

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

Untreated control
Entrust SC 5 fl oz
Grandevo 3 lb/A
Veratran D 15 lb/A
Entrust SC 5 fl oz twice, followed by Grandevo, once, followed by Entrust SC
Entrust SC 5 fl oz twice, followed by Veratran D, once, followed by Entrust SC
Entrust SC 5 fl oz twice, followed by Grandevo, once, followed by Entrust SC (all applications made with 4 % sucrose)
Entrust SC 5 fl oz twice, followed by Veratran D, once, followed by Entrust SC (all applications made with 4 % sucrose)
Azera 2.5 pints/A

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 3 (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

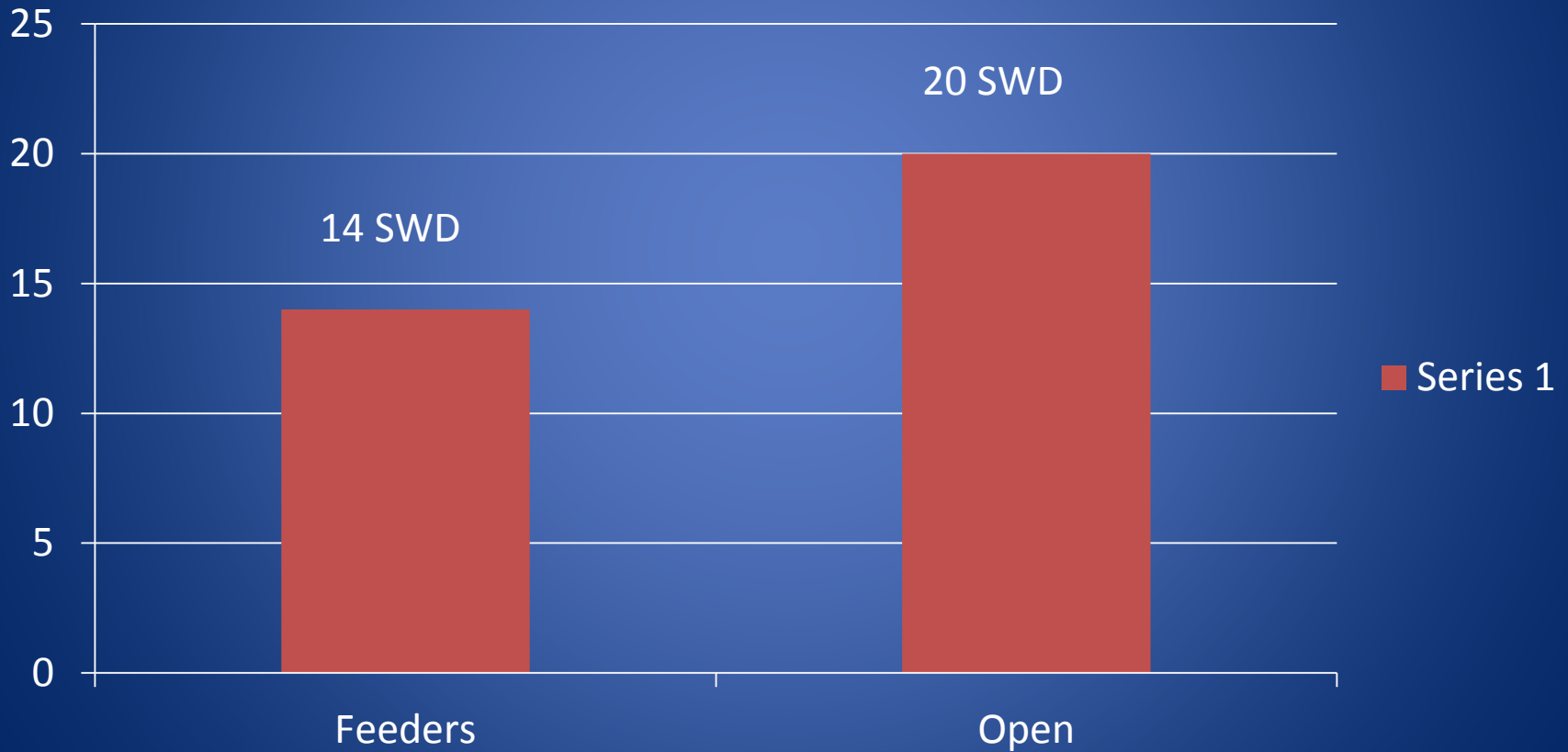




Anna's hummingbird

Results July 24 sample

Series 1



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.

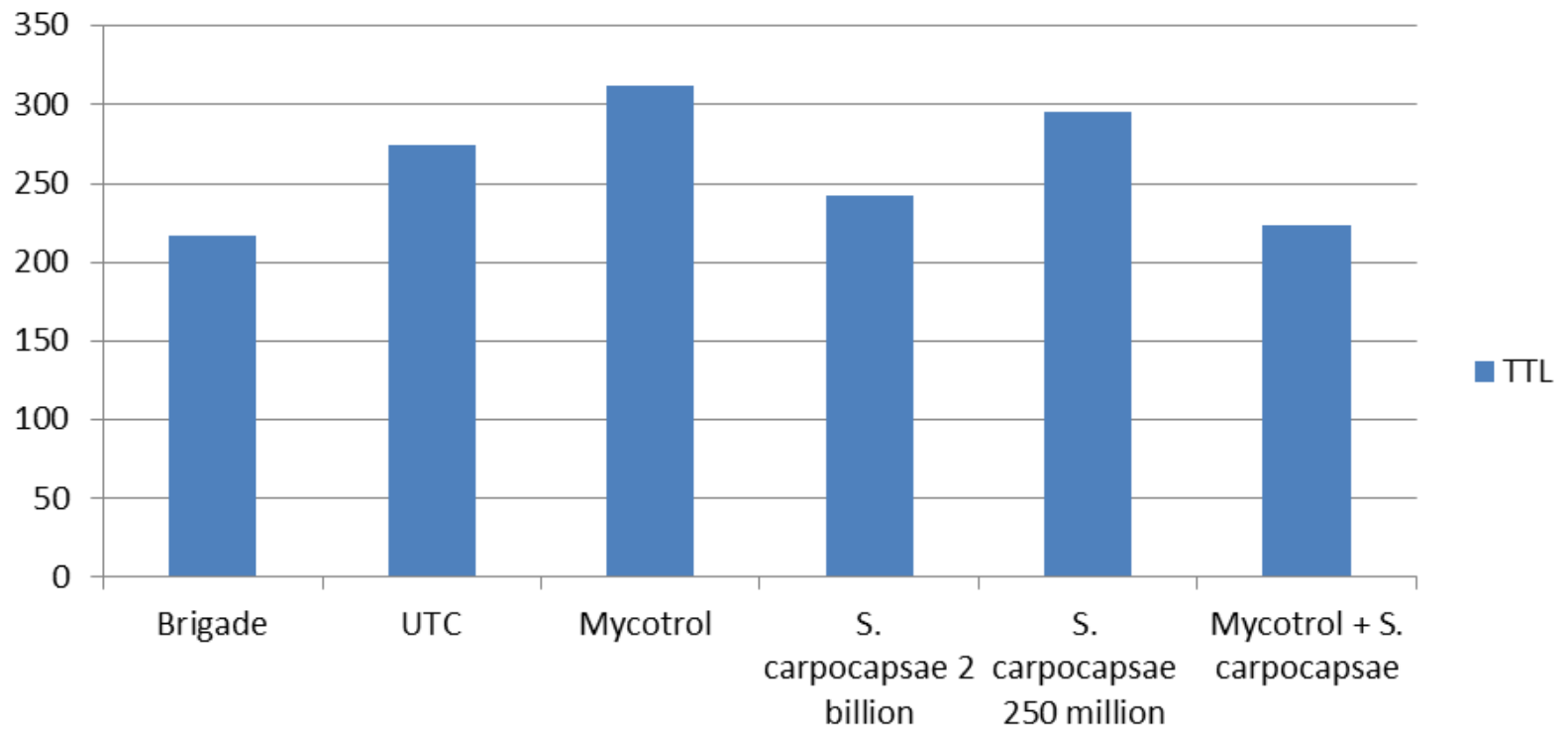
Predaceous nematode trial 2014

Funded by North American Strawberry Growers Association

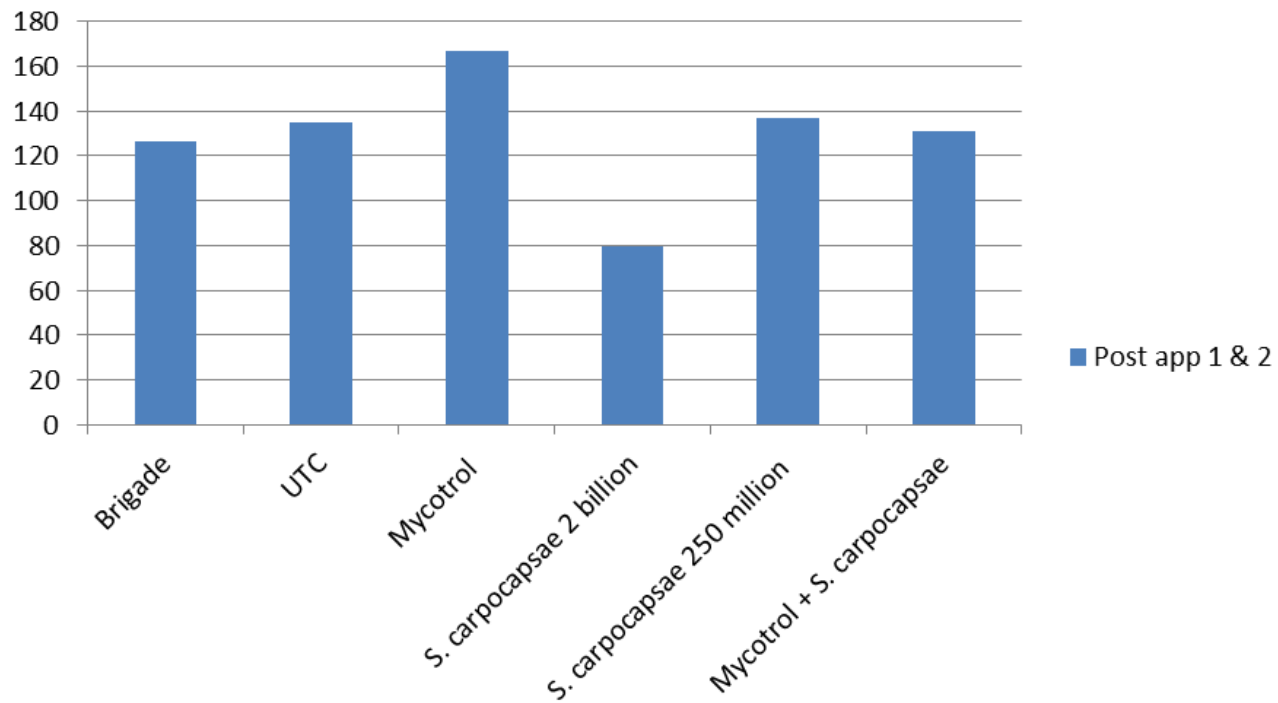
Application 9/11/2014 and 9/19/2014 at 100 gal/A

- Brigade 16 oz
- *Steinernema carpocapsae* 250 million
- *Steinernema carpocapsae* 2 billion
- Mycotrol 3 qt + Molex
- Mycotrol 3 qt + *S. carpocapsae* 250 million

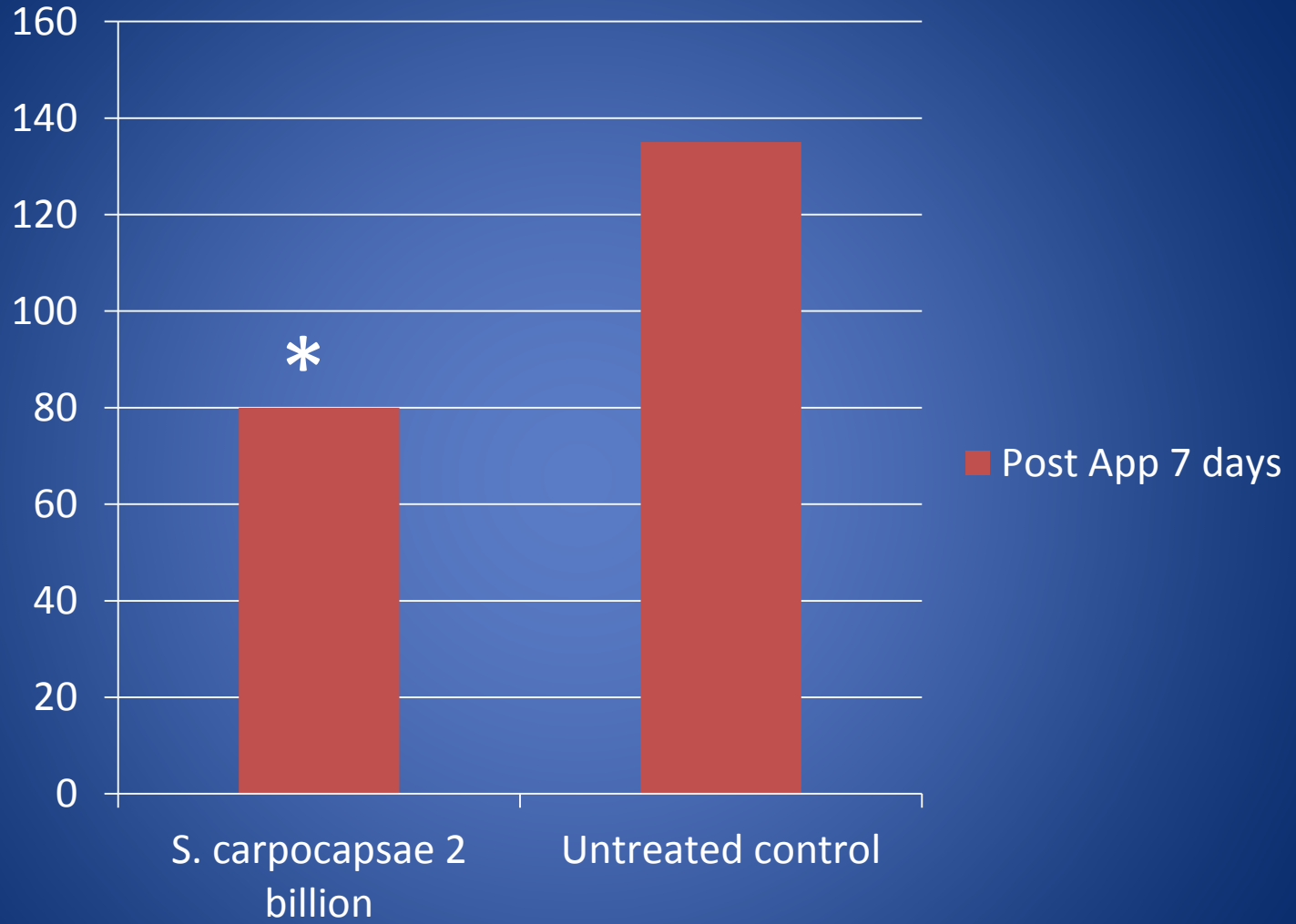
Total for Trial



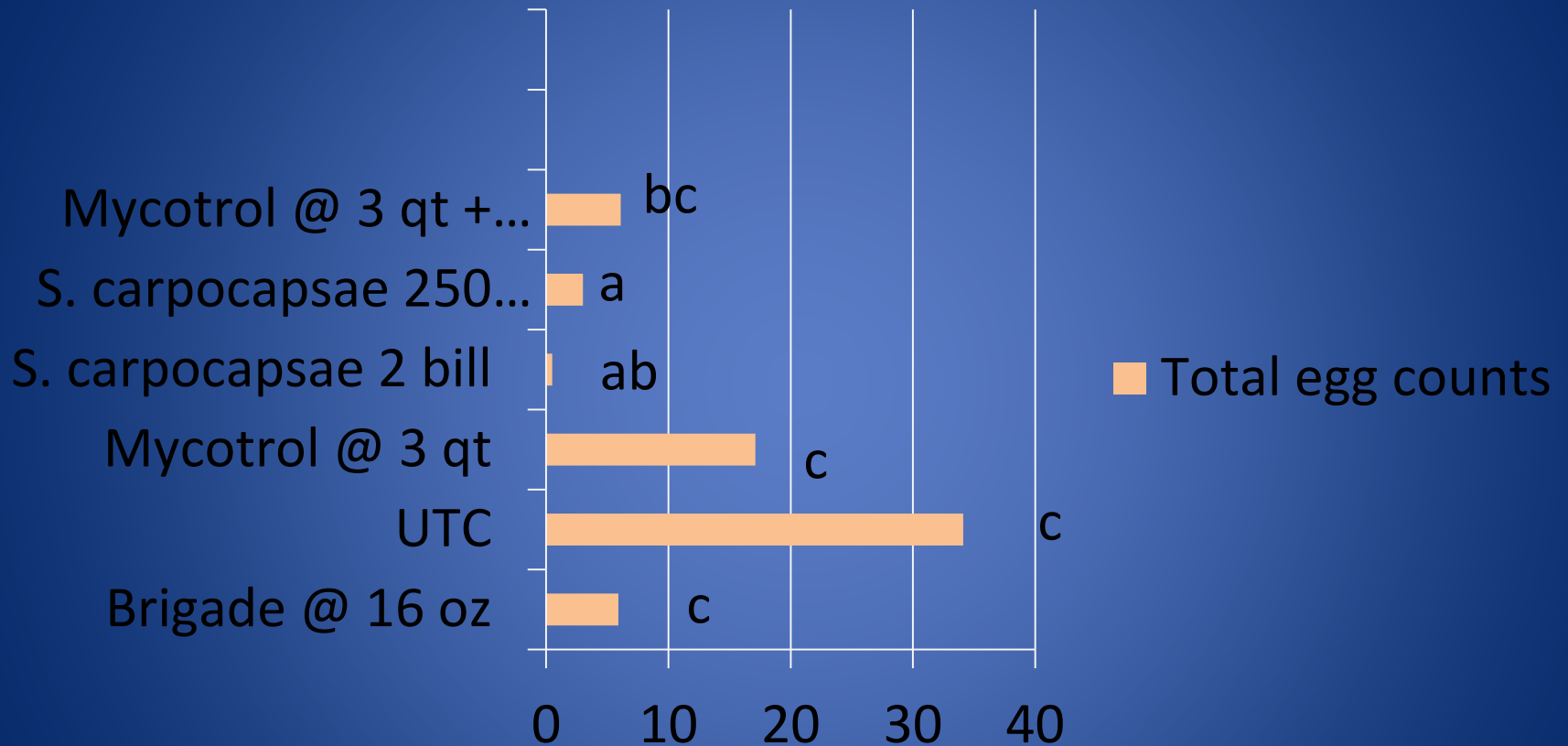
Post applications 1 & 2



Compare two treatments in T-test



Total egg counts (5 sampling dates)



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.