UPDATE ON INSECTS AND VARIETIES

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Strawberry Clipper/Bud Weevil

**Distribution:** Native to North America. Found from Atlantic coast down to Florida. West to Minnesota and Texas and north in Canada.

**Size:** 1/10 inch long.

**Identification feature:** Snout half as long as its body. Two black spots on either side of the abdomen. One spot in center of its abdomen.

**Activity in spring:** When temperatures reach 60 °F.
Monitoring for presence of Strawberry clipper weevil

Location: Vaughan Farms, Virginia Beach, VA

Four berry rows A-D were chosen, spaced evenly across the width of the plot.

In each row, sticky traps were laid out along with transects placed every 33 ft. across the length of plot.

Each transect was 3.3 ft. long.

Traps were placed in contact with the soil line, near the foliage with least amount of disturbance to the plants as possible.

Collected and counted all clipped buds (both on the ground and hanging) in the transect.

Monitoring was continued until the end of growing season.
Plot dimensions are 206 ft. long by 199 ft. wide

Woods are on the north end of the plot about 0.75 miles away. The far woods are on the east side of the beds about 3 miles away.
Strawberry Clipper weevil damage
<table>
<thead>
<tr>
<th>Week</th>
<th>Clipper numbers in 2013-14, Virginia Beach, VA</th>
<th>Total Clipper (82.5 linear ft.)</th>
<th>Total Clipper (40 linear ft.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>4/9</td>
<td>A: 3, B: 0, C: 2, D: 7</td>
<td>12</td>
<td>5.8</td>
</tr>
<tr>
<td>4/16</td>
<td>A: 49, B: 19, C: 12, D: 28</td>
<td>108</td>
<td>52.4</td>
</tr>
<tr>
<td>4/23</td>
<td>A: 14, B: 8, C: 12, D: 8</td>
<td>42</td>
<td>20.4</td>
</tr>
<tr>
<td>4/30</td>
<td>A: 3, B: 4, C: 0, D: 3</td>
<td>10</td>
<td>4.8</td>
</tr>
<tr>
<td>5/7</td>
<td>A: 7, B: 12, C: 12, D: 5</td>
<td>36</td>
<td>17.5</td>
</tr>
<tr>
<td>5/14</td>
<td>A: 6, B: 10, C: 4, D: 5</td>
<td>25</td>
<td>12.1</td>
</tr>
<tr>
<td>5/21</td>
<td>A: 0, B: 1, C: 5, D: 3</td>
<td>9</td>
<td>4.4</td>
</tr>
<tr>
<td>5/28</td>
<td>A: 3, B: 1, C: 2, D: 3</td>
<td>9</td>
<td>4.4</td>
</tr>
<tr>
<td>6/4</td>
<td>A: 3, B: 1, C: 0, D: 0</td>
<td>4</td>
<td>1.9</td>
</tr>
<tr>
<td>6/11</td>
<td>A: 3, B: 1, C: 4, D: 2</td>
<td>10</td>
<td>4.8</td>
</tr>
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<td>Week</td>
<td>Clipper numbers in 2014-15, Virginia Beach, VA</td>
<td>Total Clipper (82.5 linear ft.)</td>
<td>Total Clipper (40 linear ft.)</td>
</tr>
<tr>
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<td>2.4</td>
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<td>20</td>
<td>9.7</td>
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<tr>
<td>4/23</td>
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<td>26</td>
<td>12.6</td>
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<tr>
<td>4/30</td>
<td></td>
<td>3</td>
<td>1.5</td>
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<tr>
<td>5/7</td>
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<td>0</td>
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<td>5/14</td>
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<td>1</td>
<td>0.5</td>
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<tr>
<td>5/21</td>
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<td>1</td>
<td>0.5</td>
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<td>5/28</td>
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<td>1</td>
<td>0.5</td>
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<tr>
<td>6/11</td>
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<td>3</td>
<td>1.5</td>
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<tr>
<td>Virginia Beach, VA</td>
<td>2013</td>
<td>2014</td>
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<tr>
<td>Week</td>
<td>Clipped bud per 2 linear ft.</td>
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<td></td>
</tr>
<tr>
<td>4/9</td>
<td>0.3</td>
<td>0.0</td>
<td></td>
</tr>
<tr>
<td>4/16</td>
<td>15.4</td>
<td>2.5</td>
<td></td>
</tr>
<tr>
<td>4/23</td>
<td>12.7</td>
<td>24.5</td>
<td></td>
</tr>
<tr>
<td>4/30</td>
<td>12.2</td>
<td>11.8</td>
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<tr>
<td>Management Options</td>
<td>Amount of Formulation per Acre</td>
<td>Effectiveness (+)</td>
<td>REI</td>
</tr>
<tr>
<td>-----------------------------</td>
<td>---------------------------------</td>
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<td>-------</td>
</tr>
<tr>
<td>bifenthrin (Brigade)WSB</td>
<td>6.4 to 32 oz</td>
<td>+++</td>
<td>12 hr</td>
</tr>
<tr>
<td>carbaryl (Sevin XLR)</td>
<td>1 to 2 qt</td>
<td>++</td>
<td>12 hr</td>
</tr>
</tbody>
</table>
Sap beetle

Identifying feature: Small, oval and less than 1/8 inch long, mottle brown in color.

Attack ripe and overripe berries. Make a hole on the underside of berries, making a hole straight into the berry.

Population increases with rain. Pesticides are not effective. Cultural control is more important.

Increasing frequency of picking, removing overripe berries, keeping flats away from infested areas and covered.

Larvae damage not appealing.
Regular, thorough harvest will help minimize sap beetle populations. Sap beetles are attracted to the odor of overripe fruit, so keeping fruit picked clean will reduce problems. Sap beetles can also be attracted away from fields using bucket traps baited with overripe fruit or wheat bread dough. Bait bucket lures and culled strawberries must be disposed of either off site or buried. Insecticide treatments should only be used if thorough harvest is not possible (i.e., pick-your-own operations or inclement weather).

| Cultural Control                                                                 |
|----------------------------------------------------------------------------------|---|---|---|---|
| novaluron (Rimon) 0.83 EC                                                       | 12 fl oz | ++++ | 12 hr | 1 day |
|                                                                                  | Allow 7 days between applications. DO NOT apply more than 36 fl oz/acre per season. The use of adjuvants or surfactants is prohibited. IRAC–15 |
Twospotted Spider Mites

• Feed multiple plant species.
• Temperate zone species (greenhouse, deciduous trees) but also found in subtropical zones.
• Difficult to see with naked eye.
• Use 10X or 14X magnifying lens.
• Temperature must be > 54 °F with most rapid development 86 °F.
• Multiple generations per year.
• Regular sampling and monitoring needed. Attn. leaves touching plastic or on borders.
• All or portion of spider mites may enter diapause triggered by cooler temperatures and shorter days.
Damage symptoms

1. Stunted plant growth.
2. Reduced fruit size and yield.
3. Leaves develop yellow speckling on the upper side of leaves.
4. Drooping leaves with yellow or purplish discoloration that turns brown.

Control measures

Control achieved by miticide. Avoid use of Sevin, Brigade, or Danitol if predatory mites (e.g. *Phytoseiulus persimilis*), are used.
<table>
<thead>
<tr>
<th>Management Options</th>
<th>Amount of Formulation per Acre</th>
<th>Effectiveness (+)</th>
<th>REI</th>
<th>PHI</th>
<th>Comments (FRAC/IRAC Code)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Predatory mites (Phytoseiulus persimilis and others)</td>
<td>Release rates vary based upon predatory species and prey density. In general, release 2 to 3 mites per plant when mite populations are low and 5 predators per plant when populations are high. Predatory mite releases must be initiated at or before twospotted spider mites reach threshold levels (5 mites per leaflet), and spider mite populations must be followed closely after predatory mite releases.</td>
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</tr>
<tr>
<td>acequinocyl (Kanemite) 15 SC</td>
<td>31 fl oz</td>
<td>++++</td>
<td>12 hr</td>
<td>1 day</td>
<td>Allow 21 days between treatments. Do not make more than 2 applications per season. IRAC–20B</td>
</tr>
<tr>
<td>bifenazate (Acramite) 50WP</td>
<td>1 lb</td>
<td>++++</td>
<td>12 hr</td>
<td>1 day</td>
<td>Use only 2 applications per year. Use in a minimum of 100 gal/acre. IRAC–UN</td>
</tr>
<tr>
<td>spiromesifen (Oberon) 2 SC</td>
<td>12 to 16 fl oz</td>
<td>++++</td>
<td>12 hr</td>
<td>3 days</td>
<td>Make no more than 3 applications per crop. Use in a minimum of 100 gal/acre. IRAC–23</td>
</tr>
</tbody>
</table>
Voles damage: chew off plant roots

Chandler Strawberry 2014/2015

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Ultrasonic Solar Pest Repeller – deterrent for rodents
New Varieties at HRAREC

Oct. 1, 2015

Oct. 8, 2015
**PLANT CHARACTERISTICS:**
- Day Neutral
- High Plant Vigor
- Open Architecture
- Low Runner Production
- High Pathogen Tolerance

**FRUIT QUALITY:**
- *Large to Very Large Size*
- Exceptional Flavor
- Medium Red (High Gloss)
  - Tip-to-Top Ripening
- Uniform
- Long Conic Shape
- Medium Firmness
- High Yielding (5.17 lbs/plant)
Input from Dr. Poling on ‘Sweet Ann’

• Impressive flavor, stands to it’s name.
• Some problem with white shoulders.
• Issues with rain.
I compared these ‘Sweet Ann’ to ‘Camarosa’ from Cottle in one photo (Camarosa) in clamshell.

Berries came from a grower's farm in Mt. Olive, NC (Vernon Britt).

Wayne County, NC
South of Goldsboro
157 ft elevation
Scarlet

PLANT CHARACTERISTICS:
- Short Day / Remontant (multiple blooms)
- Medium/High Plant Vigor
- Med Height, Slightly Dense Architecture
- Low Runner Production
- Medium / High Pathogen Tolerance

FRUIT QUALITY:
- Large Size
- Good Flavor
- Medium Red Color
- Very Firm
- Moderate Variation in Shape
- Conic Shape with Few Creases
- High Yielding (3.92 lbs/plant)
PLANT CHARACTERISTICS:
Short Day / Remontant (multiple blooms)
Medium/High Plant Vigor
Open Architecture
Low Runner Production
Medium Pathogen Tolerance
- susceptible to xanthomonas

FRUIT QUALITY:
Medium / Large Size
Good Flavor
Slightly Lighter Red
Firm
Very Uniform
Conic Shape
Productive Yield (3.08 lbs/plant)
Ruby June

PLANT CHARACTERISTICS:
- Short Day
- Moderate Vigor (high chill = more vigor)
- Short, Compact Architecture
- Moderate Runner Production
- Medium / High Pathogen Tolerance

FRUIT QUALITY:
- Medium Size
- Exceptional Flavor
- Full Red
- Moderately Firm
- Uniform
- Very Conic
  - Some periodic tips and creases
- Productive Yield (2.88 lbs/plant)
Dr. Poling ‘Ruby June’ may be a very good fit for our region. Of course, we will know a lot more after this spring. We have 1/2 dozen trials across NC, SC and VA with all 4 LCN varieties.”
NCS 10-156
Is an early genotype that has uniform fruit with excellent flavor, a rich red color, and consistently good yields. It is a potential ‘Sweet Charlie’ replacement. It is comparable or better than ‘Sweet Charlie’ or ‘Chandler’ in firmness.

NCS 10-038
Is a potential ‘Camarosa’ replacement with high yields, firmer fruit and more uniform production across the season.