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.

SWD

Non-SWD

http://mtvernon.wsu.edu/entomology/swd/swdgeneral/

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

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 ½ 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.

15 July 2020 - Labeled Insecticides for Control of Spotted Wing Drosophila in New York Berry Crops – Quick Guide

Compiled by Greg Loeb, Laura McDermott, Peter Jentsch & Juliet Carroll, Cornell University. Updated regularly.

BLUEBERRIES

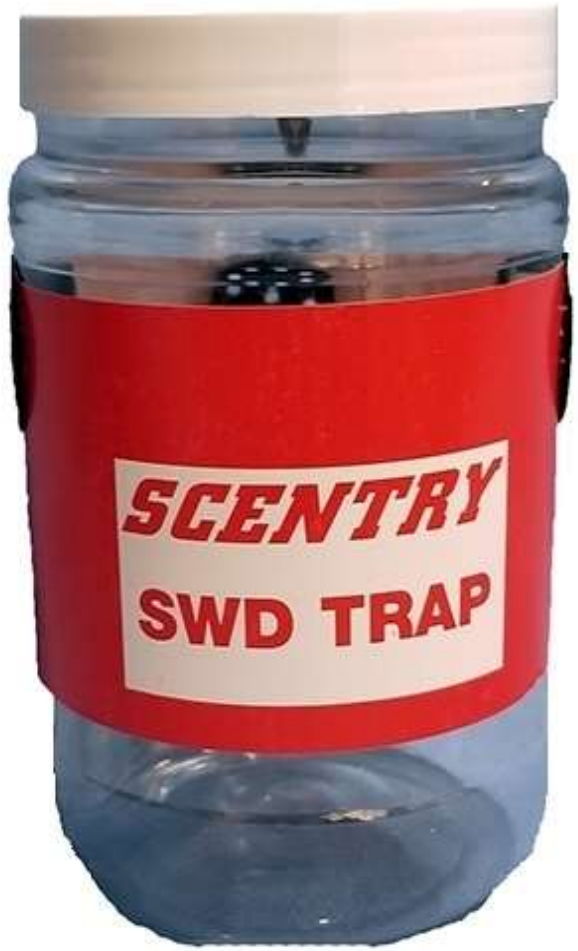
PRODUCT	AI[1]	IRAC group[2]	EPA#	Rate/A	REI[3]	DTH[4]	Max. Prod/A/yr (ai)	Total applic's	Spray Interval	Probable efficacy
^@Entrust Naturalyte (2ee)[a]	spinosad	5	62719-282	1.25-2 oz	4 hr	3 d	9 oz (0.45 lb)	3 per crop	> 6 d	Good to Excellent
^@Entrust SC[a]	spinosad	5	62719-621	4-6 fl oz	4 hr	1 d	29 fl oz (0.45 lb)	3 per crop	> 6 d	Good to Excellent
@Delegate WG	spinetoram	5	62719-541	3-6 oz	4 hr	3 d	19.5 oz (0.305 lb)	6	> 6 d	Good to Excellent
@Delegate WG (suppl. label)	spinetoram	5	62719-541	3-6 oz	4 hr	1 d	17.9 oz (0.281 lb)	3	6 d (1st-2nd) 12 d (3rd-4th)	Good to Excellent
*Exirel	cyazypyr	28	279-9615	13.5-20.5 fl oz	12 hr	3 d	61.5 fl oz (0.4 lb)	3	> 5 d	Excellent
*Verdepryn 100 SL	cyclaniliprole	28	71512-34-88783	11 fl oz.	4 hr	1 d	27 fl oz (0.18 lb)	3	7 d	Good to Excellent
*Bifenture 10DF	bifenthrin	3	70506-227	5.3-16 oz	12 hr	1 d	80 oz (0.5 lb)	5	> 7 d	Excellent
*Brigade WSB (2ee)	bifenthrin	3A	279-3108	5.3-16 oz	12 hr	1 d	80 oz (0.5 lb)	5	> 7 d	Excellent
*Danitol 2.4EC	fenpropathrin	3A	59639-35	16 fl oz	24 hr	3 d	32 fl oz (0.6 lb)	2	-	Excellent
*Mustang Maxx Insecticide	zeta-cypermethrin	3A	279-3426	4 fl oz	12 hr	1 d	24 fl oz (0.15 lb)	6	> 7 d	Excellent
^Pyganic EC 1.4	pyrethrin	3A	1021-1771	1 pt-2 qts	12 hr	0 d	-	-	-	Fair to Poor
^Pyganic EC 5.0	pyrethrin	3A	1021-1772	4.5-18 fl oz	12 hr	0 d	-	-	-	Fair to Poor

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).

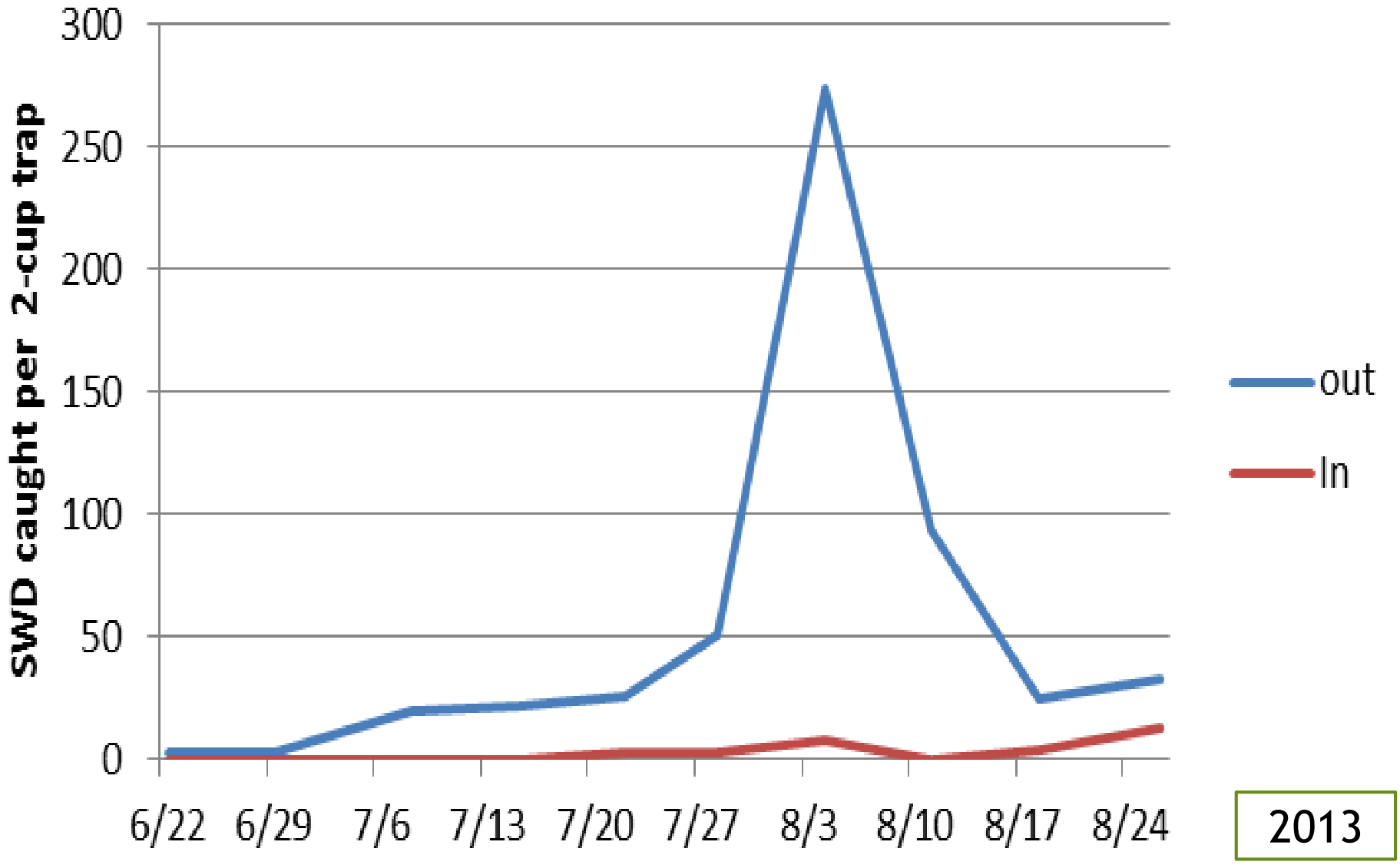
Fun with home-made SWD traps and bait

So much easier…



a look at some grower netting systems…

Deer Ridge Farm, Guilford - 2012


Effect of ProTek 80 Netting on SWD Catches in Blueberries
Grubinger's Blueberry Patch, Dummerston VT
SWD caught per 2-cup trap
300
250
200
150
100
50
0
6/22
6/29
7/6
7/13
7/20
7/27
8/3
8/10
8/17
8/24
out
In
2013

1” plastic conduit anchored with 4’ rebar, 2x4 PT posts

Cost of materials 35' long x 30' wide = $480 = $0.46/ft^2

Poughkeepsie Farm Project
Exclusion Net Project

Cost of materials 200' x 20' x 6.5' high = $1,707 = $0.43/ft^2

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

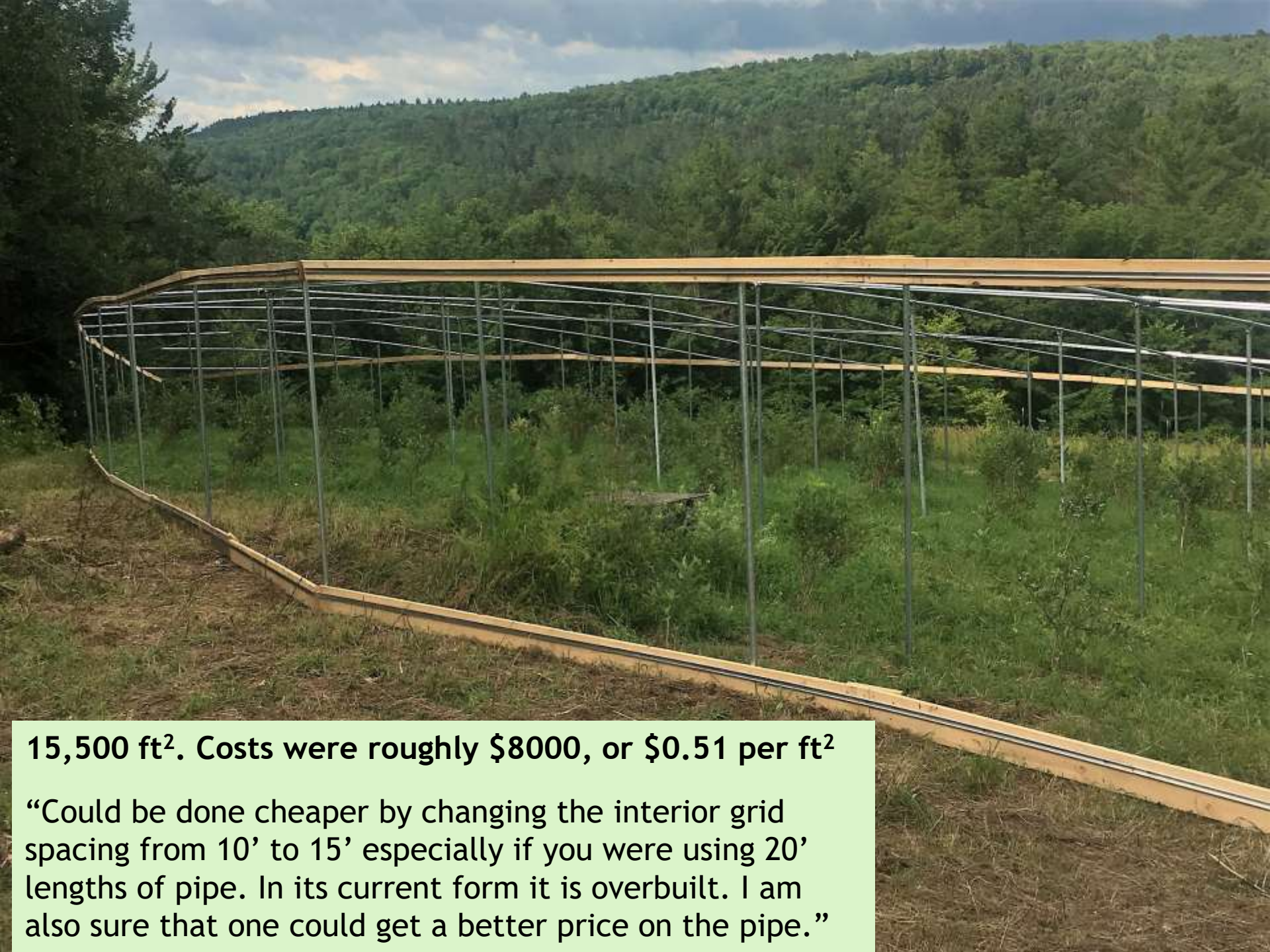
Wiggle wire channel around entire perimeter top, and side to side every 24‘
Top panels are 83’ x 26’. Sides are 120’ x 13’.

“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

Biocontrols are “in the works”

Summary

Organic SWD Management

USDA APHIS petition review is almost complete.

The “G1 strain” of *Ganaspis brasiliensis* will be released.

G1 is found in South Korea, Japan, China, and Canada!

Still to do is to improve mass production methods, determine differences among Gb strains, and initiate release & evaluation

UNIVERSITY OF VERMONT EXTENSION

Spotted Wing Drosophilia Information is at:

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

Questions? Experiences to share?