Update on Spotted Wing Drosophila Management in Berries

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Introduction

• Results of IR4 testing of organic controls.
• Spider venom
• Hummingbirds.
• Nematodes
## IR-4 Treatment List

<table>
<thead>
<tr>
<th>Treatment</th>
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<tbody>
<tr>
<td>Untreated control</td>
</tr>
<tr>
<td>Entrust SC 5 fl oz</td>
</tr>
<tr>
<td>Grandevo 3 lb/A</td>
</tr>
<tr>
<td>Veratran D 15 lb/A</td>
</tr>
<tr>
<td>Entrust SC 5 fl oz twice, followed by Grandevo, once, followed by Entrust SC</td>
</tr>
<tr>
<td>Entrust SC 5 fl oz twice, followed by Veratran D, once, followed by Entrust SC</td>
</tr>
<tr>
<td>Entrust SC 5 fl oz twice, followed by Grandevo, once, followed by Entrust SC (all applications made with 4 % sucrose)</td>
</tr>
<tr>
<td>Entrust SC 5 fl oz twice, followed by Veratran D, once, followed by Entrust SC (all applications made with 4 % sucrose)</td>
</tr>
<tr>
<td>Azera 2.5 pints/A</td>
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</tbody>
</table>
Conditions of Application

- Motorized backpack sprayer, 75 GPA carrier rate.
- Applications made 8/29, 9/2, 9/7, 9/11 and 9/19.
- Sampling (flies and fruit) done 8/28, 9/6, 9/13 and 9/23.
Application with backpack sprayer
Vacuum sampling caneberries
Results

• No significant reduction in numbers of flies or eggs/larvae in fruit, even though sprays were closely spaced together.
• Use of 4% sugar in tank mixes did not enhance efficacy.
Spider Venom – IR 4 sponsored trial

- Vestaron venom is NOT A REGISTERED product.
- NOT the complete venom.
- Genes for venom peptide inserted into yeast, which in turn produces the peptide.
Blue funnel web spider
Conditions of Application

• 150 gallons per acre water carrier
• Vestaron venom @ 4 lbs per acre + 4% sugar
• Application 10/24, 10/26 and 11/4
• Sampling pre-application, 1 day post spray and 3 days post application (rain cancelled further collection).
Results

• Decent fly activity pre-application.
• 10/25/2016: treated plots avg 4 SWD, untreated plots 6.25 SWD.
• 11/7/2016: treated plots avg 31.25 SWD, untreated plots 37.5 SWD.
Use of Hummingbirds to Manage SWD

- Recommended by Robert Hayes, blackberry grower in Mississippi.
Nature of the Study

• 18 feeders managed over 18 tunnels compared to area without feeders.

• Sugar (sucrose) mixed with water, changed out once a week.

• Heavy hummingbird activity through the season.

• Sampling began at fruit harvest.
Placement of traps at front of tunnel
Anna’s hummingbird
Results July 24 sample

Fruit eggs and larvae; more than 50 per sample.
Hummingbird Trial

- Same trend again when sampled on October 5; no difference in numbers of adult flies or eggs & larvae in the fruit.
- Will no longer pursue this avenue of research.
Predaceous nematode trial 2014
Funded by North American Strawberry Growers Association
Application 9/11/2014 and 9/19/2014 at 100 gal/A

• Brigade 16 oz
• Steinernema carpocapsae 250 million
• Steinernema carpocapsae 2 billion
• Mycotrol 3 qt + Molex
• Mycotrol 3 qt + S. carpocapsae 250 million
Compare two treatments in T-test

- S. carpocapsae 2 billion
- Untreated control

Post App 7 days
Total egg counts (5 sampling dates)

- Mycotrol @ 3 qt +...
- S. carpocapsae 250...
- S. carpocapsae 2 bill
- Mycotrol @ 3 qt
- UTC
- Brigade @ 16 oz

Legend:
- Total egg counts

- bc
- ab
- a
- c

0 10 20 30 40
General Rules for SWD Management

• Detection of flies through trapping in the field.

• Use of an effective insecticide applied in a timely manner to invading populations.

• Sanitation of fruiting fields important to keeping populations down, especially in organic culture.