SWD Management

July 29, 2020
Spotted Wing Drosophila (Drosophila suzukii) has an ovipositor that enables it to pierce the skin of healthy fruit still attached to the plant.
Recommended practices

- Exclusion netting
- Timely insecticides / monitoring
- Frequent harvests
- Refrigerate asap after picking
- Remove infested berries
- Prune to open up canopy
Too big to net, example:
Sunshine Valley Berry Farm, Rochester
Rob Meadows 2020 SWD spray practices

- Spray wand, 25 gal. tank mounted on riding mower.
- Spray entire planting weekly, including boundary.
- Close farm the following day (PYO).
- Entrust 2x then Pyganic.
- Adds $\frac{1}{2}$ lb Erythritol (vs. sugar) per 25 gal.
- Trece traps and lures for monitoring.
Sam Lincoln’s SWD spray rig for raspberries

Randolph Center
Sam Lincoln’s SWD spray practices

- Northern Tool 35 gal lawn sprayer.
- On/off switch, on/off boom valve, agitation valve.
- Moved boom horizontal to vertical, with 3 nozzles.
- Cap top nozzle early in season, before crop gets tall.
- Calculate acreage as vertical length x height of canopy.
- Entrust rotated with Pyganic, adds NuFilm P.
- Has been effective for 4 years.
### BLUEBERRIES

<table>
<thead>
<tr>
<th>PRODUCT</th>
<th>AI¹</th>
<th>IRAC group²</th>
<th>EPA#</th>
<th>Rate/A</th>
<th>REI³</th>
<th>DTH⁴</th>
<th>Max. Prod/A/yr (ai)</th>
<th>Total applic’s</th>
<th>Spray Interval</th>
<th>Probable efficacy</th>
</tr>
</thead>
<tbody>
<tr>
<td>@Entrust Naturalyte (2ee)³</td>
<td>spinosad</td>
<td>5</td>
<td>62719-282</td>
<td>1.25-2 oz</td>
<td>4 hr</td>
<td>3 d</td>
<td>9 oz (0.45 lb)</td>
<td>3 per crop</td>
<td>&gt; 6 d</td>
<td>Good to Excellent</td>
</tr>
<tr>
<td>@Entrust SC³</td>
<td>spinosad</td>
<td>5</td>
<td>62719-621</td>
<td>4-6 fl oz</td>
<td>4 hr</td>
<td>1 d</td>
<td>29 fl oz (0.45 lb)</td>
<td>3 per crop</td>
<td>&gt; 6 d</td>
<td>Good to Excellent</td>
</tr>
<tr>
<td>@Delegate WG (suppl. label)</td>
<td>spinetoram</td>
<td>5</td>
<td>62719-541</td>
<td>3-6 oz</td>
<td>4 hr</td>
<td>3 d</td>
<td>19.5 oz (0.305 lb)</td>
<td>6</td>
<td>&gt; 6 d</td>
<td>Good to Excellent</td>
</tr>
<tr>
<td>*Exirel</td>
<td>eyazopyr</td>
<td>28</td>
<td>279-9615</td>
<td>13.5-20.5 fl oz</td>
<td>12 hr</td>
<td>3 d</td>
<td>61.5 fl oz (0.4 lb)</td>
<td>3</td>
<td>&gt; 5 d</td>
<td>Excellent</td>
</tr>
<tr>
<td>*Verdepyrin 100 SL</td>
<td>cyclaniliprole</td>
<td>28</td>
<td>71512-34-88783</td>
<td>11 fl oz.</td>
<td>12 hr</td>
<td>3 d</td>
<td>27 fl oz (0.18 lb)</td>
<td>3</td>
<td>&gt; 5 d</td>
<td>Good to Excellent</td>
</tr>
<tr>
<td>*Bifenture 10DF</td>
<td>bifenthrin</td>
<td>3</td>
<td>70506-227</td>
<td>5.3-16 oz</td>
<td>12 hr</td>
<td>1 d</td>
<td>80 oz (0.5 lb)</td>
<td>5</td>
<td>&gt; 7 d</td>
<td>Excellent</td>
</tr>
<tr>
<td>*Brigade WSB (2ee)</td>
<td>bifenthrin</td>
<td>3A</td>
<td>279-3108</td>
<td>5.3-16 oz</td>
<td>12 hr</td>
<td>1 d</td>
<td>80 oz (0.5 lb)</td>
<td>5</td>
<td>&gt; 7 d</td>
<td>Excellent</td>
</tr>
<tr>
<td>*Danitol 2.4EC</td>
<td>fenpropathrin</td>
<td>3A</td>
<td>59639-35</td>
<td>16 fl oz</td>
<td>24 hr</td>
<td>3 d</td>
<td>32 fl oz (0.6 lb)</td>
<td>2</td>
<td>-</td>
<td>Excellent</td>
</tr>
<tr>
<td>*Mustang Maxx Insecticide</td>
<td>zeta-cypermethrin</td>
<td>3A</td>
<td>279-3426</td>
<td>4 fl oz</td>
<td>12 hr</td>
<td>1 d</td>
<td>24 fl oz (0.15 lb)</td>
<td>6</td>
<td>&gt; 7 d</td>
<td>Excellent</td>
</tr>
<tr>
<td>Pyganic EC 1.4</td>
<td>pyrethrin</td>
<td>3A</td>
<td>1021-1771</td>
<td>1 pt-2 qts</td>
<td>12 hr</td>
<td>0 d</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>Fair to Poor</td>
</tr>
<tr>
<td>Pyganic EC 5.0</td>
<td>pyrethrin</td>
<td>3A</td>
<td>1021-1772</td>
<td>4.5-18 fl oz</td>
<td>12 hr</td>
<td>0 d</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>Fair to Poor</td>
</tr>
</tbody>
</table>

¹AI: Active Ingredient

²IRAC group: Insecticide Resistance Action Committee

³REI: Registration Expiration Date

⁴DTH: Days To侯

³³Note: @ symbols indicate products with specific restrictions or conditions.
Adjuvants for SWD insecticides

- Adjuvant: a substance added to a spray mixture that enhances its effectiveness.

- Research suggests adding 2 lb. of erythritol + ½ lb. table sugar per 100 gal. spray mixture enhances the activity of nearly all the SWD insecticides.

- Erythritol, a sugar alcohol, is made from fermented corn or cornstarch.

- Erythritol, like table sugar, is human food and if used as an adjuvant, does not need a pesticide registration.

- For organic growers: as long as sugar or erythritol is used as an adjuvant it does not have to be organic (per VOF).
Fun with home-made SWD traps and bait
So much easier...
a look at some grower netting systems...

Deer Ridge Farm, Guilford - 2012
1" plastic conduit anchored with 4’ rebar, 2x4 PT posts

Cost of materials 35' long x 30' wide = $480 = $0.46/ft²
Cost of materials 200' x 20' x 6.5' high = $1,707 = $0.43/ft²

Important: double ‘cooler door’ entryway panels with Attract and Kill Stations - kept infestation <10%

https://unh.app.box.com/s/qx5d9hfy4i4tvsf4f2skwcesa6kog0ga
Island Blueberries, Grand Isle
Wiggle wire channel around entire perimeter top, and side to side every 24‘
Top panels are 83’ x 26’. Sides are 120’ x 13’.

“Used some materials from old netting installation. Labor costs: priceless.”

Cost of materials = $0.50 / ft$^2$
The Berry Patch, Stephentown NY
High Ledge Farm, Woodbury
15,500 ft\(^2\). Costs were roughly $8000, or $0.51 per ft\(^2\).

“Could be done cheaper by changing the interior grid spacing from 10’ to 15’ especially if you were using 20’ lengths of pipe. In its current form it is overbuilt. I am also sure that one could get a better price on the pipe.”
Adam’s Berry Farm, Charlotte
Development of Attract and Kill for Management of SWD in Small Fruit

**AtK Construction**

- 3” substrate woven polypropylene netting as a base
- Super Absorbent Polymer (SAP)
- Gelatin
- Red raspberry concentrate
- Apple cider vinegar
- Brewers yeast
- 1% A.I.
- AtK solution applied at 2 mL/disk

Cornell University

Hudson Valley Research Laboratory
Biocontrols are “in the works”
Spotted Wing Drosophilia
Information is at:

http://www.uvm.edu/vtvegandberry/SWDInfo.html

Questions?
Experiences to share?