destructive/Destructive Fruit Sampling (Peach)
Presence of Feeding Injury

Fruit Size (Diameter)

Sample Date

% Fruit Injury

Peripheral Zone

Interior Zone

Historical Economic Injury Level
### Monitored Orchard MD3-A
#### Non-Destructive/Destructive Fruit Sampling (Peach)
#### Presence of Feeding Injury

**Fruit Size (Diameter):**
- 12 mm
- 20 mm
- 30 mm
- 35 mm
- 40 mm
- 45 mm

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<th>Interior Zone</th>
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**Leverage 360 (ARM):**

**Thionex Lamcap (ARM):**

**Orthene Fencerows Edges:**

**Historical Economic Injury Level:**
- 0%

**Legend:**
- Red: Peripheral Zone
- Green: Interior Zone
- Yellow: Historical Economic Injury Level
Challenges Emerging

• Large Farms
  – If it already takes 7 days to cover the farm, then options are severely limited.

• Diversified Farms
  – Essentially all PYO and farm-market crops are at risk.

• Residual Effectiveness
  – Few materials demonstrating greater than 5 days of kill of immigrating bugs.

• Label Restrictions
  – Seasonal maximum applications/seasonal maximum amounts will come into play very quickly for materials that prove effective.
Mid-Season Conclusions

- As of June 18th across all sampled farms, the injury rate in peaches is 16.7% in the peripheral zone and 10.3% in the plot interior. However, peripheral-zone injury is generally more severe.

- After peaches reach ~3/4”, there appears to be very little room for error in material selection, rate, or timing of treatments. However, growers are still functioning without triggers or reasonable assurance of success.

- A combination of tight-interval residual material (endosulfan) tank-mixed with a knockdown material (pyrethroid) augmented by edge treatment with a systemic (acephate) has held firm through June 15th in an orchard with a history of very high BMSB damage rates.

- Central Maryland appears to be facing a substantial increase in the overall BMSB population from the 2010 growing season to the 2011 growing season.

- Early-season BMSB management in peaches is going to take practice.
In-Season Research Projects

• Analysis of Residual Insecticide Effects
• Trap and Stimulus Improvements
• Olfactory Deterrents
• Insecticide Synergists
• Tactile Deterrents
Surround Coverage (First Application)
15 LBS/100 Gallons, 125 GPA