



SWD Some NJ Highlights - or Lowlights

Dean Polk

Standard sample = 2 qt berries, salt solution 1 qt at a time,
1/4C salt in 1 qt of warm water





Section of Blueberry Record 2012

date	male total	female total	total	collected	salt	date	male total	female total	total	collected	salt
23-Jul	0	1	1			30-Jul	0	1	1		
23-Jul	knocked over					1-Aug	4	4	8		
23-Jul	0	0	0			1-Aug	3	1	4		
23-Jul	0	0	0			1-Aug	0	4	4		
23-Jul	1	0	1		1-Aug83	1-Aug	0	0	0	8-Aug	173
23-Jul	0	0	0			1-Aug	1	0	1		
23-Jul	0	0	0			1-Aug	1	1	2		
24-Jul	knocked over				1-Aug14 small	1-Aug	0	1	1	7-Aug	34
24-Jul	0	0	0			1-Aug	0	2	2		
24-Jul						1-Aug	4	2	6		
24-Jul	0	0	0		30-Jul 0	1-Aug	0	0	0	7-Aug	152
24-Jul	2	0	2		1-Aug62	30-Jul	33	19	52	7-Aug	165
23-Jul	1	0	1			1-Aug	0	0	0		
24-Jul	1	0	1			1-Aug	5	1	6		

Fld Count 7/16=64, 7/24=61

From machine picker on 7/25

	Slow freeze	Fast freeze
Visual	8	6
Float	132	113

Samples from Commercial Vineyards 2012

<i>Date</i>	<i>Variety</i>	<i>Location</i>	<i>Male</i>	<i>Female</i>	<i>Total</i>	<i>Total fruit fly</i>
5-Sep	Natives	At. Co.	4	3	7	29
5-Sep	Natives	At. Co.	1	5	6	102
11-Oct	2 rows in	At. Co.	0	0	0	41
4-Oct	Syrah	Richwood	0	0	0	0
4-Oct	Merlot	Richwood	0	0	0	0
1-Oct	Cab Sauv old	Cumb. Co.	3	2	5	33
1-Oct	Cab Sauv	Cumb. Co.	0	0	0	0
11-Oct	Cab Sauv	Richwood	0	0	0	0

Spotted Wing Drosophila in PA

Kathy Demchak
David Biddinger
Neelendra Joshi
Penn State University

2012

General Observations

- First catches in July
- No catches in June strawberries
- Found all summer long in cherries with no crop
- PA Dept. of Ag found SWD in August in lumberyards and mills while looking for beetles (Why? Sap? Cherry wood?)
- Highest catches so far from wild blackberry patches, also in pokeberries

2012

Commercial Berries

- 2011 hot spot (commercial raspberries, Adams Co.) had few problems this year
 - Manageable if growers take vigilant proactive approach – keeping fruit harvested, spraying to keep populations low
- Other operations where SWD “got ahead of them” had to shut down harvest
 - Blueberries, blackberries, day-neutral strawberries
- Unclear regarding winegrapes

Right now

- Still catching high numbers (literally hundreds/trap/day)
 - Especially in wooded settings (wild blackberries, protection?) - nearly 100% SWD
 - Also around compost piles (warmth? protection?)
- Some in high tunnels, but mostly other fruit fly species



State Report on SWD

Richard S. Cowles

Conn. Agric. Expt. Station,

Valley Laboratory, Windsor, CT



UCONN

Mary Conklin

University of Conn., Coop. Ext.

Survey results may not reflect reality

15 Respondents from 5 counties in CT

40 / 110 acres affected

Cherry: 0

June strawberries: 0

Summer raspberries: 50 half pints, \$125

Fall raspberries: ~2,100 lb., \$9,400

Blackberry: total loss, \$1,000 – 2,000

Blueberry: 40 half pints, \$160

Other: grape, 5% loss (35 lb.)

Reality

Sweet cherries

damaged if not protected with spray

Blueberries

major losses if “holes” in spray program

Raspberries and blackberries

**some infestation with best spray program
sanitation required**

Day neutral strawberries

barely manageable, like fall raspberries

Costs

Increased sprays, chemical and labor
Trap and scouting labor

Increased losses

Damage to peaches in fruit stand
Removed 150 vines in vineyard, out of business
Sanitation removal of all fruit, restart
Loss of fruit from poor efficacy of Pyganic
Two-bucket picking of raspberries, wine

Rhode Island Heather Faubert

Set traps - 6/21/12

1st SWD - 6/27/12

1st larvae - 7/6/12



High tunnel fall raspberries



9/18/12 – 89% infested
21 larvae/berry

10/1/12 – 97% infested
15 larvae/berry

10/15/12 – 96% infested
11 larvae/berry

Compare V/G/A with V/G/A + yeast

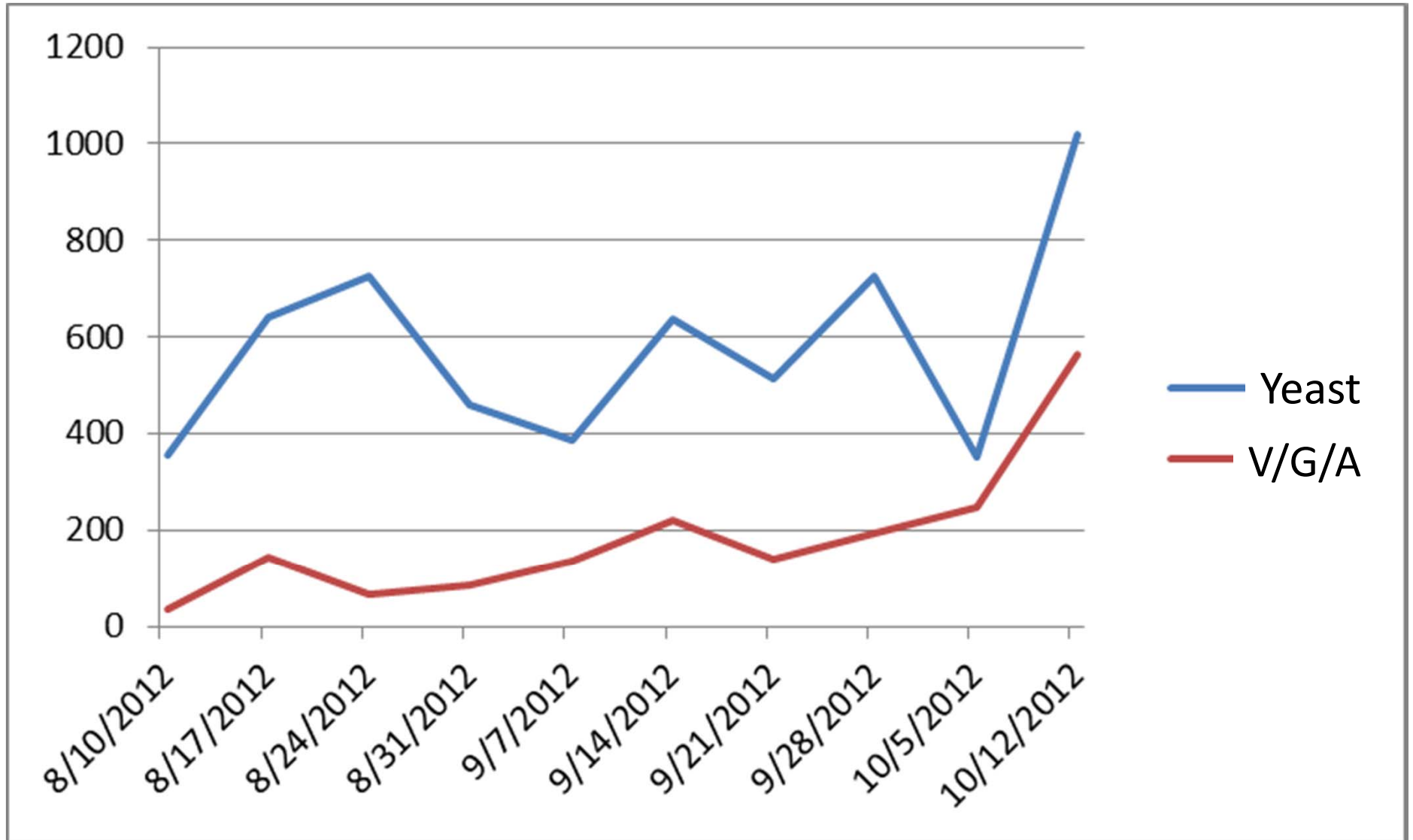


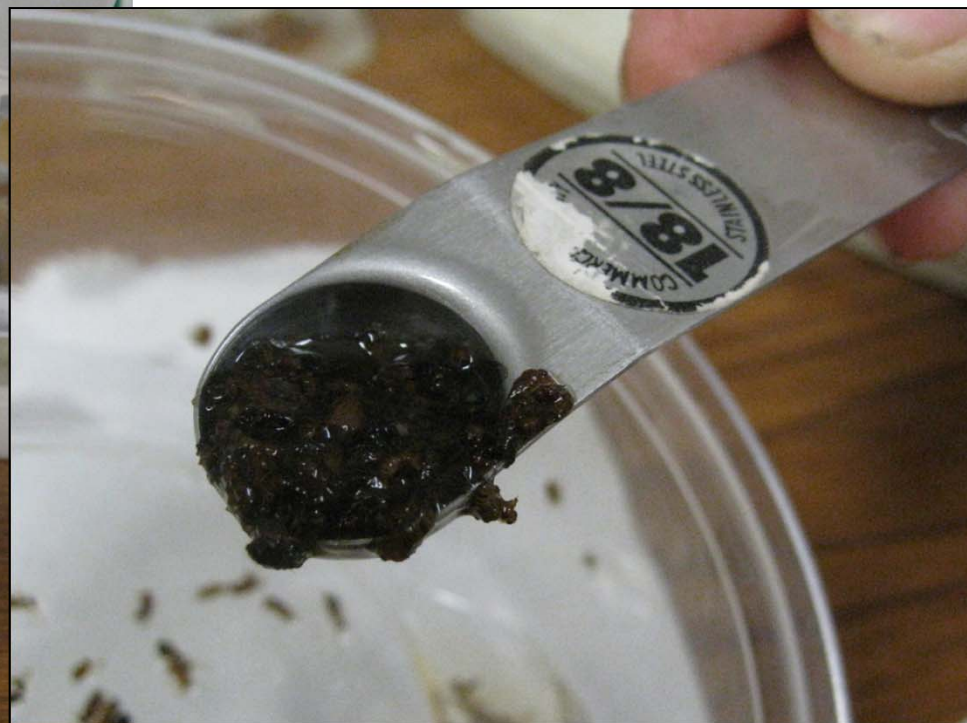
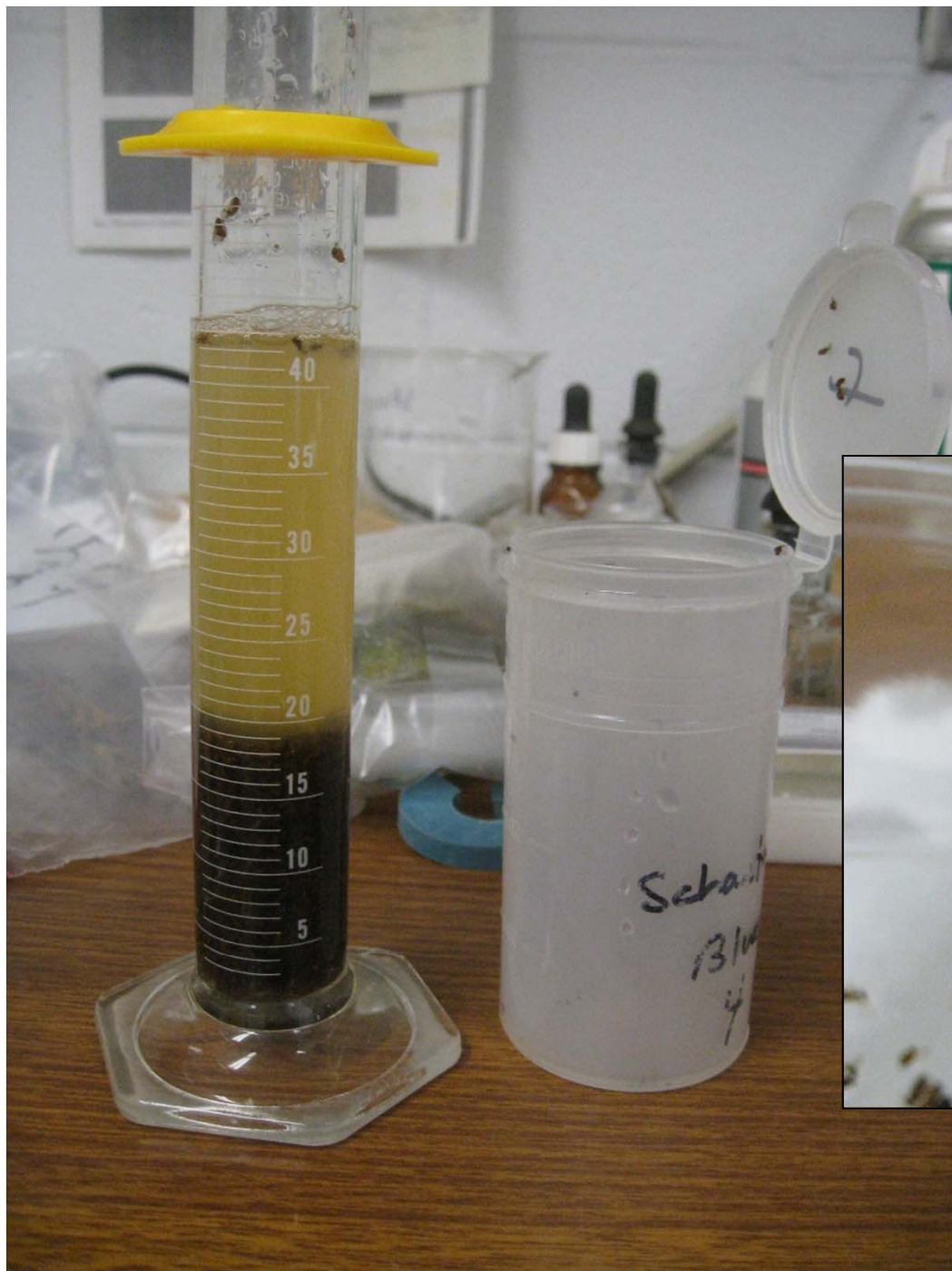
Yeast-enhanced trap >2x SWD



Wood-edge traps

Yeast-enhanced vs. straight V/G/A



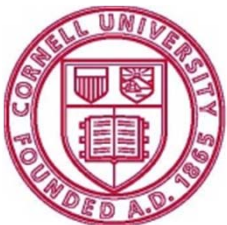




Northeast Field Update New York

Spotted Wing Drosophila

Juliet Carroll
Fruit IPM Coordinator
NYS IPM Program



Cornell University
Cooperative Extension



People monitoring SWD - 2012

Traps – 11 people

Faruque Zaman, CCE Long Island HREC
Emily Klamberg Cook, CCE Ulster County
James O’Connell, CCE Ulster County
Mike Fargione, CCE HVFP
Peter Jentsch, Entomology, Highland
Laura McDermott, CCE Capital District V&SFP
Amy Ivy, CCE Clinton County
Hans Walter-Peterson, CCE FLGP
Art Agnello, Entomology, Geneva
Greg Loeb, Entomology, Geneva
Juliet Carroll, IPM, Geneva
Marion Zeufle, IPM Geneva
Debbie Breth, CCE LOFP

**10X the
number of
flies in 2011**

Larvae in fruit – many people

Growers, Montgomery & Broome Counties, etc., etc.
Cathy Heidenreich, Horticulture, Ithaca
Master Gardeners, CCE Chautauqua County
Jim Eve, Eve Farm Service
Stephanie Mehlenbacher, CCE Steuben County
Jeff Miller, CCE Oneida County
Sue Gwise, CCE Jefferson County
Paul Hetzler, CCE St. Lawrence County

1st detection late June

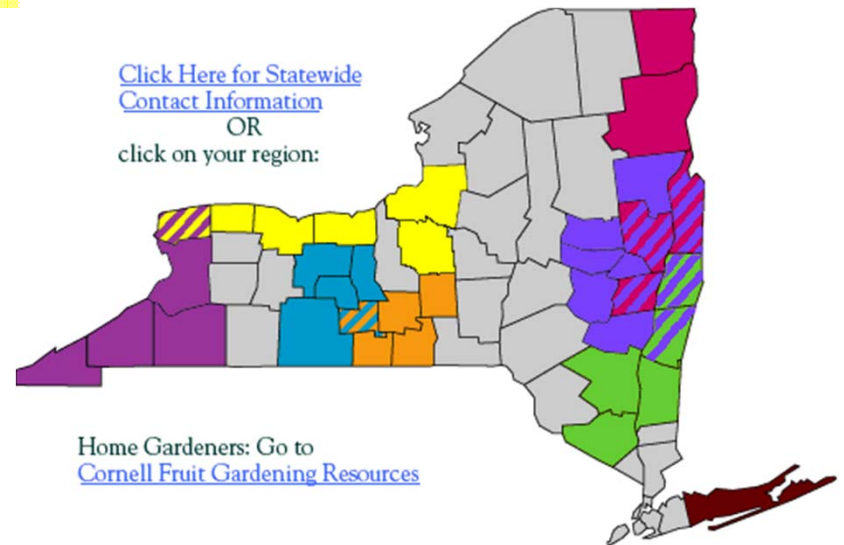
Peak catch August to September

Peak larval infestations late August

Rearing – 6 people

Faruque Zaman
Peter Jentsch
Amy Ivy
Greg Loeb
Juliet Carroll
Marion Zeufle

**Now it’s
statewide**



Crops and wild hosts SWD - 2012

Crops

June strawberry
day neutral strawberry
summer raspberry
fall raspberry
blackberry
blueberry
sweet cherry (?)
plum (?)
peach
grape

Wild hosts

buckthorn
dogwood
honeysuckle
pokeweed
bittersweet nightshade



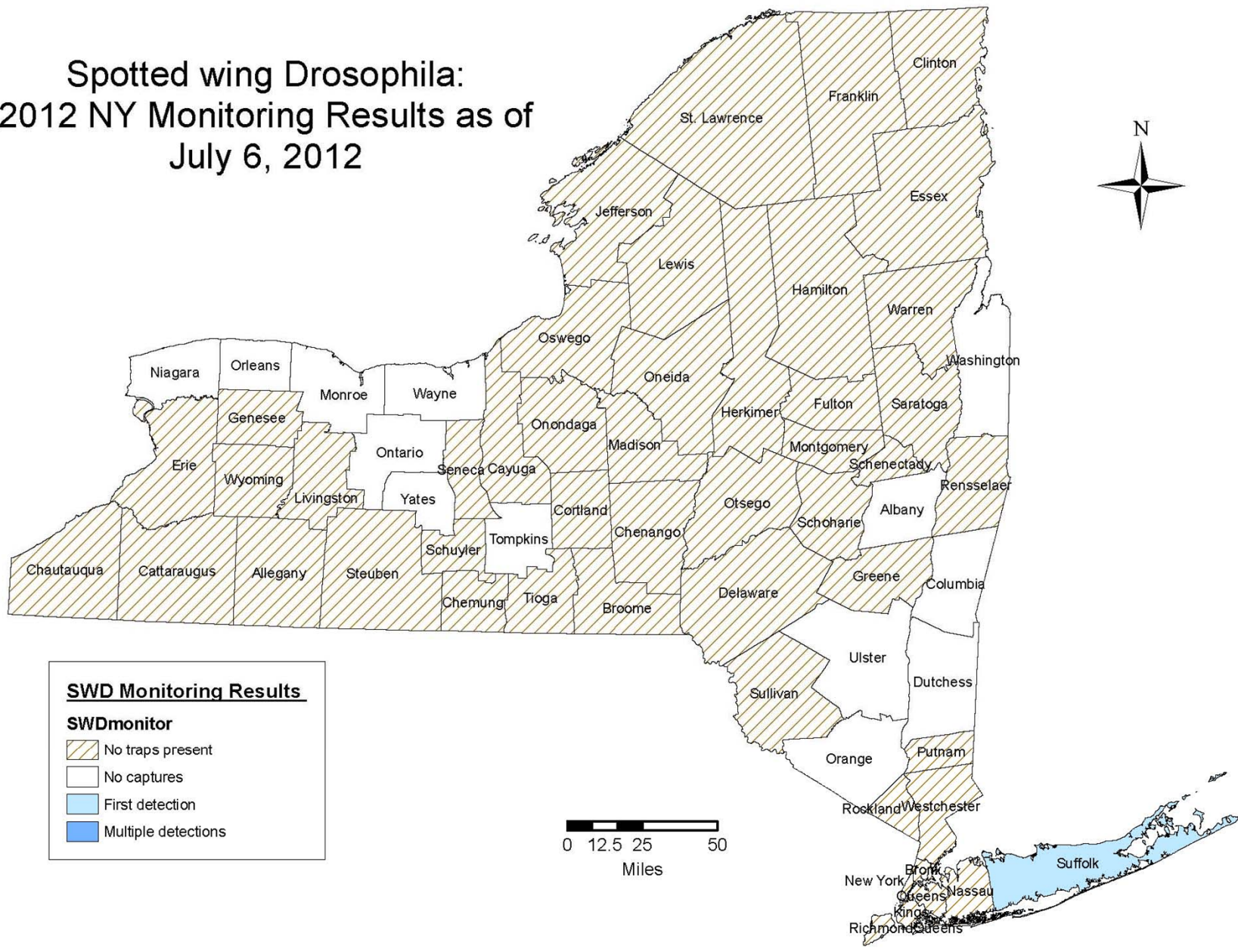
Amy
Ivy

Based on rearing in the lab or dissecting eggs.

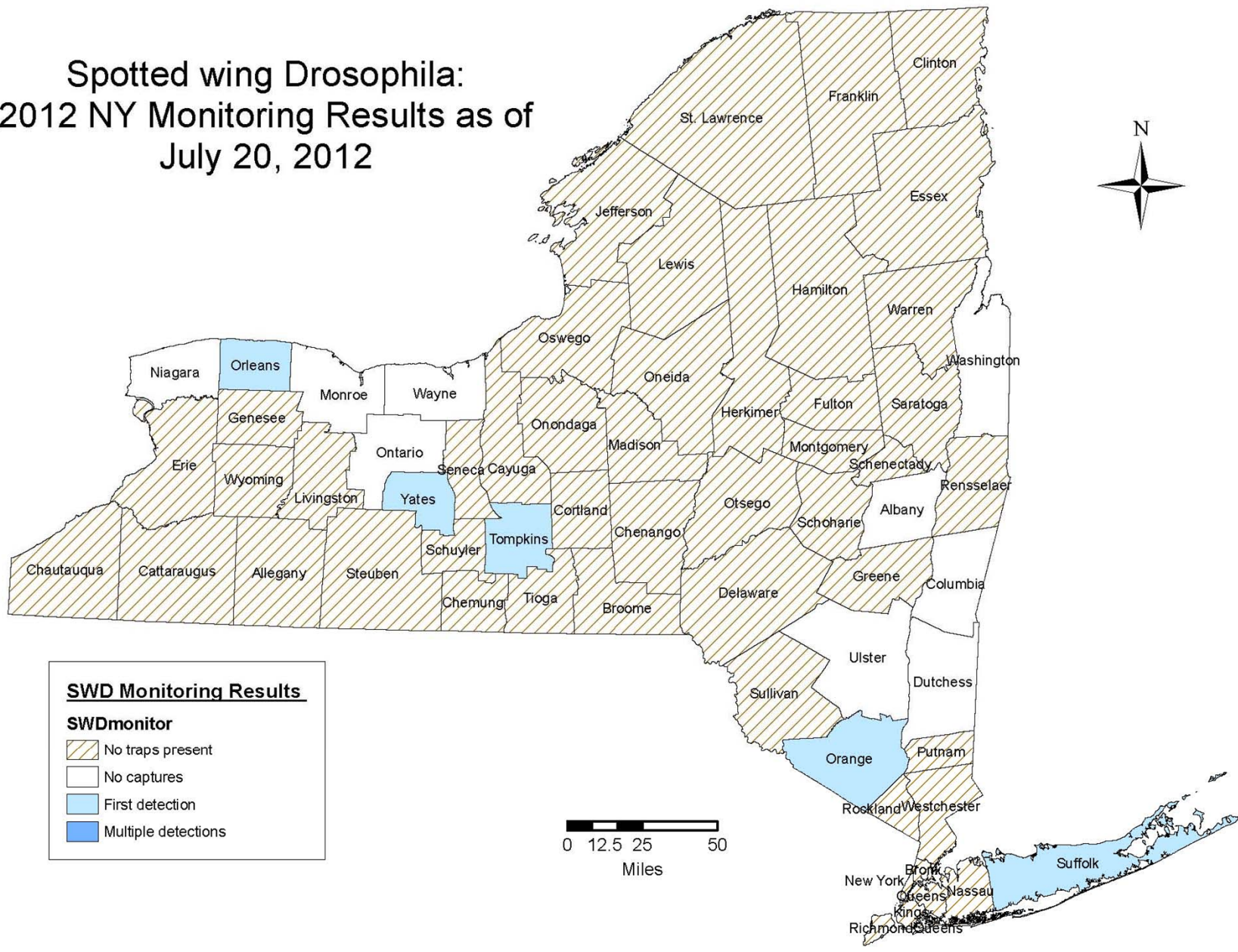
Impacts of spotted wing drosophila

Customer complaints
30% loss in blueberry
Raspberry plantings abandoned
Sanitation/clean-harvesting labor-intensive
Insecticide sprays marginally effective

Spotted wing Drosophila: 2012 NY Monitoring Results as of July 6, 2012







Spotted wing Drosophila: 2012 NY Monitoring Results as of July 20, 2012



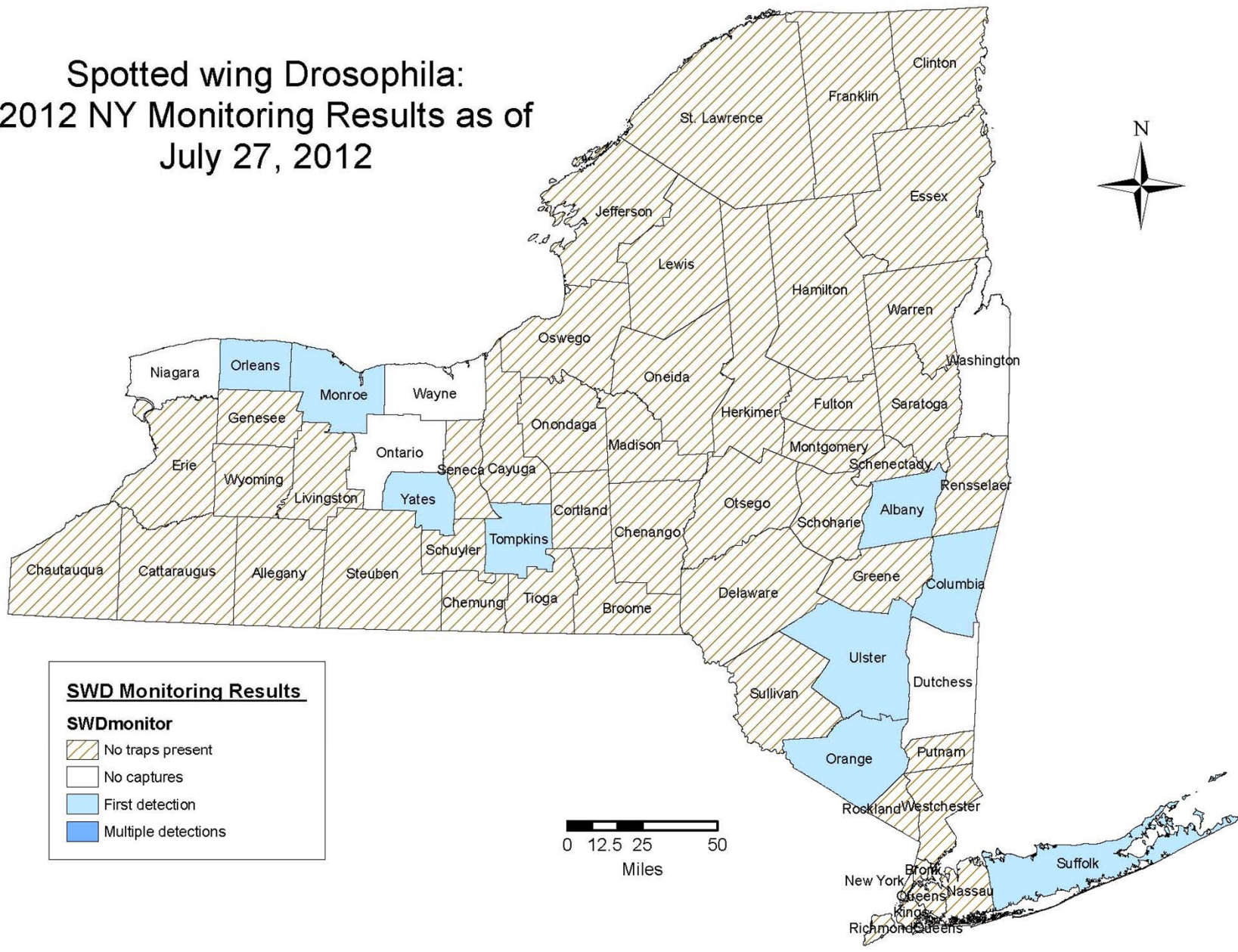
SWD Monitoring Results

SWDmonitor

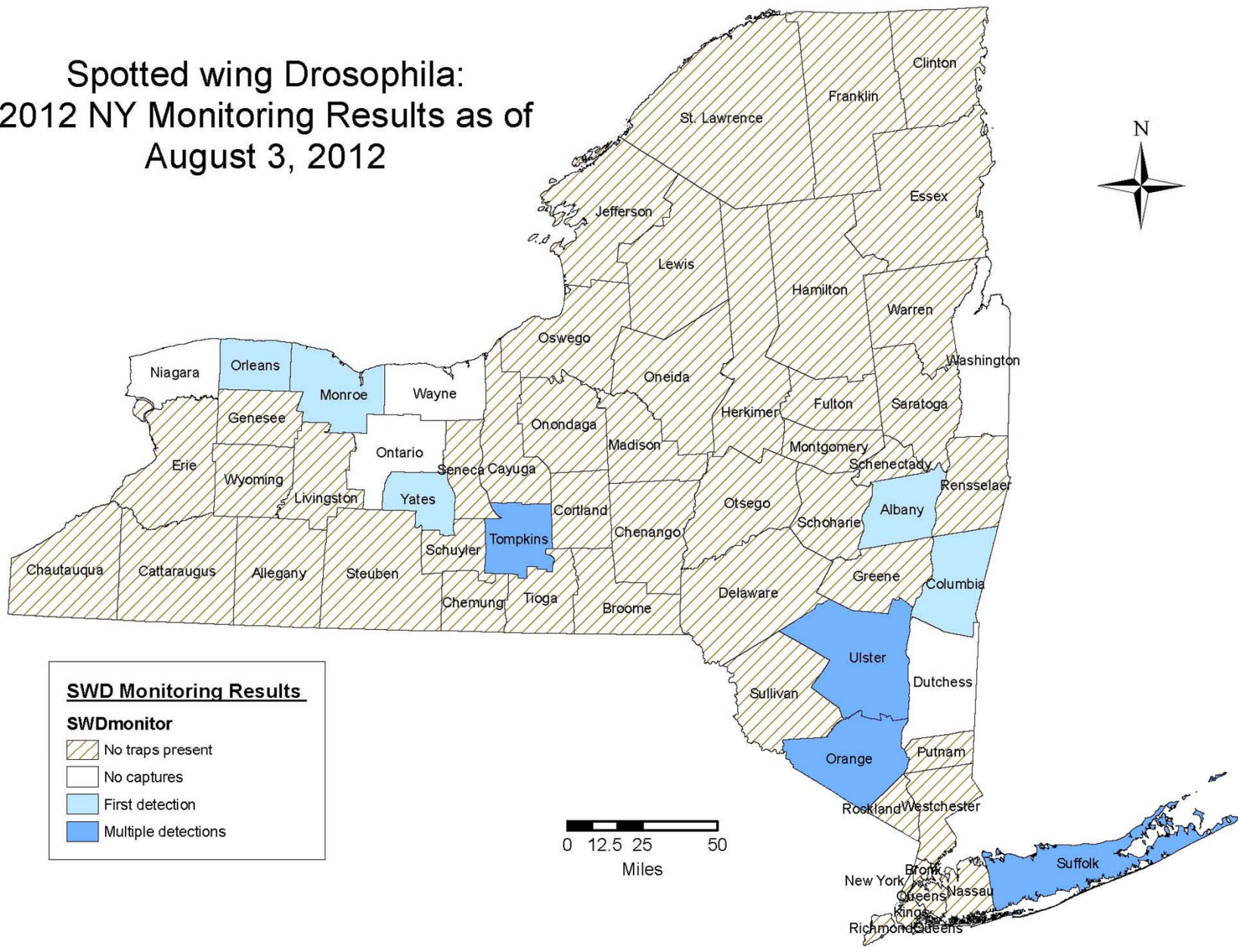
-  No traps present
-  No captures
-  First detection
-  Multiple detections



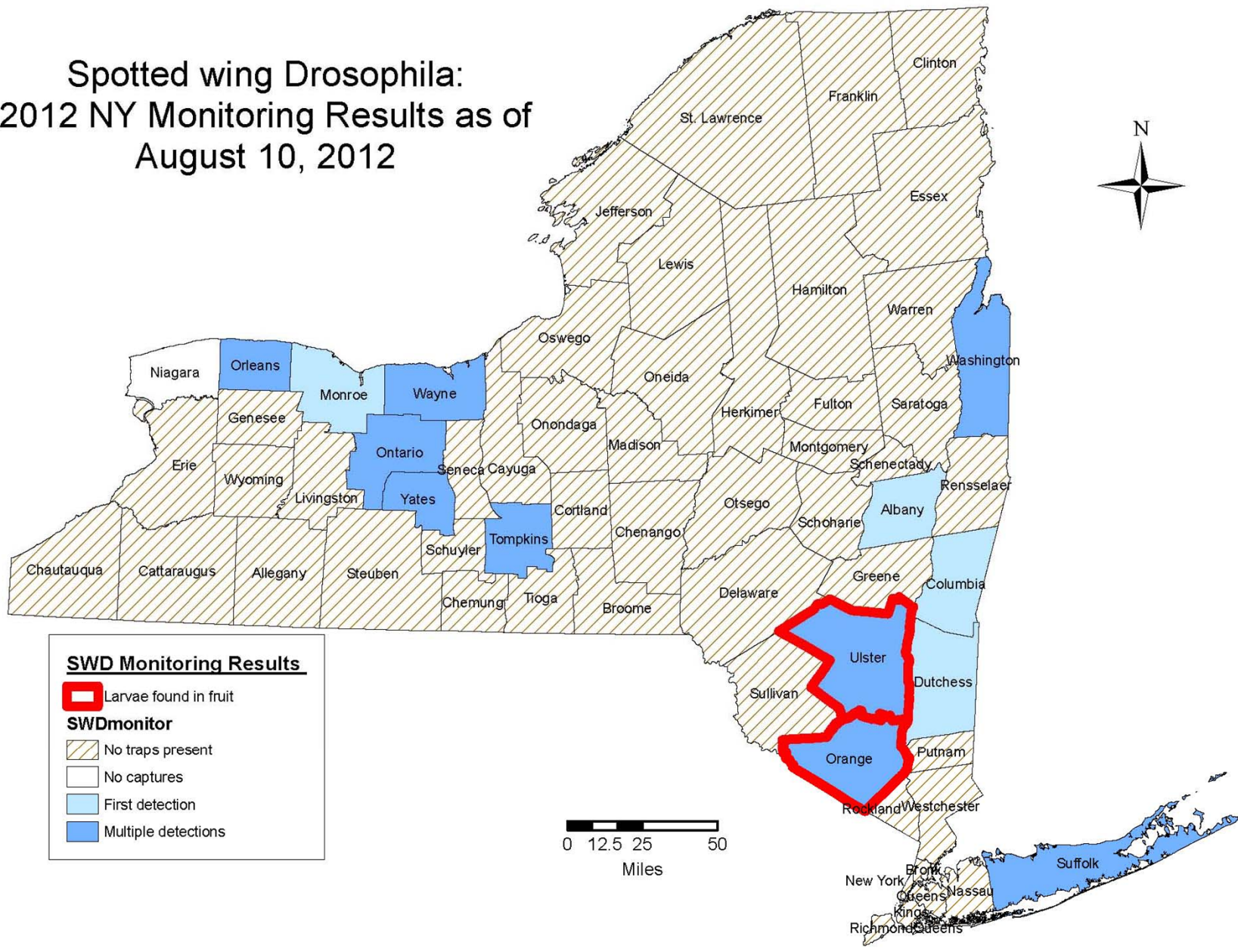
Spotted wing Drosophila: 2012 NY Monitoring Results as of July 27, 2012



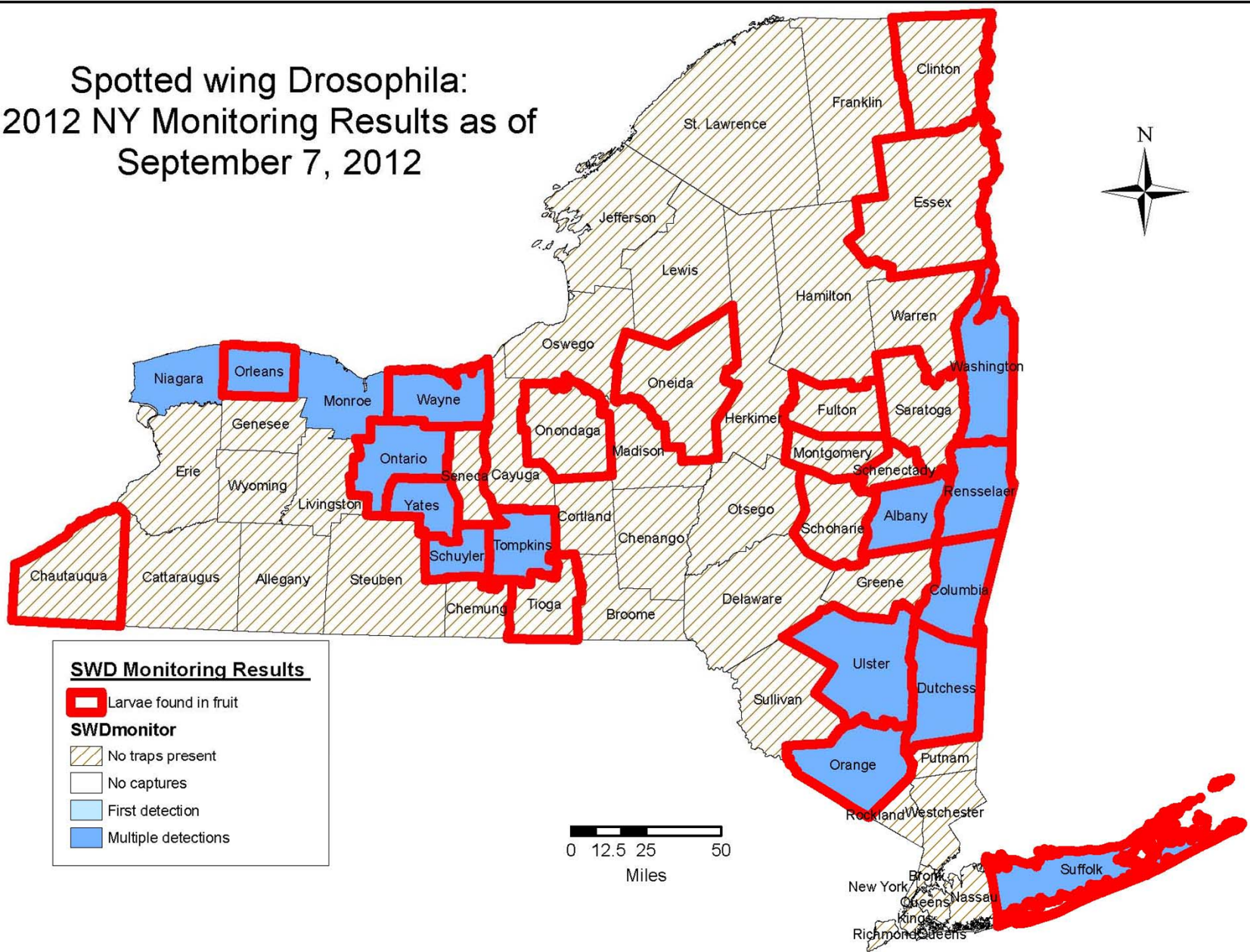
Spotted wing Drosophila: 2012 NY Monitoring Results as of August 3, 2012



Spotted wing Drosophila: 2012 NY Monitoring Results as of August 10, 2012



Spotted wing Drosophila: 2012 NY Monitoring Results as of September 7, 2012





**Spotted Wing Drosophila In
Maine**

2012

Maine SWD Trapping 2012

- SWD Traps
- 18 oz. red Solo® cups
- Cowles Bait
- One trap in crop, one in wood line
- Emptied, re-baited 1/wk



Maine SWD Trapping 2012



Maine SWD Trapping 2012



Maine SWD Trapping 2012



Maine SWD Trapping 2012

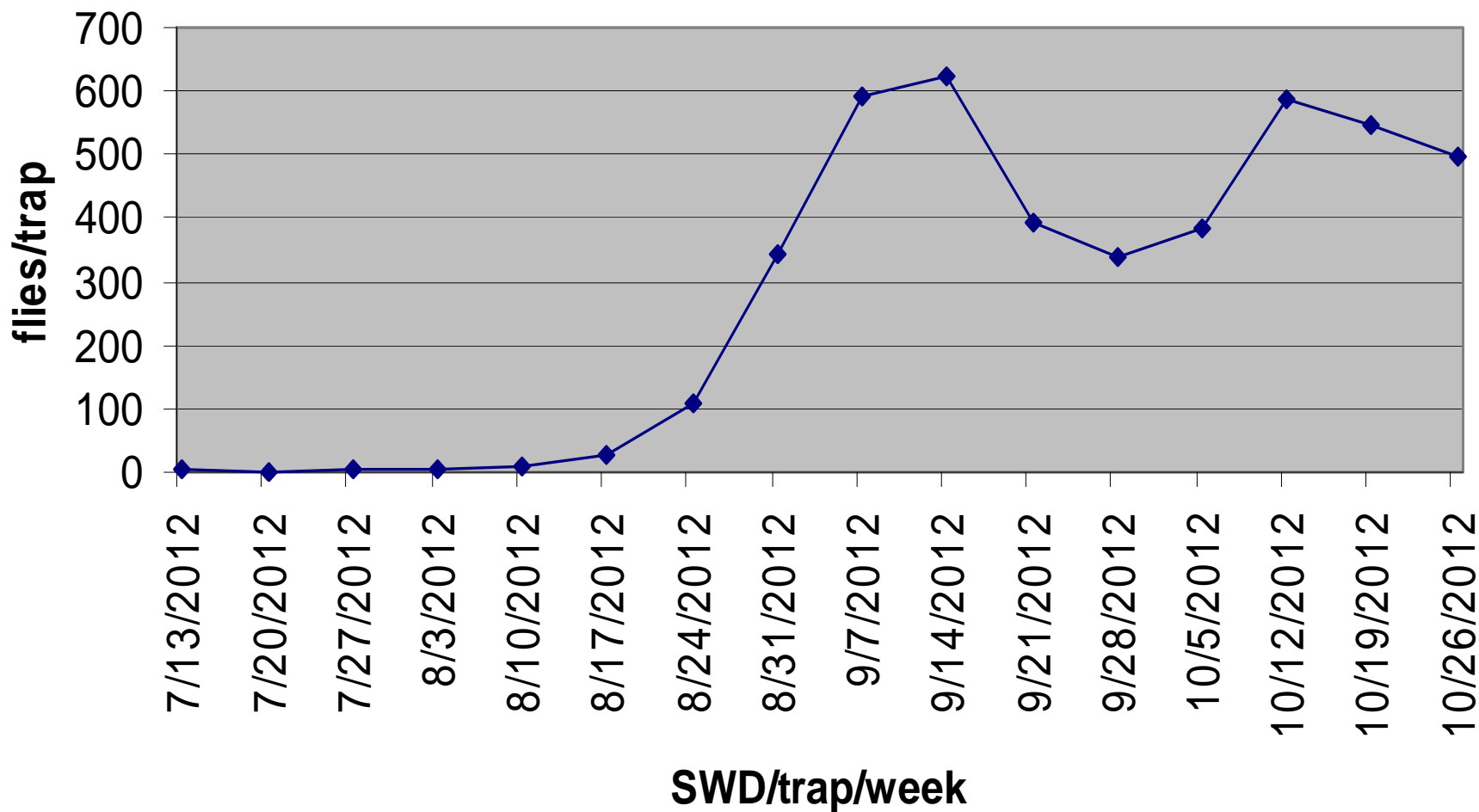


Maine SWD Trapping 2012

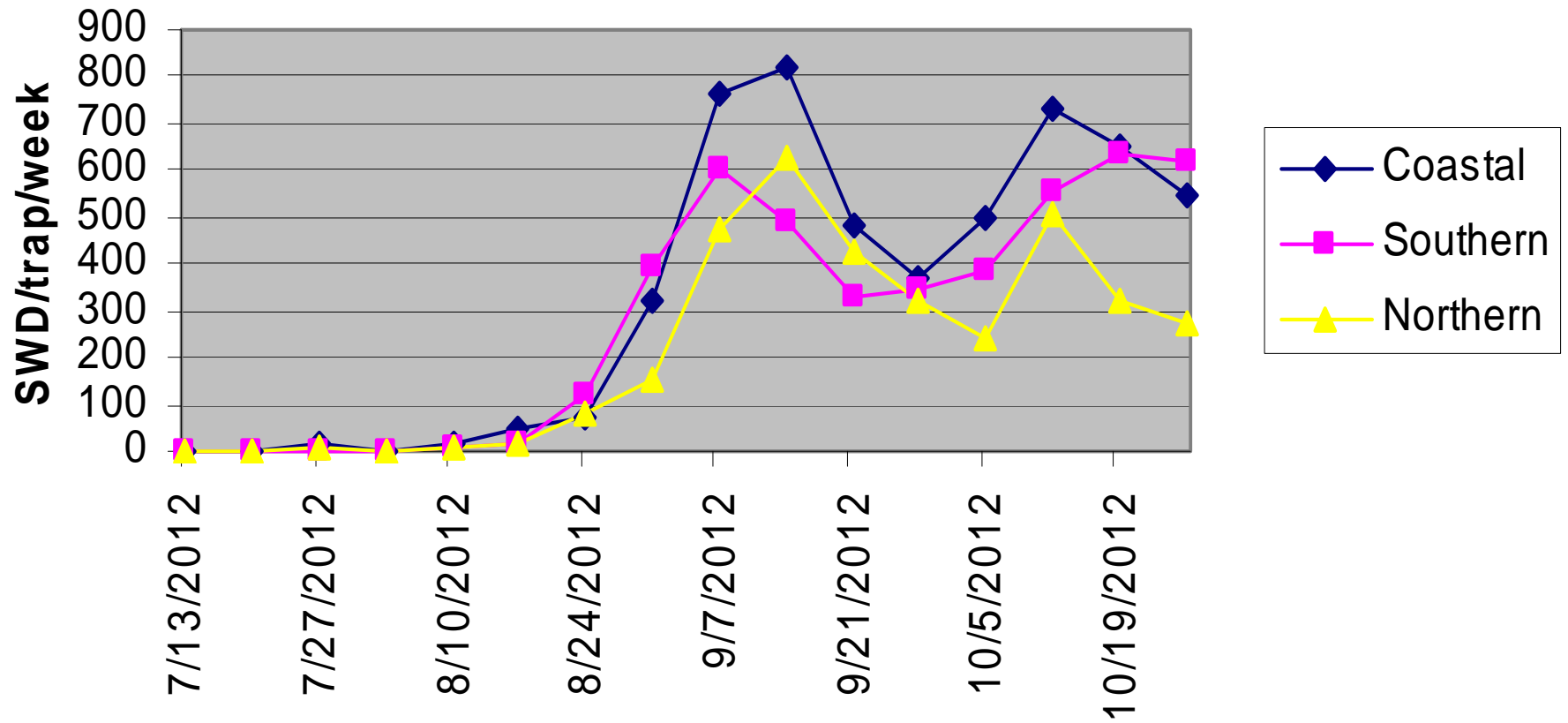


Overall SWD Catch Maine, 2012

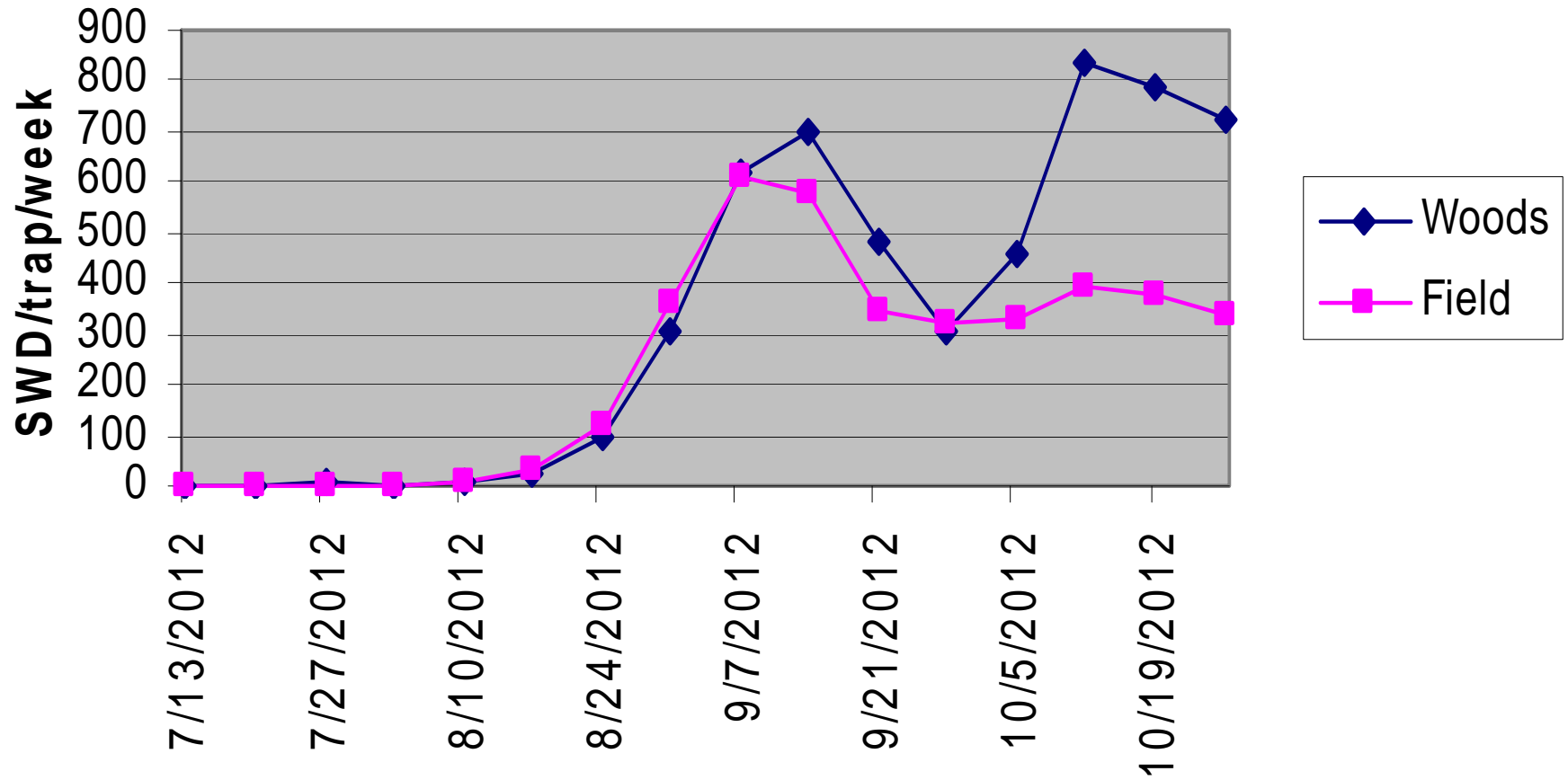
Sum of 20 locations, 2 traps/location



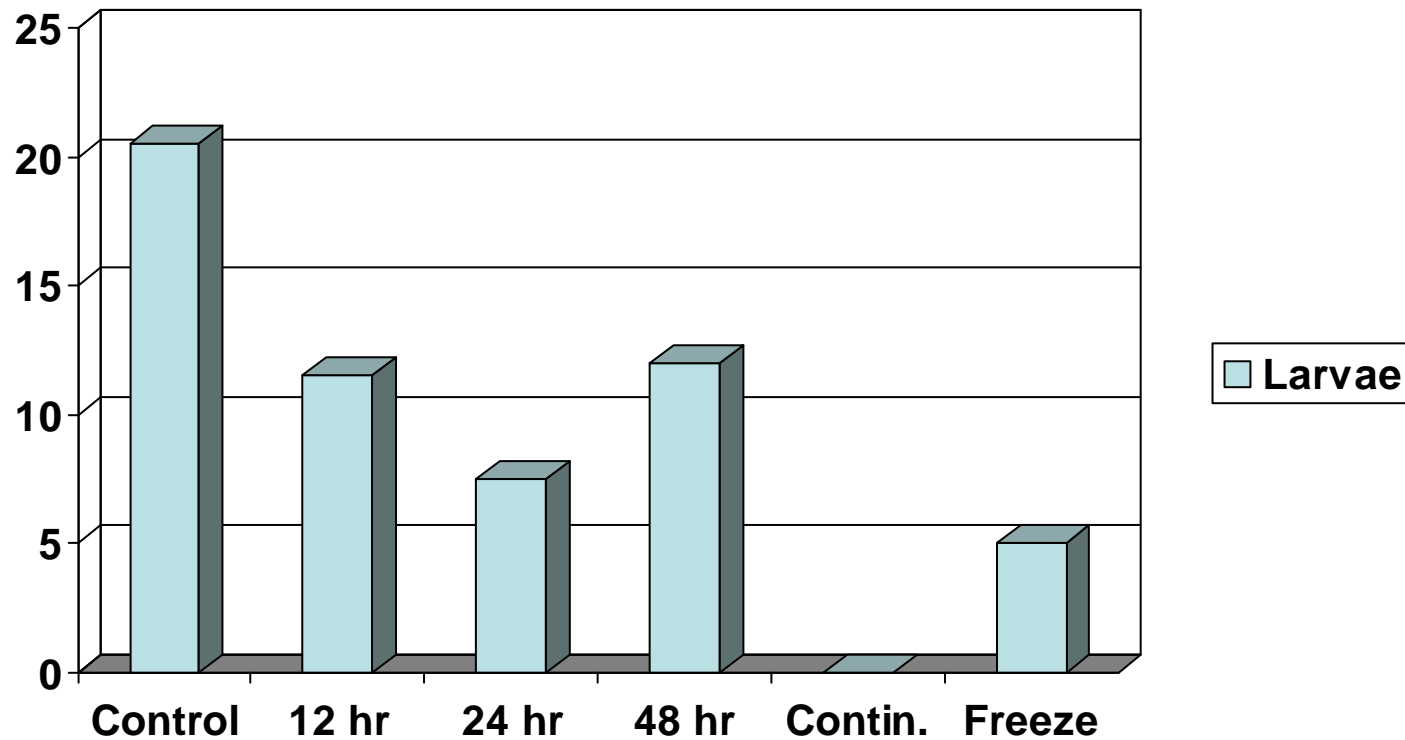
SWD by Region, Maine 2012



SWD by Trap Location: Woodline vs. Crop



Effects of Post-Harvest Chill/Freeze Treatments to Raspberry Fruit on SWD Emergence



Average number of SWD Larvae emerged from 5 fruit, 14 days post-treatment. Chill = 34 °, Freeze = 22 ° (12 hr)







For 2013:

- Maine State SCRI Block Grant
- Drummond, Dill & Handley
- Investigate improved trapping
- Work toward IPM



Vermont SWD Trapping Summer 2012

Volunteer small fruit farmers trapping and reporting +/- (all southern Vermont)

Bait system-Red solo cup with apple cider vinegar bait

Traps placed before fruit ripening

- Guilford-Positive found 7/30/12
- Marlboro-Positive found 7/30/12
- Dummerston-Positive found 7/30/12
- Shrewsbury, VT-Positive found 8/13/12

Horticultural Research Station-South Burlington, VT

Bait system-Red solo cup with Cowles bait:

- 56% grape juice (reconstituted Welch's Frozen 100% White Grape Juice Concentrate,
- 37% apple cider vinegar, 5% strength.
- 6% 95% ethanol
- <1% Surfactant to break surface tension (unscented detergent).

Traps placed on 7/9/12 before fruit ripening in grape vineyard, wild grapes and crabapples

- Positives found in crabapples: 8/13/12, 9/10/12, 9/17/12, 9/24/12, 10/8/12
- Positives found in wild grapes: 9/10/12, 9/17/12, 9/24/12, 10/8/12
- Positives found in vineyard: 8/27/12, 9/4/12, 9/10/12, 9/17/12, 9/24/12, 10/8/12

Traps removed on 10/8/12

General notes/observations

SWD liked the warm fall temperatures and dropped off after the cold snap.

One grower discovered an easy tip for figuring out if fruit is infected which has been helpful in picking. If the receptacle of the raspberry is stained after picking then it likely has SWD larvae.

One grower in the second year with SWD (they were the first farm in VT to report it last year after Irene) is once again getting great quality fall raspberries late in the season, after trying some organic spray earlier and then just walking away in disgust. Not sure if it is a temperature or photoperiod thing?

Seems like Entrust/Pyganic/early picking may be effective. Would like to see research on netting of different types.

Spotted wing drosophila Ontario 2012 update

OMAFRA SWD Team:

*Anne McDonald Host, SWD monitoring coordinator 2012
Hannah Fraser, Denise Beaton, Margaret Appleby,
Leslie Huffman, Janice Leboeuf, Wendy-McFadden Smith,
Melanie Filotas, Pam Fisher,*

2010

- CFIA survey
- 1st SWD detected Nov 2010 in Niagara backyard

Detections

2011

- OMAFRA survey, 60 sites,
- first capture on commercial farm August 13.
- 60% sites with SWD in traps by November

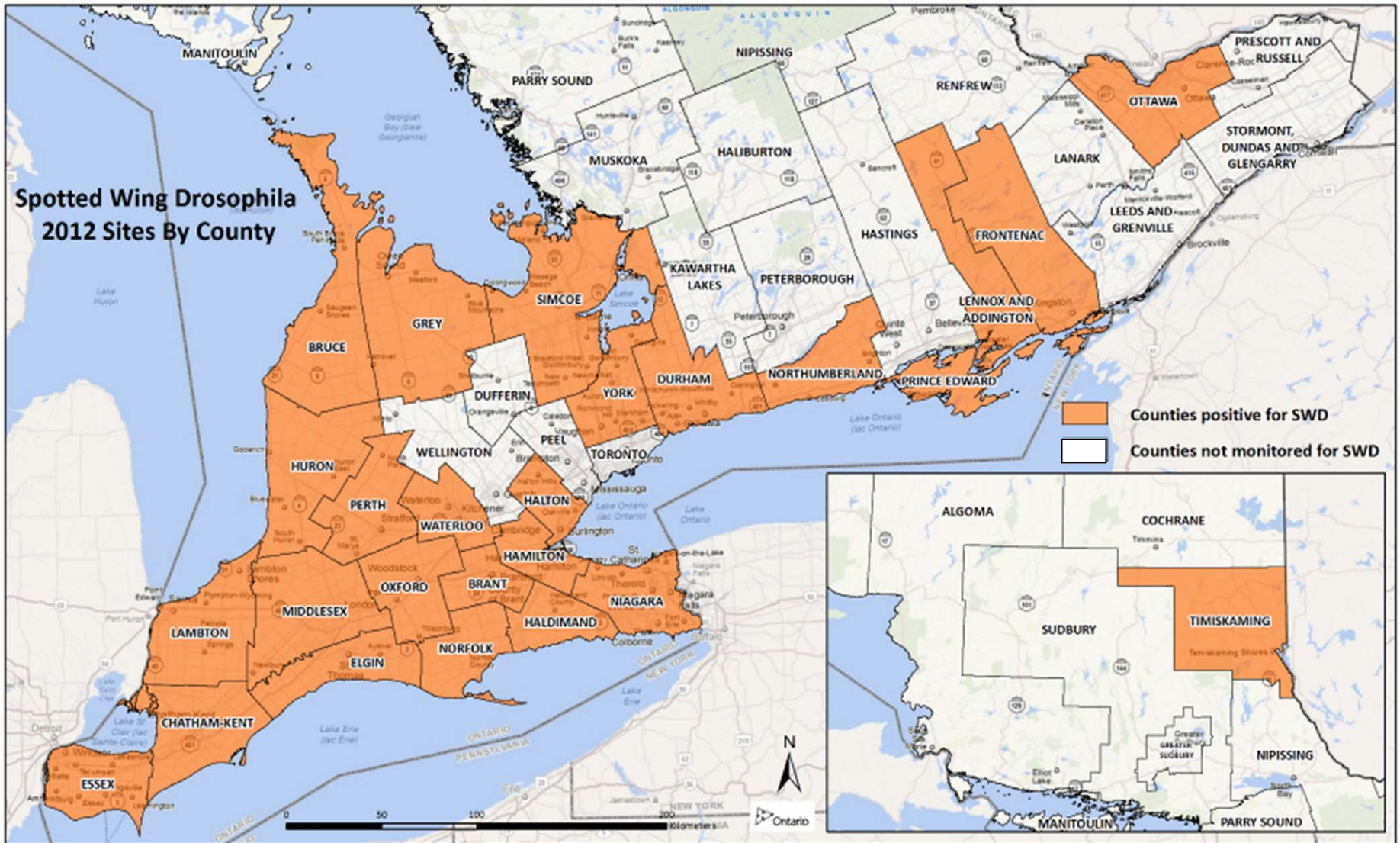


2012

- OMAFRA survey, 110 sites
- first capture commercial farm June 29
- 90% sites with SWD in traps by November



Used apple cider vinegar in Contech (2011) or deli cups traps (2012)



SWD was captured at 90% of monitored sites in 2012

Damage

2011:

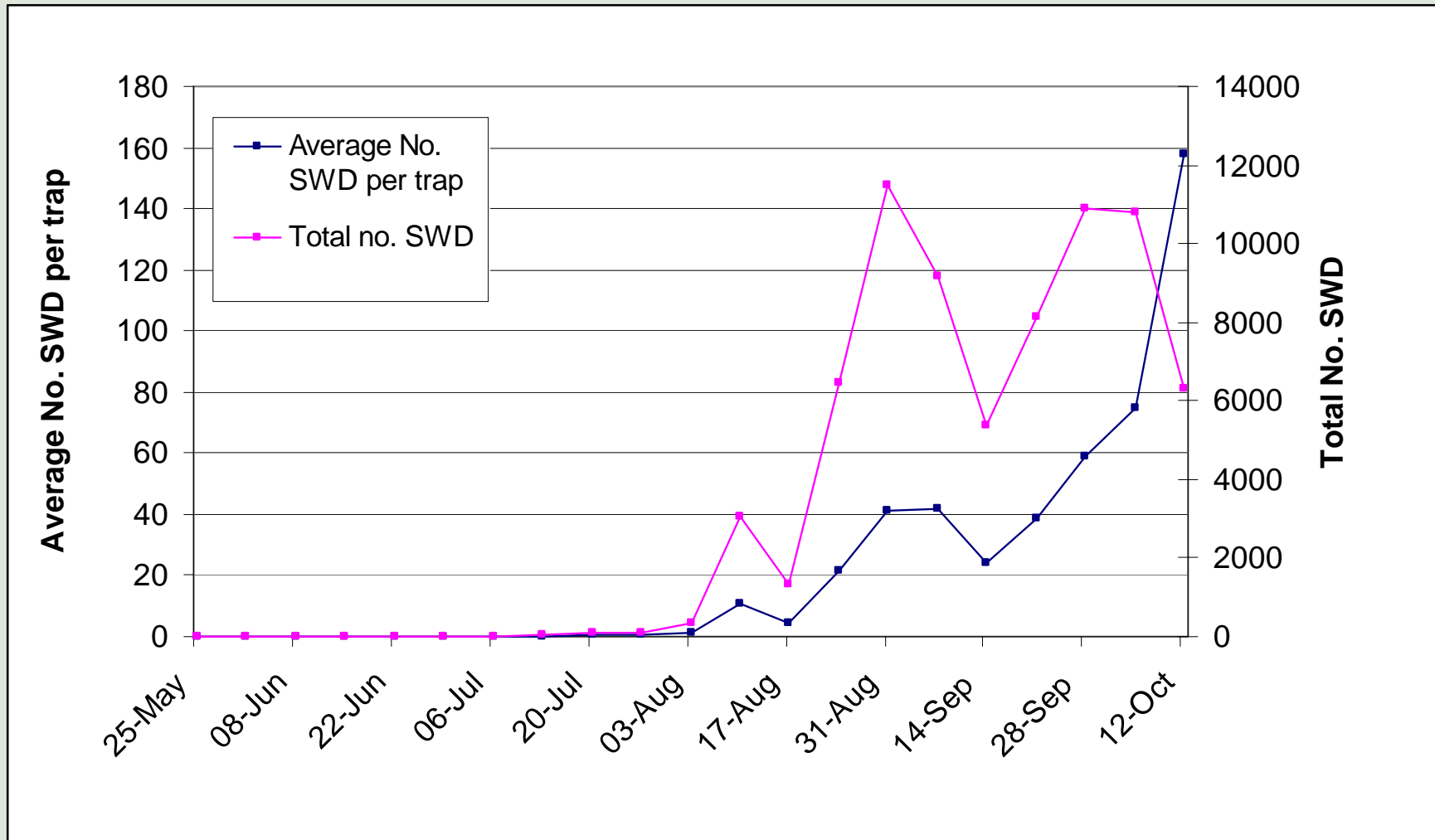
- reared SWD flies from fruit after harvest
- no commercial damage reported or observed

2012:

- first flies reared from blueberries collected July 11
- first fruit damage in field (blueberries and high tunnel raspberries) and July 25
- easy to find damage in unsprayed blueberries and raspberries by August 14
- significant damage occurred before flies were trapped in blueberries



SWD trap catches 2012



SWD damage in 2012

Crops suffering economic damage in absence of sprays

- blackberry
- blueberry
- fall-bearing raspberries
- day neutral strawberries



Growers and consumers slow to recognize the problem

Confused with

- poor shelf life
- finger bruising
- hot weather




SWD damage in 2012

Reared SWD from :

- Sea buckthorn
- Goji berry
- Wild brambles
- Buckthorn
- Pokeweed
- Elderberry
- Pin cherry
- Nightshade
- Dogwood



What we learned

- A lot from west coast colleagues!
 - Ontario has a lot of wild hosts!
 - ACV bait/traps not good enough
 - Picking often, and clean, helps for raspberries, and strawberries
 - Insecticides reduce damage (*Growers used Malathion, or Delegate. Ripcord, Entrust, Pyganic also registered*)
 - **Many expensive changes** to production practices required
- 

SWD Research in Ontario

Development of a reporting and management program for spotted wing drosophila

Hannah Fraser, Leslie Huffman, Pam Fisher, Denise Beaton, Margaret Appleby, Janice Leboeuf, Wendy-McFadden Smith, Melanie Filotas, OMAFRA

Enhanced monitoring and management of spotted wing Drosophila, an invasive pest of soft skinned fruit in Ontario

Dr. Rebecca Hallet, University of Guelph; Rose Buitenhuis, Vineland Research and Innovation Center; Hannah Fraser, OMAFRA; Tara Gariepy, AAFC

Life history and seasonal movements of the spotted wing drosophila, *Drosophila suzukii*, in a multi-crop setting

Dr. Rose Buitenhuis, Vineland Research and Innovation Centre; Hannah Fraser, OMAFRA

Molecular identification methods and indigenous natural enemies

Dr. Tara Gariepy, AAFC

Threat Assessment for the Spotted Winged Drosophila (SWD) in Southern Ontario

Dr. Jonathan Newman, University of Guelph; Dr. Megan Rua, University of North Carolina; Denise Beaton, OMAFRA





SWD

2012 QUEBEC update

Ministry of Agriculture - MAPAQ

Jean-Philippe Légaré  and Joseph Moisan-de Serres
(Diagnostics Laboratory)

Christian Lacroix and Liette Lambert (Berry crop advisors)
Sophia Boivin (Pest management and invasive alien species specialist)

Researchers (entomologists)

Nathalie Roullé, M.Sc, UQAM
and Valérie Fournier, Ph.D., Laval University



Monitoring in 2011 - traps at 21 sites

Including 2 Public Markets (Montreal) and 1 food processing site

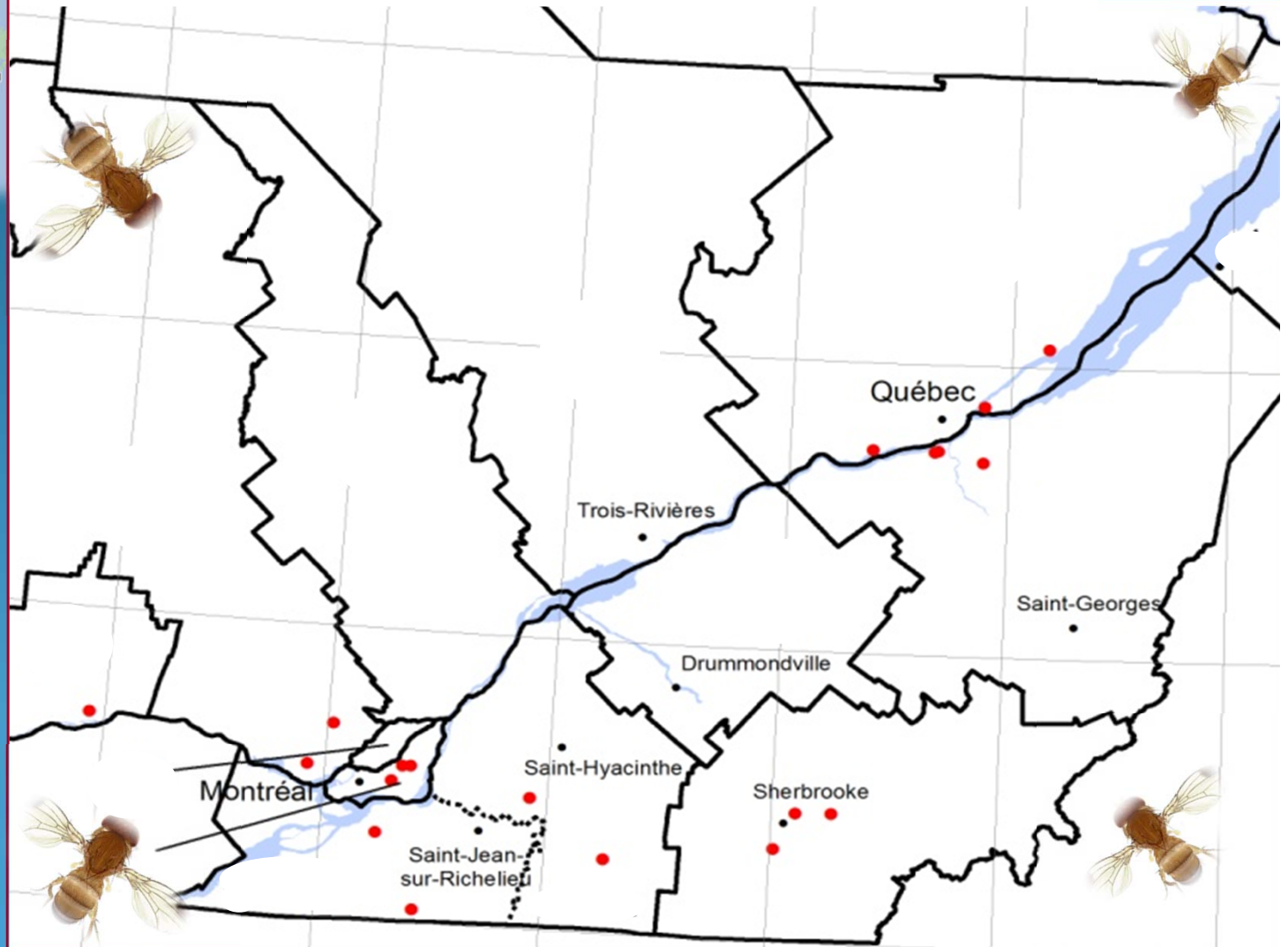
= 0 SWD



In 2010 :

No monitoring
but....

SWD found by
CFIA on 1
domestic
compost pile
(Quebec city)
on October 25

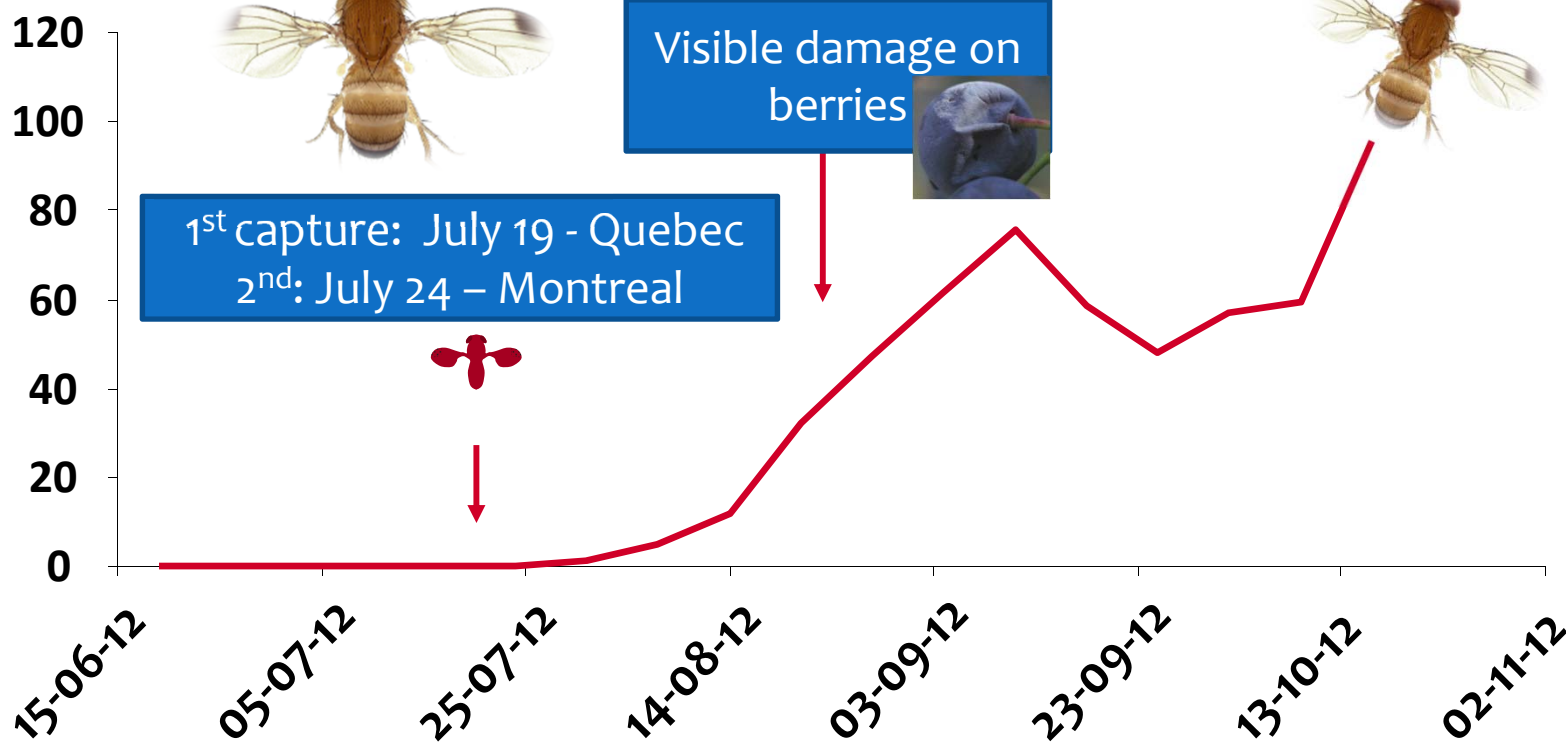


Evolution of SWD adults in 2012

Trapping started on June 21th
on 24 sites (8 in the south part of the province)

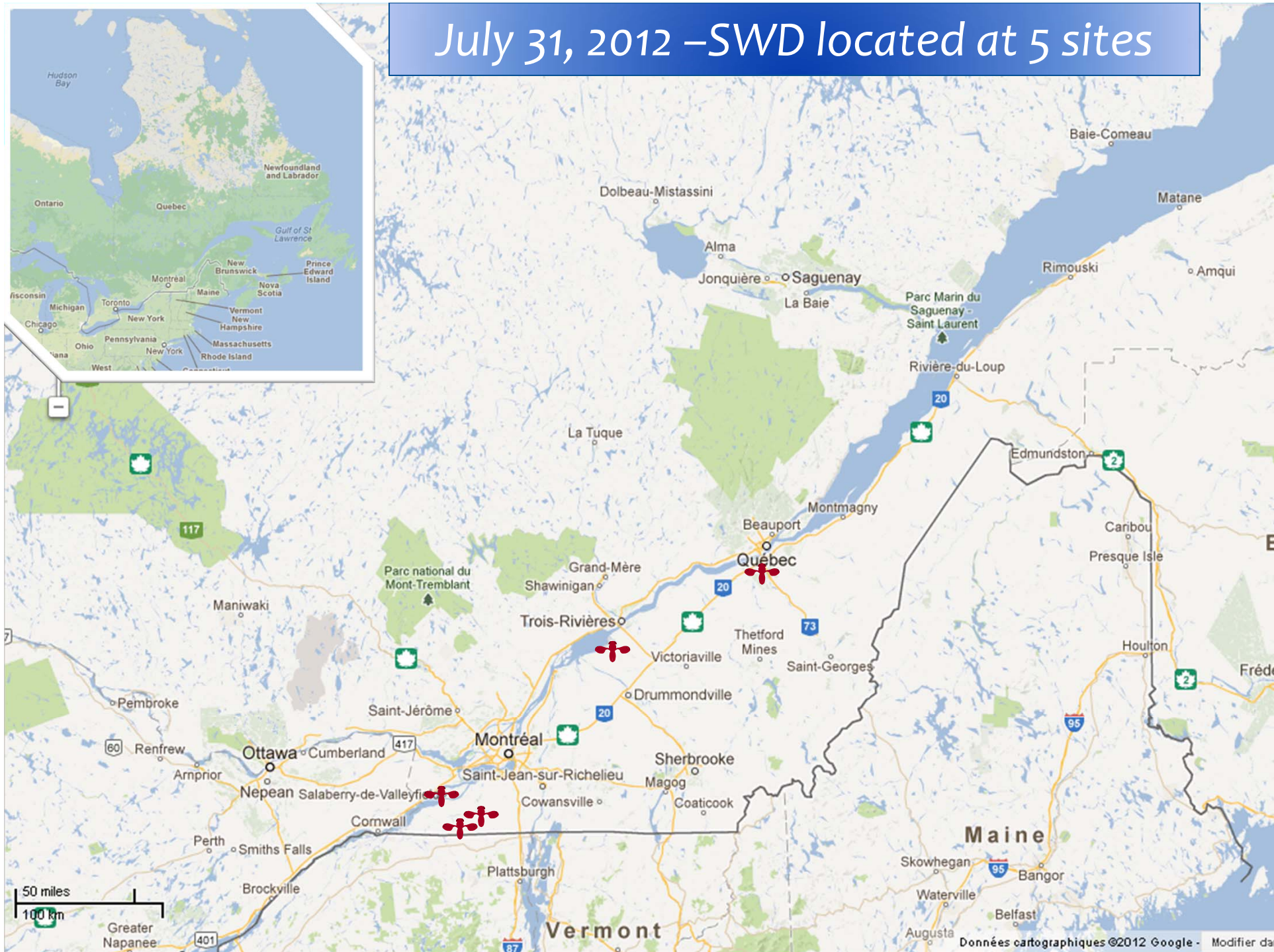


Average no
SWD / trap



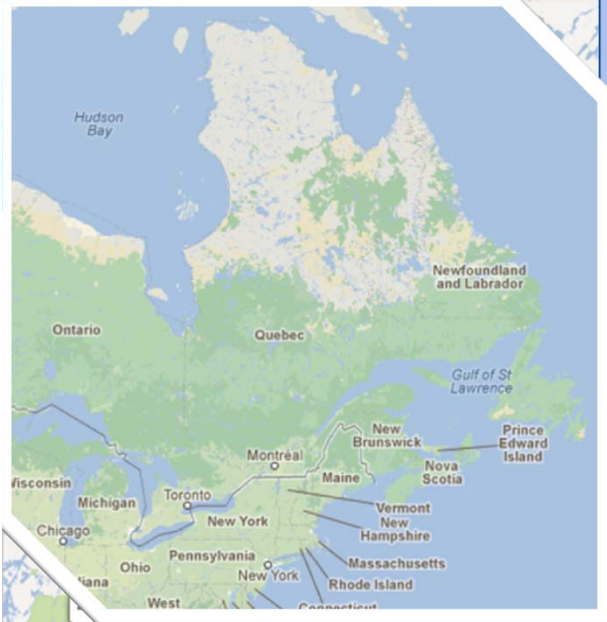
Jean-Philippe Légaré, M.Sc., Biol. Entomologist, MAPAQ

July 31, 2012 – SWD located at 5 sites

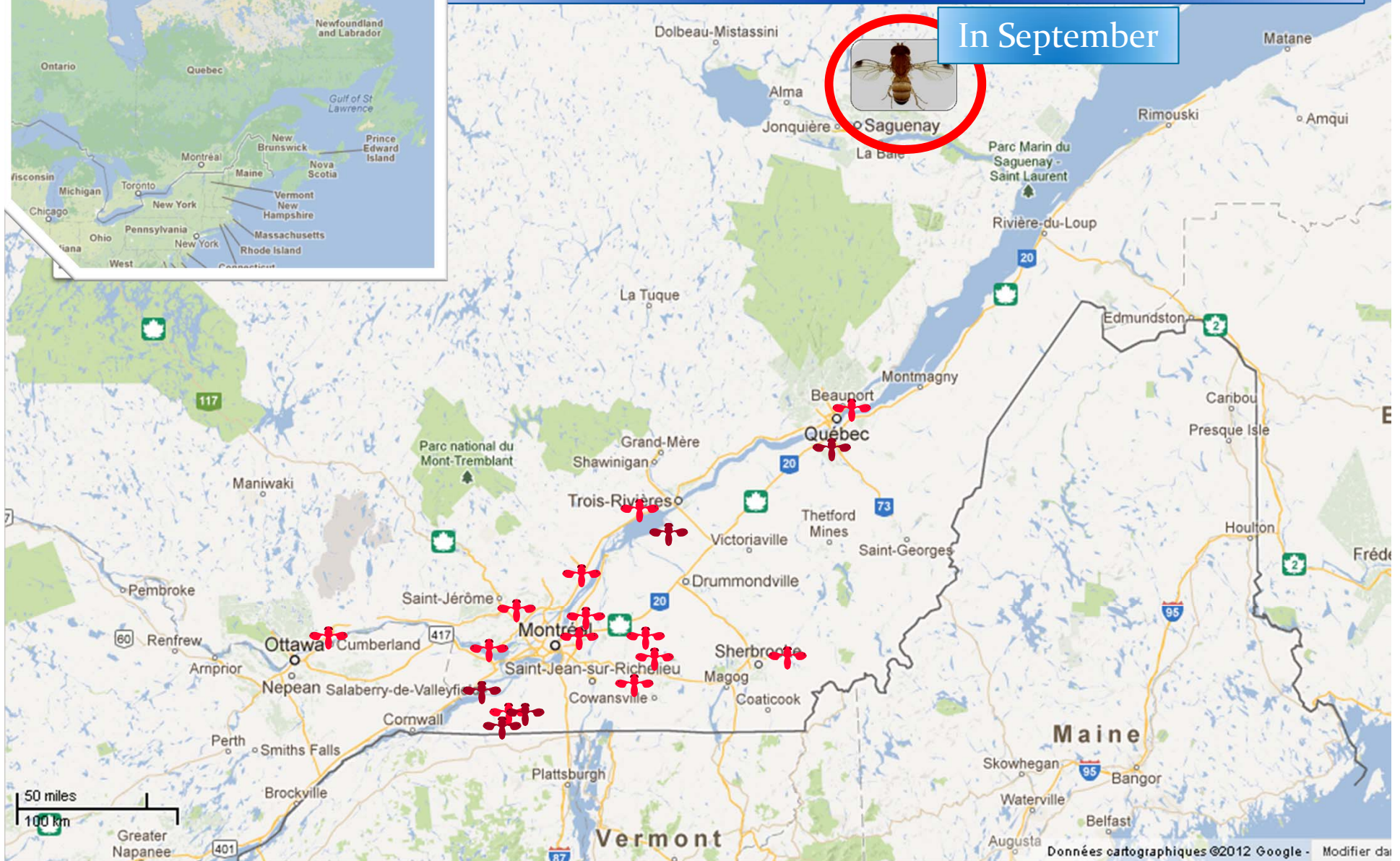


Mid-August 2012 – SWD is everywhere

Intensive trapping on 30 sites



In September





- Are grapevines hosts ?
- Adult SWD found in traps on October
- Finally, adults SWD emerge from fruit samples (Seyval blanc) on October 5th !



Photo : Evelyne Barriault (MAPAQ)



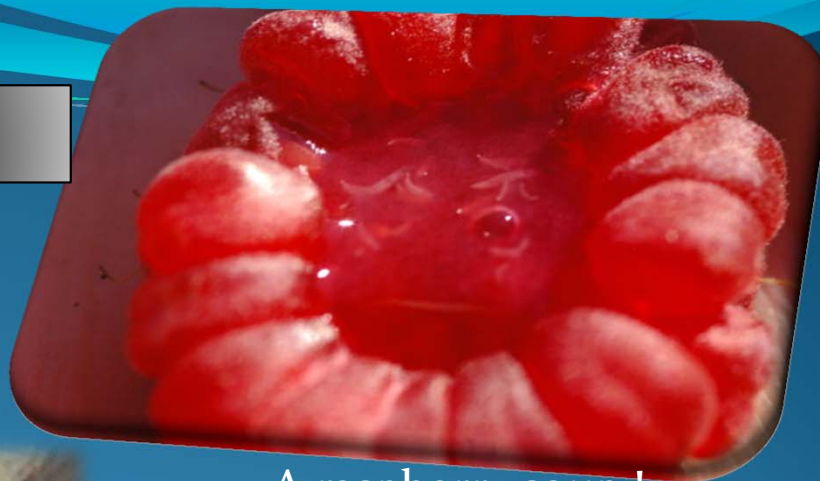
Photo : Evelyne Barriault (MAPAQ)



End of August



THANK YOU !



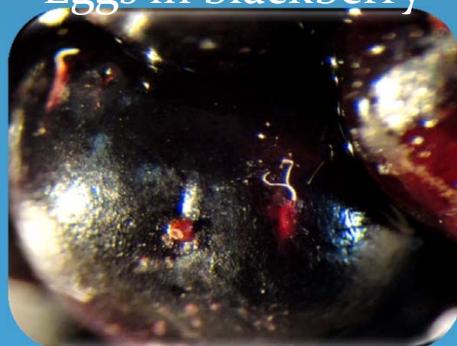
A raspberry soup !



Mating ritual !



Eggs in blackberry



The favorite: Blackberry

