

The New Invasive

Spotted Wing Drosophila
Presented by Joel Kangas

What We'll Cover

- What is a Spotted Wing Drosophila?
- What does it do?
- Where does it come from?
- Where is it now?
- How to control it?

What Is It

- ▶ Vinegar Fly
- ▶ Looks like the common Fruit Fly



Tiny



What to Look For

- Positive Identification is Important
- Looking for the Males

Dark spot on each wing.



MALE



FEMALE



What Does it do?

- ▶ Lays its eggs in soft skinned *ripening* fruit
 - ▶ Raspberry
 - ▶ Strawberry
 - ▶ Cherries
 - ▶ Grapes
 - ▶ Blue Berries
- ▶ Maggots Eat the Fruit
 - ▶ Fruit Quickly Deteriorates
 - ▶ Unappetizing
 - ▶ Promotes Decay
- ▶ Refrigerate at 32 degrees as soon as possible after picking



What Doesn't It Do

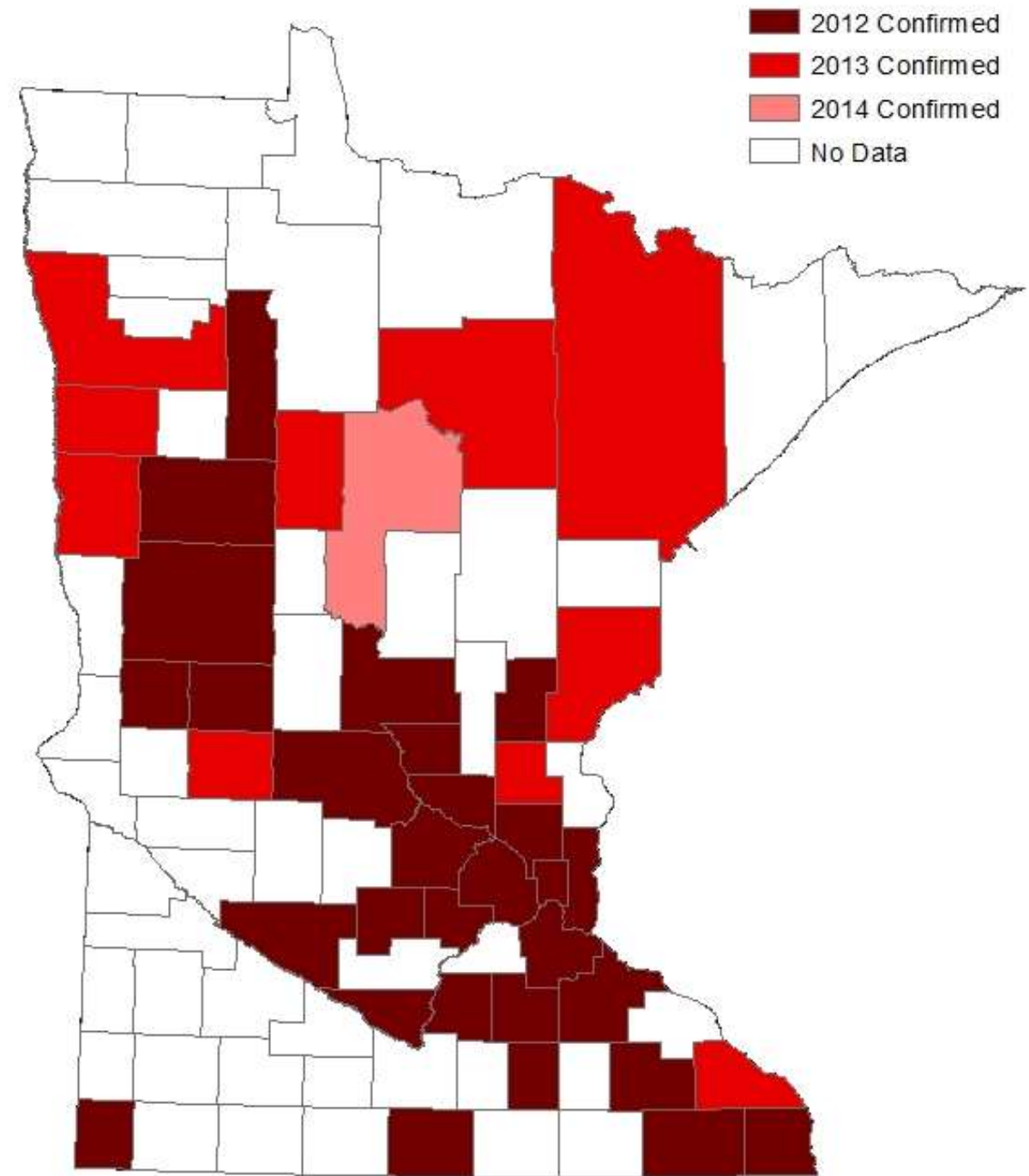
- ▶ Not known to spread disease
- ▶ Not poisonous
 - ▶ Low Calorie Protein Source
- ▶ Doesn't hurt the plants

Where Does It Come From

- ▶ Originated in East Asia
- ▶ California
 - ▶ First Identified in 2008
- ▶ All over Canada
- ▶ US
 - ▶ 14 States 2011
 - ▶ 44 States 2014
- ▶ Spread by
 - ▶ Storms/Wind
 - ▶ Fruit Transportation

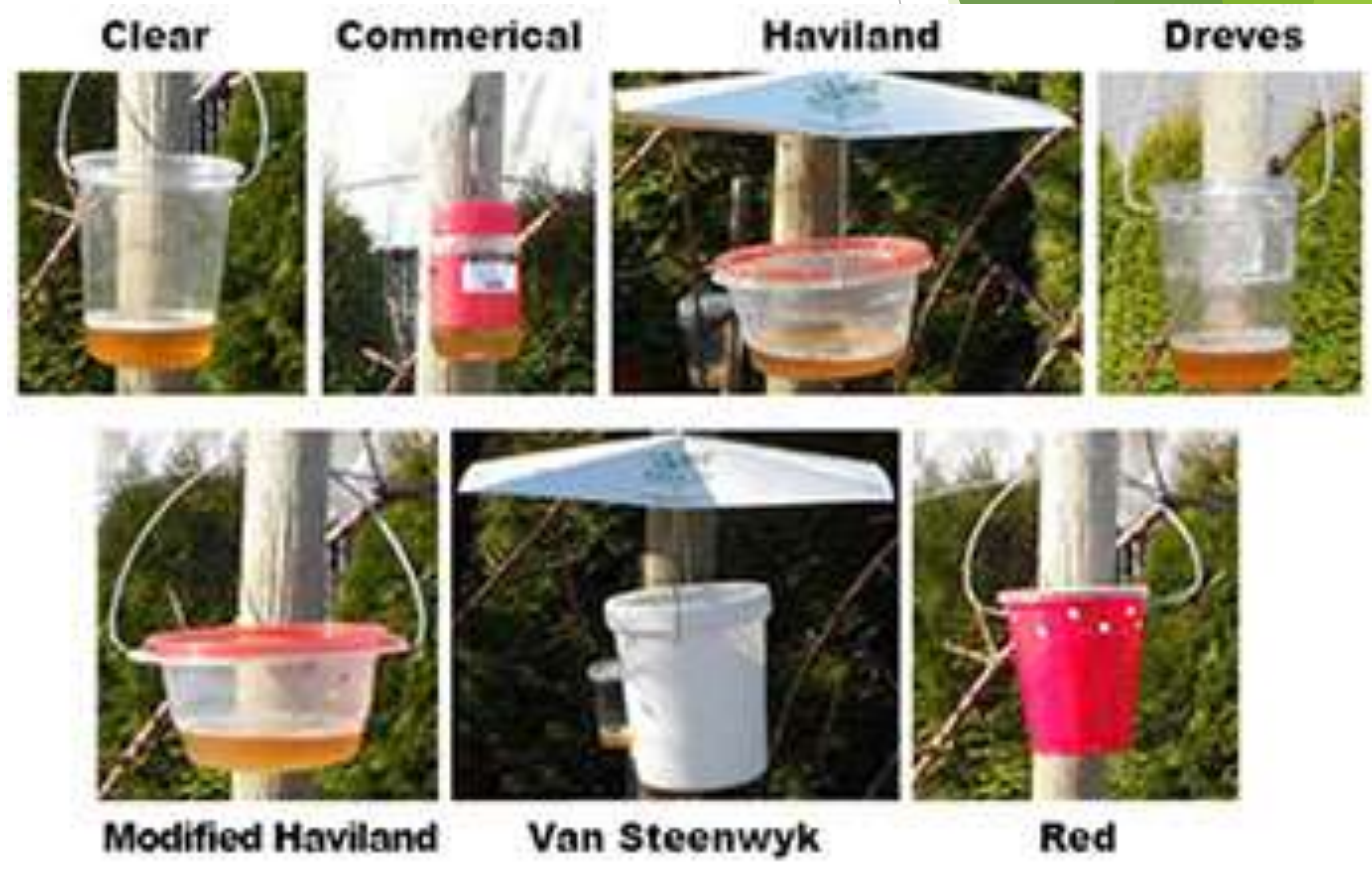
Where is it Now?

➤ As of July 28th 2014



Trapping for Monitoring

- ▶ Not for Control
 - ▶ Not effective enough
 - ▶ When to take action
 - ▶ If the action is working



Best Trap

- ▶ Red
- ▶ Holes
 - ▶ 3/16 Inch
 - ▶ 10+
 - ▶ Dry Wall Tape
 - ▶ Top or Sides
- ▶ Bait volume
 - ▶ As big as practical
 - ▶ Surface Area of bait
- ▶ Entry area - Large entry area



Best Bait

- ▶ Apple Cider Vinegar

- ▶ VGE

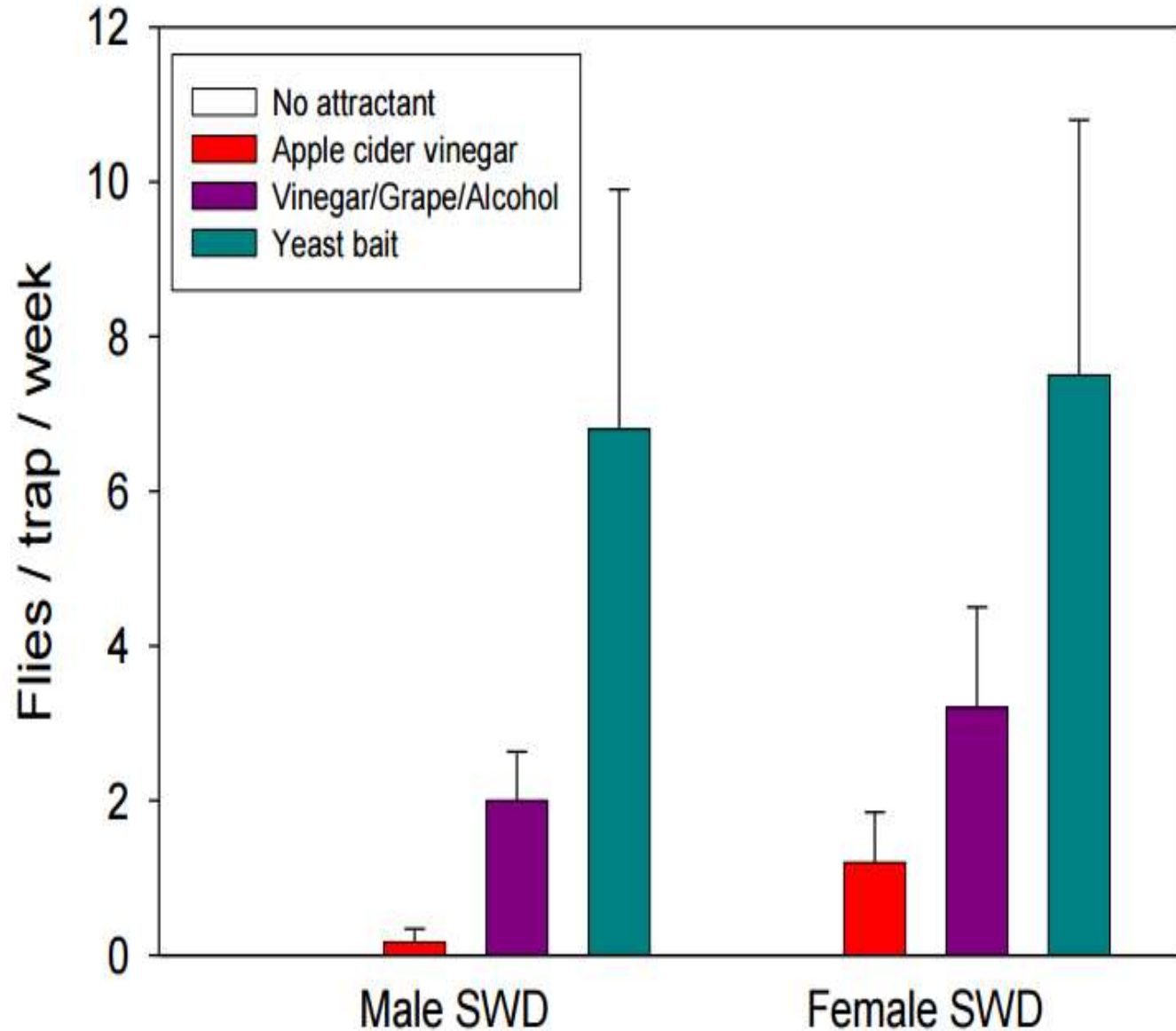
- ▶ Apple cider vinegar 25 fl. oz.
- ▶ White grape juice 37 fl. oz.
- ▶ Ethanol (95%) 4 fl. oz.
- ▶ Salt 4 Tbsp (optional)

- ▶ Yeast Solution

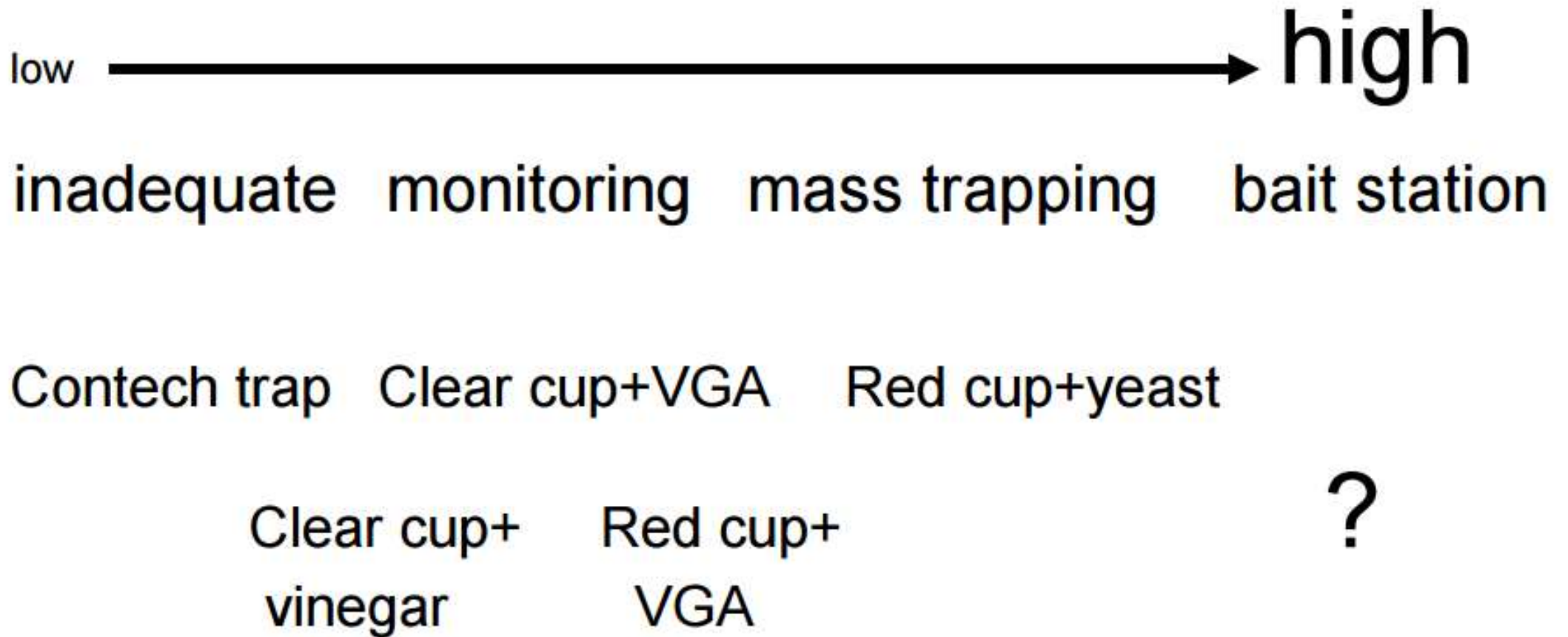
- ▶ Active dry yeast 1 Tbsp.
- ▶ Sugar 4 Tbsp.
- ▶ Water 12 fl. oz.

- ▶ ACV + 10% Ethanol

Comparison of trap baits

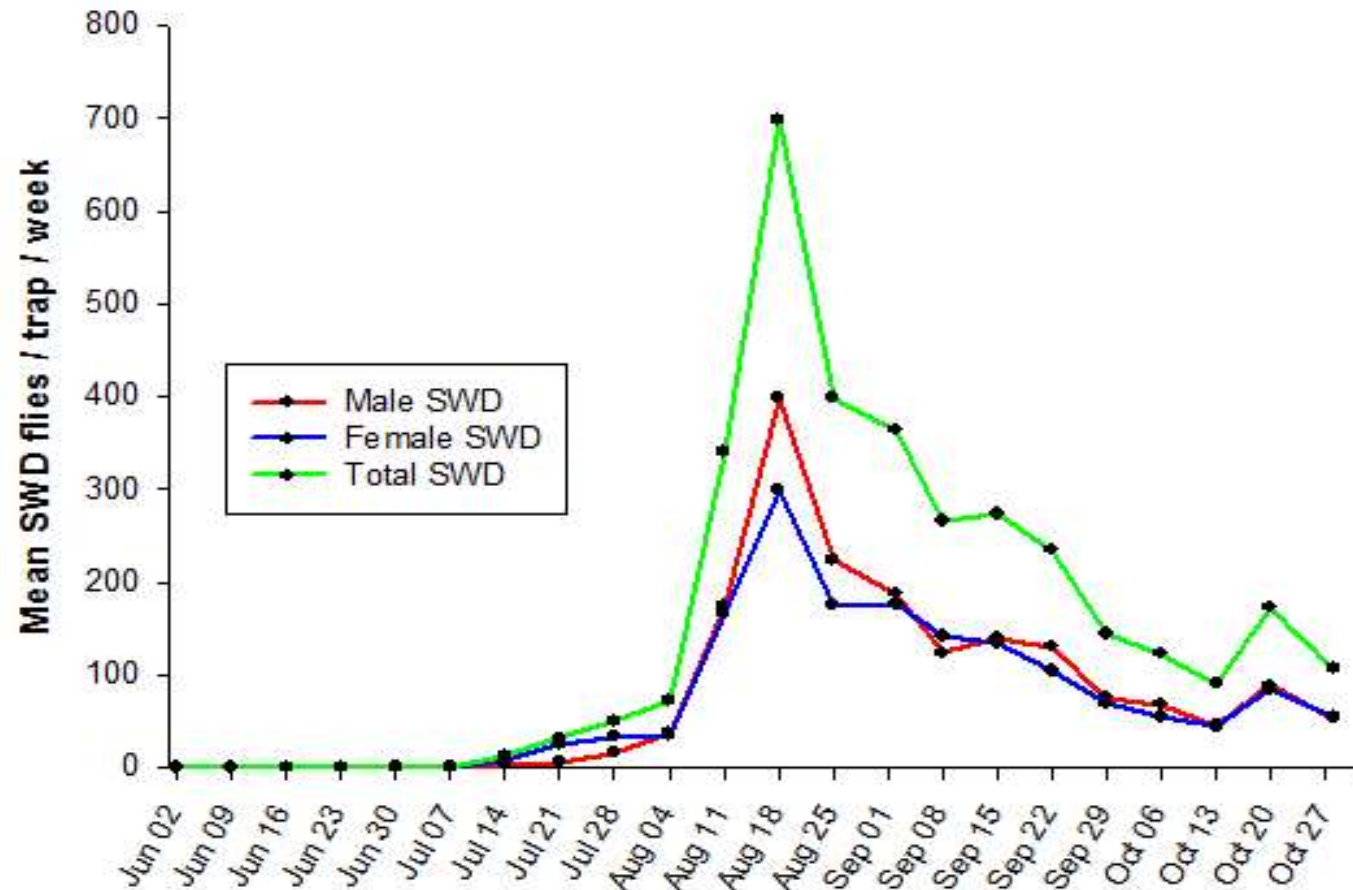


Spectrum of performance



When Are They Most Active?

Weekly SWD trap captures for the Twin Cities metro area
(Trap numbers ranged from 58-71 / week)



Integrated Pest Management

- ▶ IPM focuses on long-term prevention of pests or their damage by managing the ecosystem
- ▶ Careful consideration of all available pest control techniques that discourage the development of pest populations
- ▶ Emphasizes the growth of a practically healthy crop with the least possible disruption to the ecosystems and encourages natural pest control mechanisms
- ▶ IPM allows for safer pest control.

What Does That Mean for SWD

▶ *Cultural Controls*

- ▶ Picking time
- ▶ 2 Bucket Picking
- ▶ *Clean-up*
- ▶ *Remove native fruit?*

▶ *Mechanical and Physical Controls*

- ▶ Netting

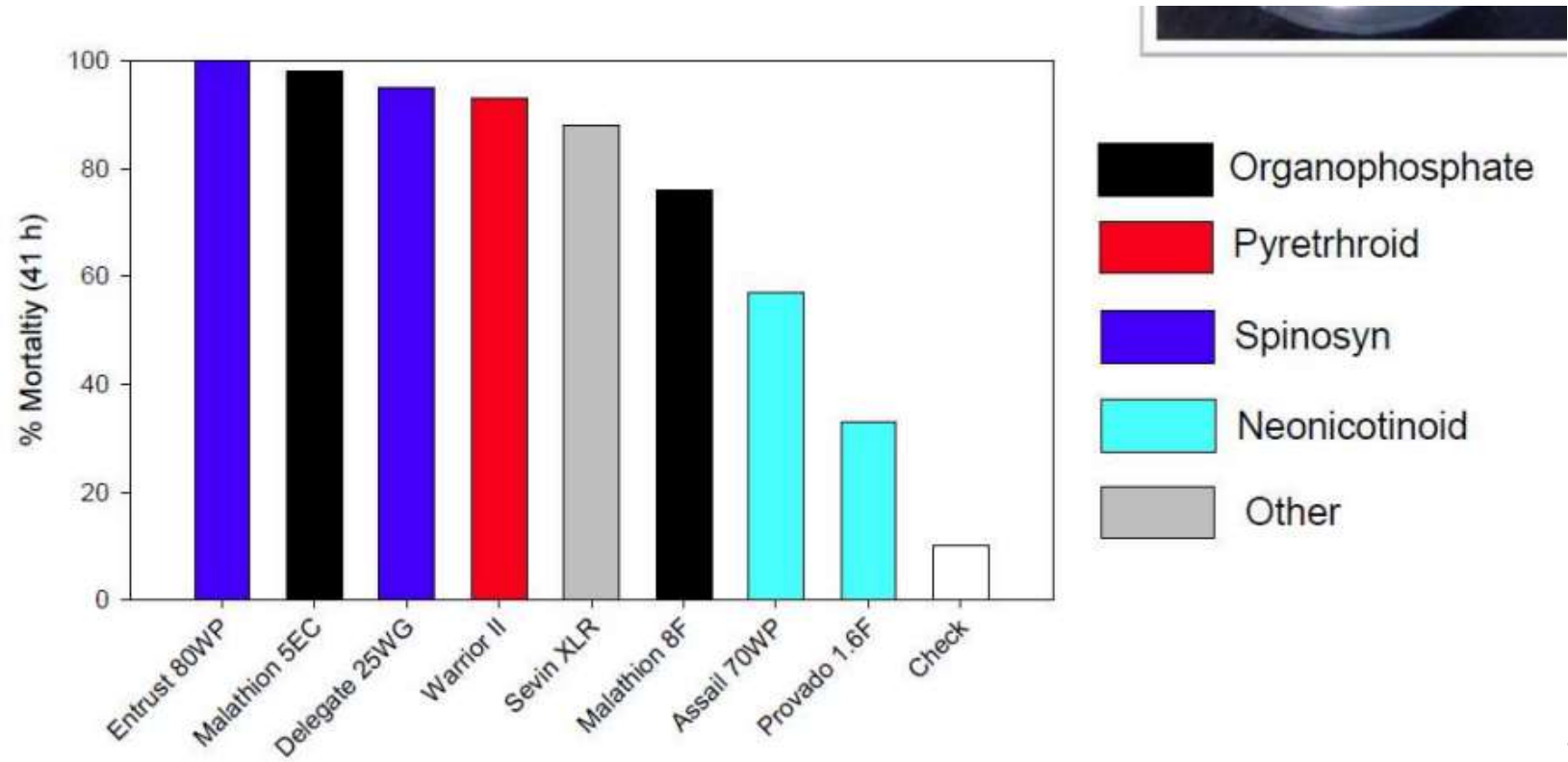
▶ *Biological Control*

- ▶ Biological control is the use of *natural enemies*—predators, parasites, pathogens
 - ▶ Create a diverse environment

▶ *Chemical Control*

- ▶ *Pesticides*
- ▶ *Organic?*

Efficacy



INSECTICIDES FOR SWD CONTROL IN RASPBERRY AND BLACKBERRY

Class	Trade name	Active ingredient	PHI (days)	Days of residual activity#
Organophosphate	Malathion	malathion	1*	5-7
Pyrethroid	Mustang Max	zeta-cypermethrin	1	7
	Danitol	fenpropathrin	3	7
	Asana	esfenvalerate	7	7
	Brigade	bifenthrin	3	7
Spinosyn	Delegate	spinetoram	1	7
	Entrust (organic)	spinosad	3	3-5
Pyrethrum	Pyganic (organic)	pyrethrum	0	2

*Check the label for the specific Malathion formulation you are using for the correct PHI. Some formulations may allow 0.5 day PHI.

Estimated residual activity from experience with other insect pests in Michigan and from SWD studies in Oregon.

Add Sugar at 2 Table Spoons/ 100 Gallons

Spraying

- ▶ Follow all instructions and Warnings
- ▶ Thorough Spraying of the fruit
- ▶ Stay on top of your schedule
 - ▶ Rain
 - ▶ Females can start to lay eggs 24 hours after emerging

Thanks for Coming

► Please Visit:

GoodtoGrowTrees.com

<http://www.vegedge.umn.edu/SWD/SWDpp.html>

http://www.ipm.msu.edu/invasive_species/spotted_wing_drosophila

<http://www.fruit.cornell.edu/spottedwing/pdfs/SWDgarden.pdf>

<http://spottedwing.org/>