

Update on Spotted Wing Drosophila  
Management in Berries

2017

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# Introduction

- Results of IR4 testing of organic controls.
- Spider venom
- Hummingbirds
- Predaceous 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.

# 2013 Predaceous Nematode, *Steinernema carpocapsae*, Trial – Raspberries

Application 9/30/2013 and 10/6/2013 @ 100 gal/A

- Exiral 5E – 20 fl oz
- Double Take 5.3 fl oz
- Mycotrol + Kinetic 3 qt
- Predaceous nematodes 25 million per acre

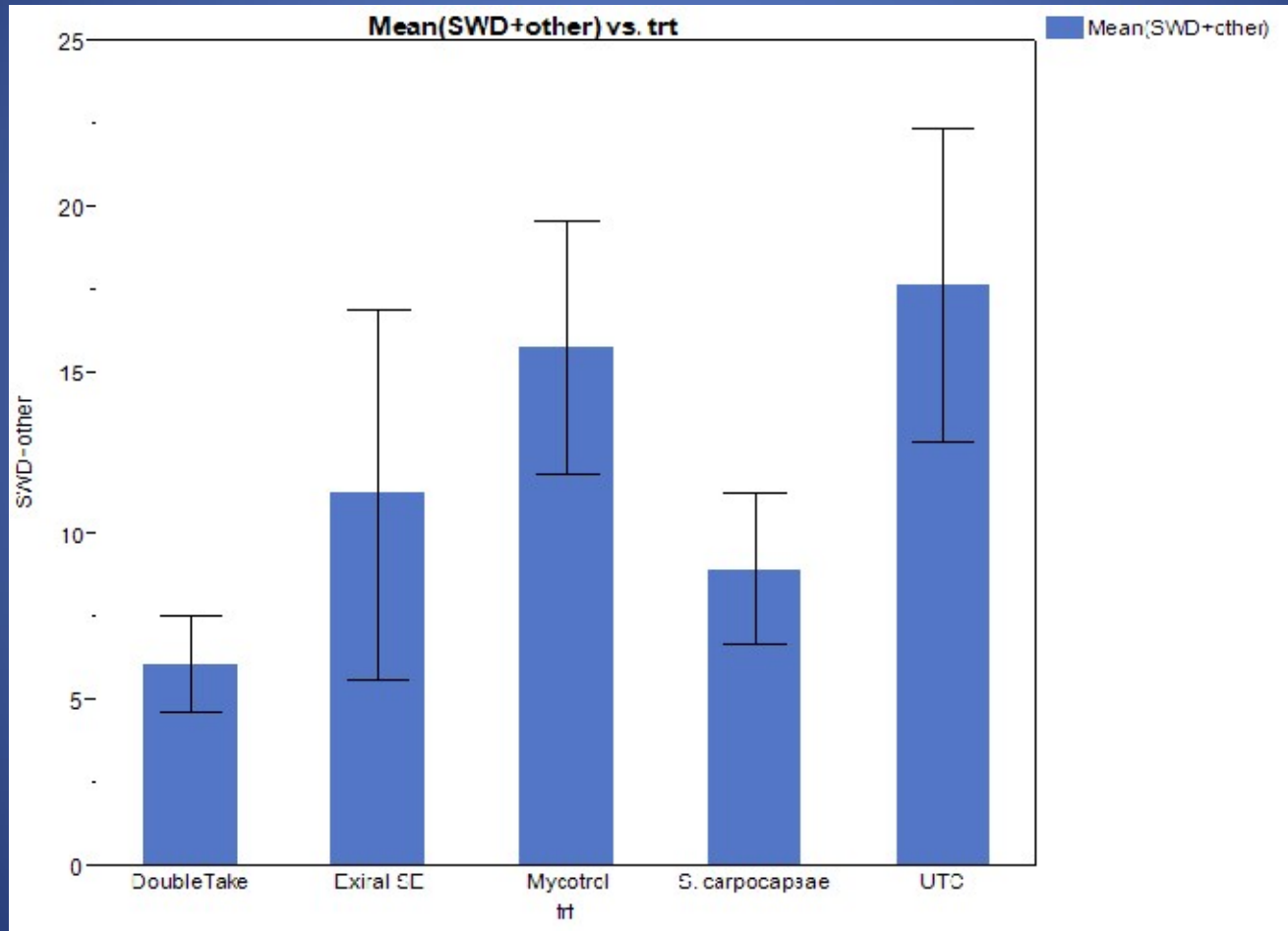
# Evaluation



Sampling with Buc – vac over 18 foot long hedgerow 1x a week.

# Trial work 2013

## Total number of flies counted in study





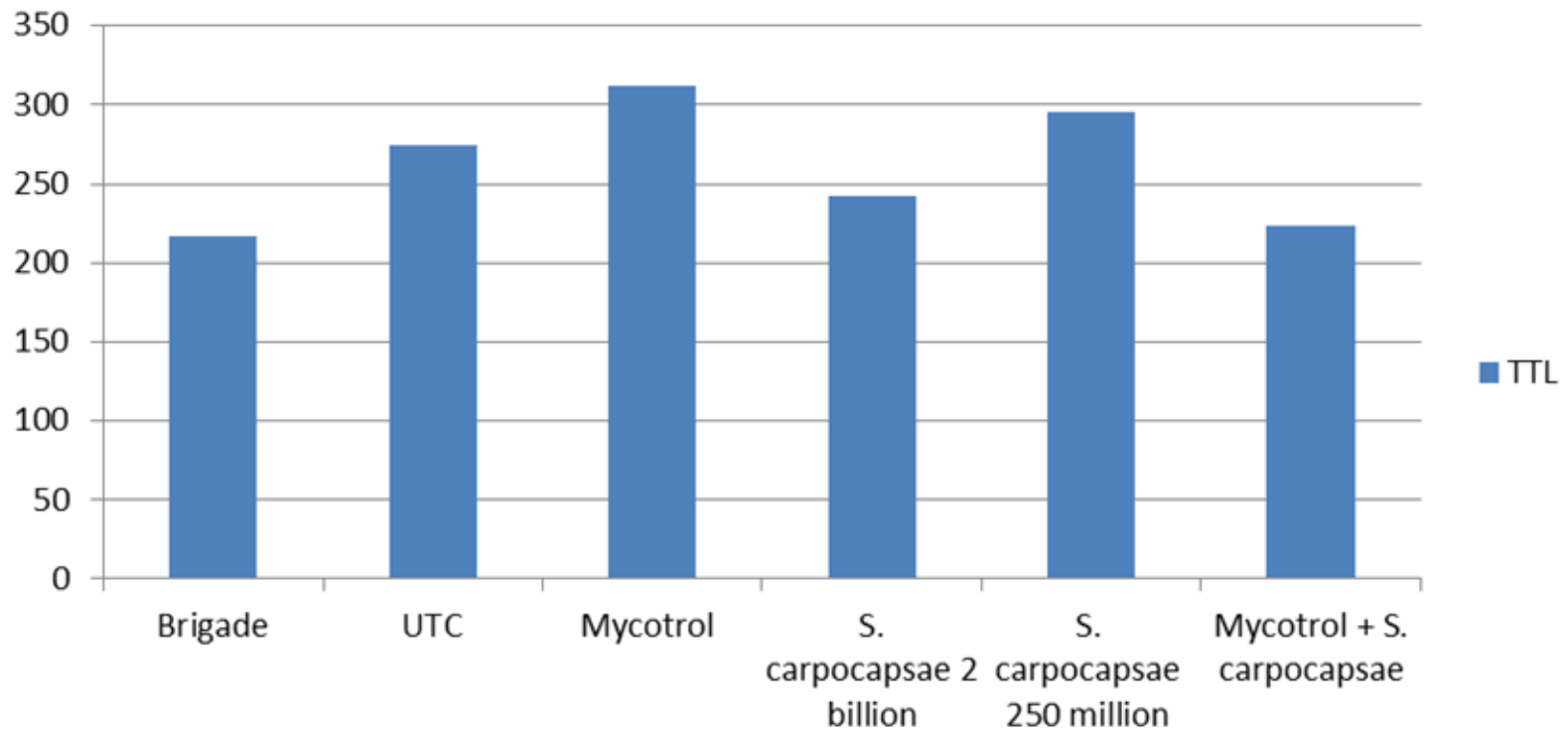
# Predaceous nematode trial 2014

Funded by North American Strawberry Growers Association

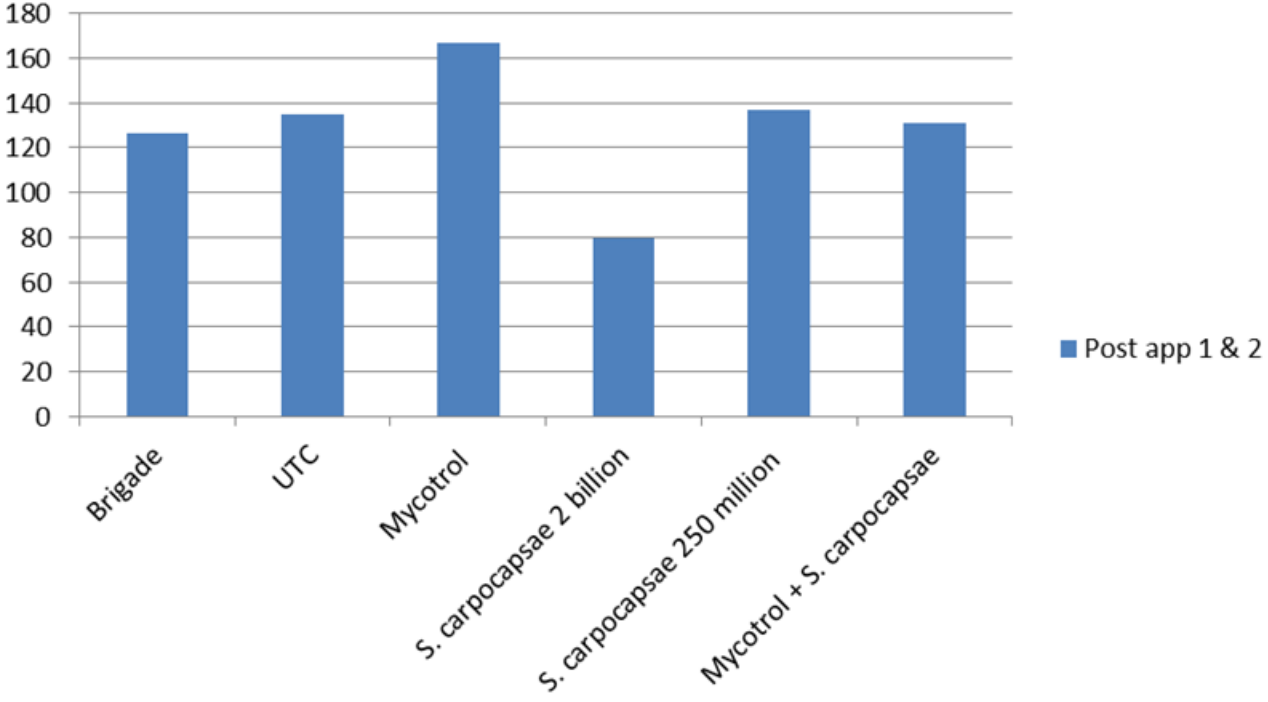
Application 9/11/2014 and 9/19/2014 at 100 gal/A

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

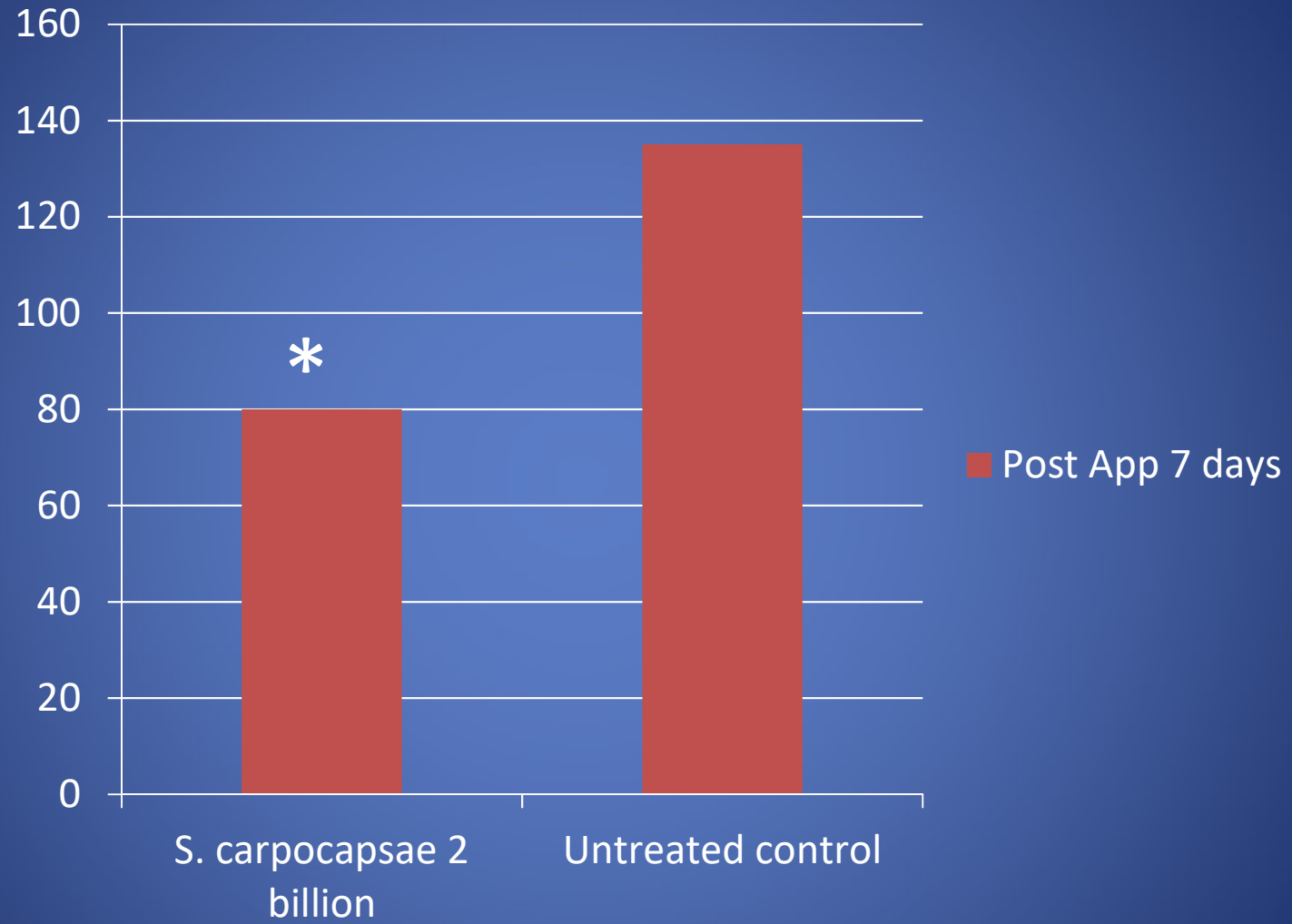
## Total for Trial



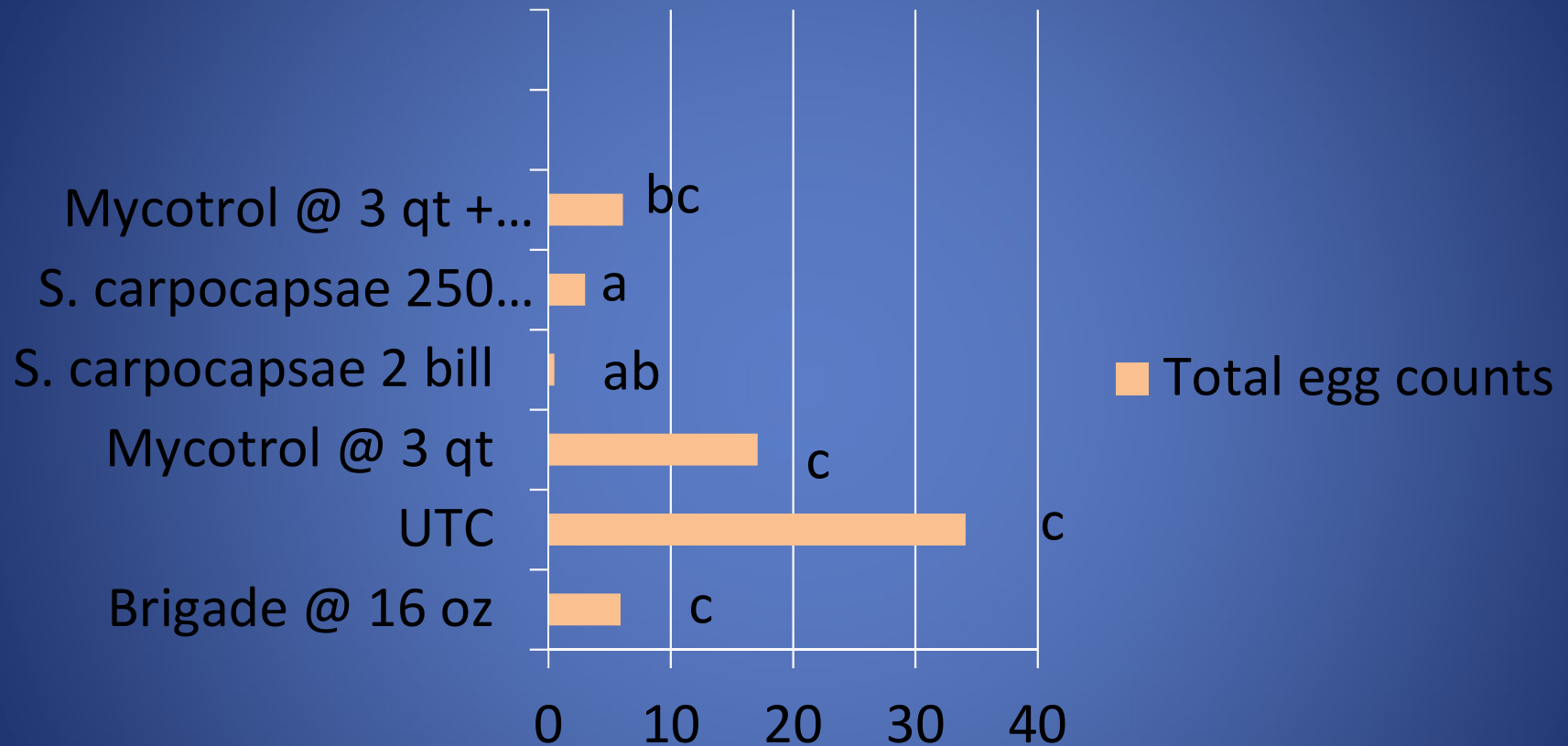
### Post applications 1 & 2



## 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.