Tree Fruit Insect News

• Product news
• New pest alert
• Research results
New insecticides with new active ingredients

• Movento 2SC (group 23)
  ➢ Fully systemic
  ➢ Sucking pests
    ☺ Aphids including woolies
    ☺ Pear psylla
    ☺ San Jose scale
New insecticides with new active ingredients

• Altacor 35WDG (group 28)

• Belt 4SC (group 28)
# New products in group 28

<table>
<thead>
<tr>
<th>Product</th>
<th>A.I.</th>
<th>Crops</th>
<th>Pests</th>
<th>Application</th>
</tr>
</thead>
<tbody>
<tr>
<td>Altacor</td>
<td>chlorantraniliprole (Rynaxypyr)</td>
<td>fruit, potato</td>
<td>caterpillars, Col. potato beetle</td>
<td>foliar</td>
</tr>
<tr>
<td>Coragen</td>
<td>chlorantraniliprole (Rynaxypyr)</td>
<td>veg</td>
<td>caterpillars, Col. potato beetle, leafminers</td>
<td>foliar or drip irrigation</td>
</tr>
<tr>
<td>Belt</td>
<td>flubendiamide</td>
<td>fruit, sweet corn</td>
<td>caterpillars</td>
<td>foliar or overhead irrigation</td>
</tr>
<tr>
<td>Synapse</td>
<td>flubendiamide</td>
<td>veg</td>
<td>caterpillars</td>
<td>foliar or overhead irrigation</td>
</tr>
</tbody>
</table>
### Target pests

<table>
<thead>
<tr>
<th></th>
<th>Altacor</th>
<th>Belt</th>
</tr>
</thead>
<tbody>
<tr>
<td>Codling moth</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Leafrollers</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Oriental fruit moth</td>
<td>✓</td>
<td></td>
</tr>
</tbody>
</table>
Altacor

- Toxic to neonate larvae & eggs
- Works best if ingested
- Must use 100+ gal water/A
- Adjuvants:
  - Pome fruit: 14 day PHI but do not use with adjuvant within 60 days of harvest
  - Stone fruit: do not use adjuvant with sweet cherry or tart cherry
New insecticides: pre-mixes of old + new a.i.s (price advantage??)

- Voliam Flexi
- Leverage
## New pre-mixes

<table>
<thead>
<tr>
<th><strong>Product</strong></th>
<th><strong>a.i.s</strong></th>
<th><strong>target</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Voliam Flexi</td>
<td>thiamethoxam <em>(Actara)</em> + chlorantraniliprole <em>(Altacor)</em></td>
<td>sucking pests caterpillars</td>
</tr>
<tr>
<td>Leverage</td>
<td>cyfluthrin <em>(Baythroid)</em> + imidaclorpid <em>(Provado)</em></td>
<td>sucking pests broad spectrum</td>
</tr>
</tbody>
</table>
New insecticides/miticides with old a.i.s

- Onager (= Savey)
- Portal (= Fujimite)
New pest alert: Brown marmorated stink bug

- In PA since 2001
- Now in NJ, MD, DE, VA, WV, NY
- Pest in Japan, China, Korea
- Attacks fruits & seed pods
- Nuisance: invades homes for winter
- 1st report in Ohio: Nov. 2007
- New OSU fact sheet: FS-3824-08
Hosts of Brown Marmorated Stink Bug

• Fruit crop hosts:
  - Peach, apple, pear, cherry, Asian pear
  - Raspberries, grapes, currants

• Vegetable crops
  - Green beans
  - Peppers
  - Asparagus

• Agronomic crops
  - Soybean
  - Corn
Brown marmorated stink bug

• Both adults & nymphs feed on plants
  ➢ Fruit
  ➢ Leaves
Brown marmorated stink bug

• Identify by white bands on antennae & sides
Research results, 2008

- Apples, codling moth
  - insecticides
  - virus
- Apples, mites
Codling moth insecticide trial, 2008

• Need alternatives to O.P.s due to resistance

• Codling moth population lower than normal in 2008 (due to crash in 2007 from lack of food after Easter freeze)
Codling moth in traps 2008
# Treatments in codling moth efficacy trial 2008

<table>
<thead>
<tr>
<th></th>
<th>1st generation</th>
<th>2nd generation</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Delegate</td>
<td>Delegate</td>
</tr>
<tr>
<td>2</td>
<td>Altacor</td>
<td>Altacor</td>
</tr>
<tr>
<td>3</td>
<td>Assail</td>
<td>Assail</td>
</tr>
<tr>
<td>4</td>
<td>Imidan</td>
<td>Imidan</td>
</tr>
<tr>
<td>5</td>
<td>Imidan</td>
<td>Warrior</td>
</tr>
<tr>
<td>6</td>
<td>untreated</td>
<td>untreated</td>
</tr>
</tbody>
</table>
Codling moth control

• Newly registered a.i.s excellent:
  - Altacor
  - Delegate
  - (& Belt, not in trial)
Codling moth virus trial, 2008

• Repeat of trial done in 2006
• Treatments:
  ➢ Insecticide alone (Warrior)
  ➢ Virus alone (Cyd-X)
  ➢ Insecticide + Virus
  ➢ Untreated
## Frequency of treatments in virus trial

<table>
<thead>
<tr>
<th>Treatment</th>
<th>1&lt;sup&gt;st&lt;/sup&gt; generation</th>
<th>2&lt;sup&gt;nd&lt;/sup&gt; generation</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1C</td>
<td>2C</td>
</tr>
<tr>
<td>Insecticide (14 day)</td>
<td>√</td>
<td>√</td>
</tr>
<tr>
<td>Virus (7 day)</td>
<td>√</td>
<td>√</td>
</tr>
</tbody>
</table>
Virus results

**July 2008**

- Insecticide
- Virus + insecticide
- Virus
- Untreated

% of fruit damaged by codling moth: 0 to 1

**P = 0.62**

**Sept. 2008**

- Insecticide
- Virus + insecticide
- Virus
- Untreated

% of fruit damaged by codling moth: 0 to 1

**P = 0.57**
Virus results

Sept. 2008
On tree
\( P = 0.57 \)

Sept. 2008
Drops
\( P = 0.21 \)
Compare with virus results 2006

Harvest, Liberty apples, Columbus OH, 2006

- Insecticide+Virus
  - Int.Lep.sting
  - Int.Lep.entry
- Insecticide only
  - B
- Virus only
  - B
- Untreated

% of fruit damaged

$P = 0.007$
Mite trial, 2008

- **Treatments:**
  - Abba (=Agri-Mek)
  - Apollo
  - Nexter
  - untreated

- **Timing:** 30 May (egg hatch)
Mite results: seasonal trends

European red mite
'Delicious' apples without miticide
Columbus Ohio, 2008

Number of ERM motiles per leaf

May/4 May/18 Jun/1 Jun/15 Jun/29 Jul/13 Jul/27 Aug/10 Aug/24

6/26: 3-inch rain in 2 hours
Mite results: cumulative mite-days

![Mite trial 2008](Image)

- Abba
- Apollo
- Nexter
- Untreated

Cumulative mite-days

Mite trial 2008

$P = 0.09$
Got orchard with wormy fruit?

• Common observations
  - Large number of moths caught in trap
  - Increasingly wormy fruit at harvest
  - Spray program:
    ○ Only Imidan or Guthion used
    ○ Only 2 sprays per generation
    ○ Low gallonage (<50 gpa)
    ○ Early halt to spray program in August
  - Species usually is codling moth
Got orchard with wormy fruit?

• What to do?
  ➢ Verify species (CM or OFM?)
  ➢ Modify sprays for codling moth
    ▪ Improve timing
    ▪ Use 3 sprays per generation
    ▪ Increase water (50-100 gpa)
    ▪ Change to new insecticide
  ➢ If OFM found, modify timing
# Insecticides for apple (PA, NJ, MI)

<table>
<thead>
<tr>
<th>Pest</th>
<th>Excellent</th>
<th>Good</th>
<th>Fair</th>
</tr>
</thead>
<tbody>
<tr>
<td>Both CM &amp; OFM</td>
<td>Rimon</td>
<td>Avaunt</td>
<td>Clutch</td>
</tr>
<tr>
<td></td>
<td>Altacor</td>
<td>Calypso</td>
<td>Proclaim</td>
</tr>
<tr>
<td></td>
<td>Belt</td>
<td><em>Imidan</em></td>
<td>SpinTor</td>
</tr>
<tr>
<td></td>
<td>Delegate</td>
<td>Intrepid</td>
<td>Surround</td>
</tr>
<tr>
<td></td>
<td><em>Guthion</em></td>
<td>Lannate</td>
<td></td>
</tr>
<tr>
<td>CM</td>
<td>virus</td>
<td>Assail</td>
<td>Esteem</td>
</tr>
<tr>
<td></td>
<td></td>
<td>pyrethroids**</td>
<td>Sevin</td>
</tr>
<tr>
<td>OFM</td>
<td>Assail</td>
<td>Esteem</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>pyrethroids**</td>
<td>Lorsban</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Sevin</td>
<td></td>
</tr>
</tbody>
</table>

*if population is not resistant

**pyrethroids: Asana, Baythroid, Danitol, Decis, Proaxis, Mustang, Warrior
The End