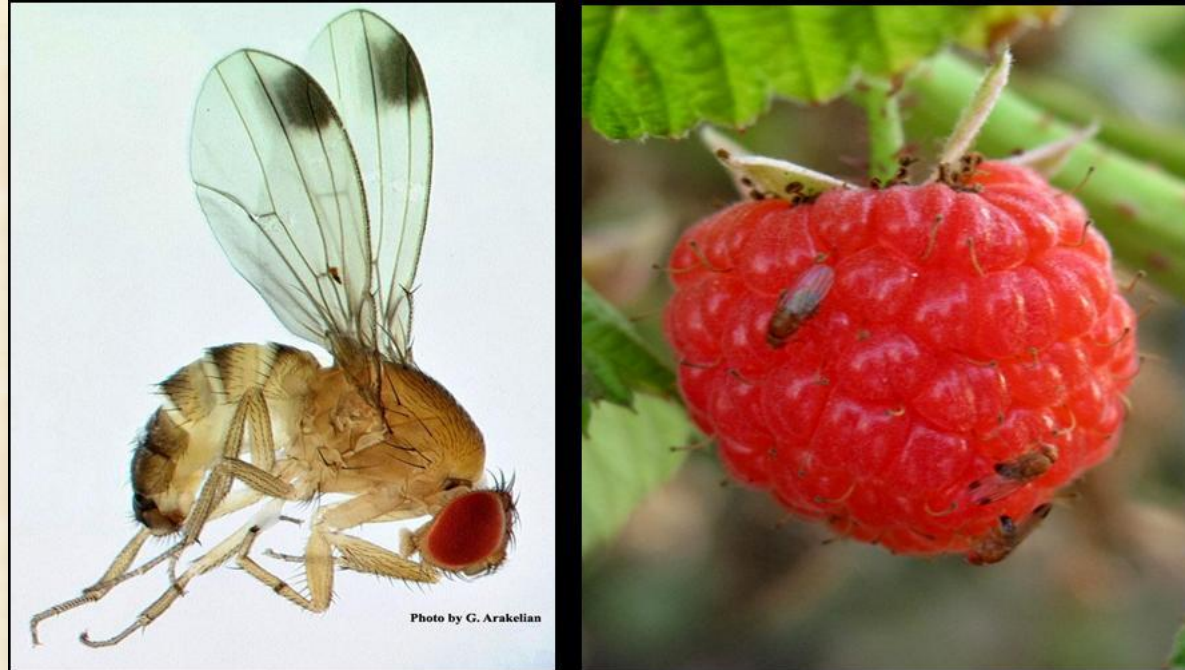


Spotted Wing Drosophila Studies Using Attract and Kill SAP.



SWD Working group Meeting

September 16, 2014

Hudson Valley Ag. Research Laboratory

Highland, NY

Peter Jentsch - Senior Extension Associate – Entomology

Tim Lampasona – Research Technician

CORNELL

Hudson Valley
Research Laboratory

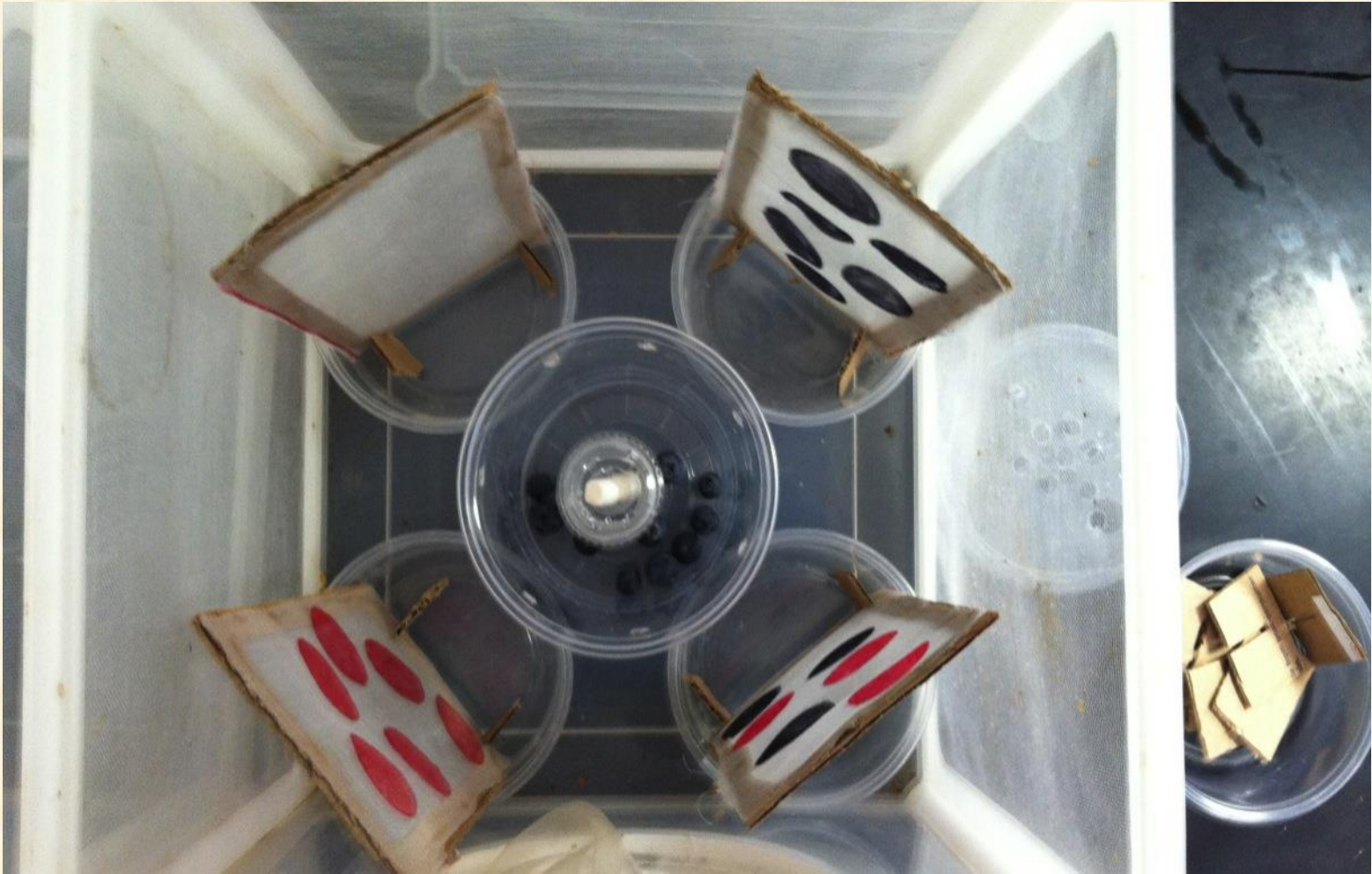
Spotted Wing Drosophila Studies Using Attract and Kill SAP.



- Laboratory trials were conducted to determine the **attractiveness and efficacy of trap and kill components** for use in field management of the spotted wing drosophila, *Drosophila suzukii* (SWD).
- Work done by Cha D.- H., S. P. Hesler, R. S. Cowles, H. Vogt, G. M. Loeb and P. J. Landolt (Rodriguez-Saona, C.R) showed **highest level of attraction using red raspberry infused vinegar (RRIV)**.
- Preliminary tests combining ‘FruitFast®’ Red Raspberry Juice Concentrate (RRJC), apple cider vinegar and brewers yeast (ACVY)
- 75% RRJC: 25% ACV : 0.2% Yeast mixture (Attractant)
- Comparitively attractive to SWD adults as RRIV
- The insecticide Entrust SC (spinetoram) was added to the attractant at 52 uL per 1000 mL to create a ‘Attract and Kill’ solution (ATK).

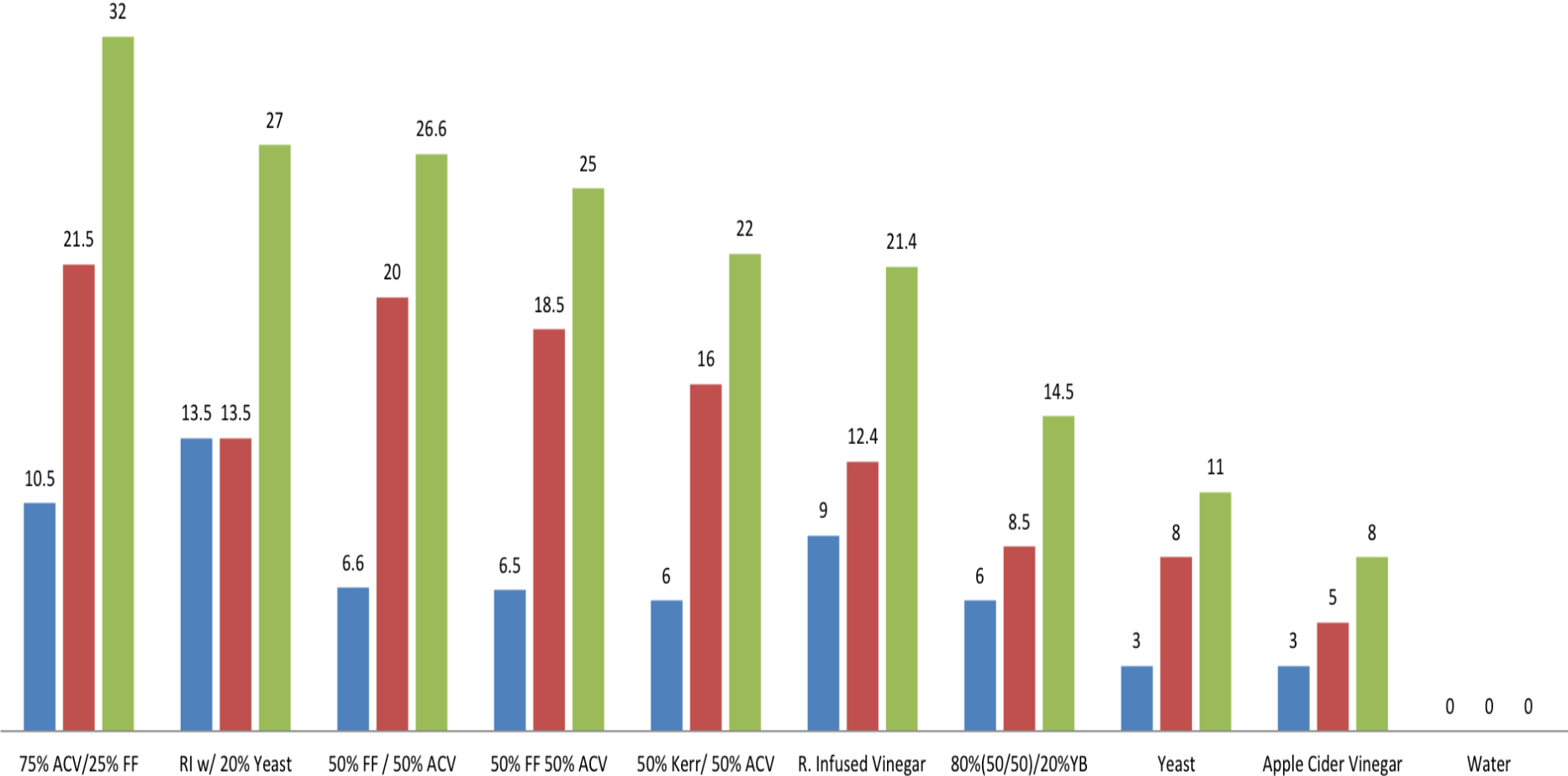
Cha D.- H., S. P. Hesler, R. S. Cowles, H. Vogt, G. M. Loeb and P. J. Landolt. 2013. Comparison of a synthetic chemical lure and standard fermented baits for trapping *Drosophila suzukii* (Diptera: Drosophilidae). *Environmental Entomology* 42:1052-1060.

Netting Trial: Ongoing Work Update



SWD Attractants

Male SWD # Female SWD # Total



Poughkeepsie Farm Project CSA



Invasive Species Research @ Poughkeepsie Farm Project

Partnering with the Hudson Valley Research Laboratory and 

Why are red cups near the raspberries?

The Hudson Valley Ag. Research Lab (HVRL) has set up baited traps to monitor the invasive insect pest Spotted Wing *Drosophila*, *Drosophila suzukii* (SWD).



Figure 1. (Left) SWD adults. (Right) SWD monitoring trap baited to a post near raspberries containing yeast bait, apple cider vinegar, and openings for SWD to enter. Black and red are the most attractive colors to SWD. Trap's contents are strained using thin mesh screening so SWD can be seen under laboratory microscopes to assess population density.

Can I still pick and eat raspberries at PFP?

• Yes! Rest assured, you can pick and eat raspberries.

• Trap-and-kill stations result in raspberries free of insecticide residue.

• The use of biological controls, such as *Beauveria bassiana* GHA strain, employs native, naturally occurring fungal pathogens to manage the insect pest complex. OMRI certified and used in organic production systems.



Figure 3. The research project will not interfere with berry picking and consumption.

What are some benefits of "trap-and-kill" pest management?



Figure 5. Trap-and-kill stations will avoid killing insects vital to the ecosystem, like pollinators.

Traditional sprays, on the contrary, often kill non-target insects and beneficials, disrupting the ecosystem.

• By spraying netting rather than the crop itself, your fruits can remain insecticide/pesticide free.

• Pollinators, like bees, will thrive under these management conditions, likely better than using directed crop spray programs.

Why is netting on the Brambles?

Figure 2. The netting serves as a "trap-and-kill" station for SWD placed on the shady side of the berries.

Attractants and organic insecticides are applied to the net instead of the crop where the pests will feed.

Low hanging nets provide a media for SWD adults to find moisture and food.

- The netting is part of a research study to determine the effectiveness of controlling Spotted Wing *Drosophila* (SWD) using "trap-and-kill" stations.
- Entomologists at the HVRL are researching alternative forms of pest control that include biological controls.



What is a "trap-and-kill" station?

- Trap-and-kill is a form of pest control that separates pesticides/insecticides from the crop.
- A trap-and-kill station, like the netting, is equipped to attract and kill SWD.



Figure 4. At Forkell Farms, an organic insecticide/ attractant product is applied in gel form on netting. The same product is applied as a spray at PFP.

Want more information?

For more information about this project, please visit.



<https://blogs.cornell.edu/cesummerintern2024/category/employing-biological-control-methods-to-manage-spotted-wing-drosophila-swd-in-commercial-and-organic-small-fruit-production-systems/>



<https://blogs.cornell.edu/contact/invasive-species/>



<https://www.tribal.cornell.edu/spottedwing/>

Hudson Valley Research Laboratory

887 25 Highway 9W
PO Box 727
Highland, NY 12528
PH: 845-693-1702

Partnering with  Cornell University

Poughkeepsie Farm Project CSA

• Upright netting (PAK Unlimited Blockade™ 14" x 14') applied on the N. side of red raspberry plants placed in a randomized complete block design

• Plots that were either un-netted, netted and unsprayed, netted and sprayed with attractant only, netted and sprayed with attractant and insecticide in 6 rows, 320' in length.

• Beauveria applications made weekly. 100% infestation by the 2nd week of August.

Poughkeepsie Farm Project CSA

- Vacuum sampling of nets.
- No SWD were found in nets treated with ATK solution



Fishkill Farm

- Netting (5" x 14') applied along the ground at the N. base of red raspberry plants in a randomized complete block design.
- Plots that were either un-netted, untreated net or netted with treated SAP (super absorbent polymer) in 6 rows, 360' in length.
- 3 gram of SAP gel spaced at 2' application of rate of 13.7 lb./A (Entrust SC: 32.9 mL/A)

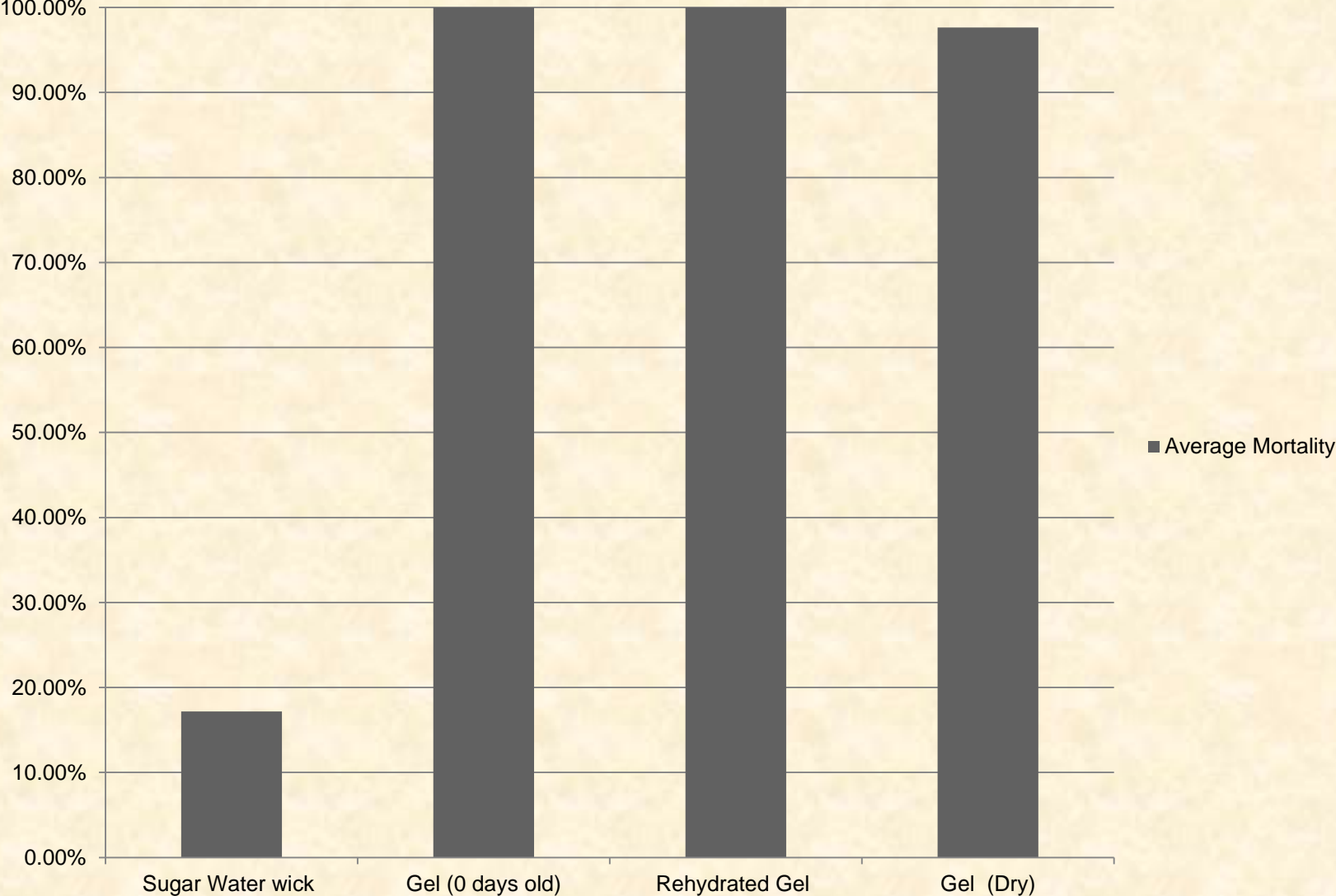


Fishkill Farm

- 7d + 0.5" rain
- 100% kill



Average Mortality- Gel Attractant




Bait Stations



**West Wind Farm,
Accord, NY**



West Wind Farm,
Accord, NY

 Westwind Orchard LLC



Field Rd

SWD Attract and Kill Tests: Ulster County, NY

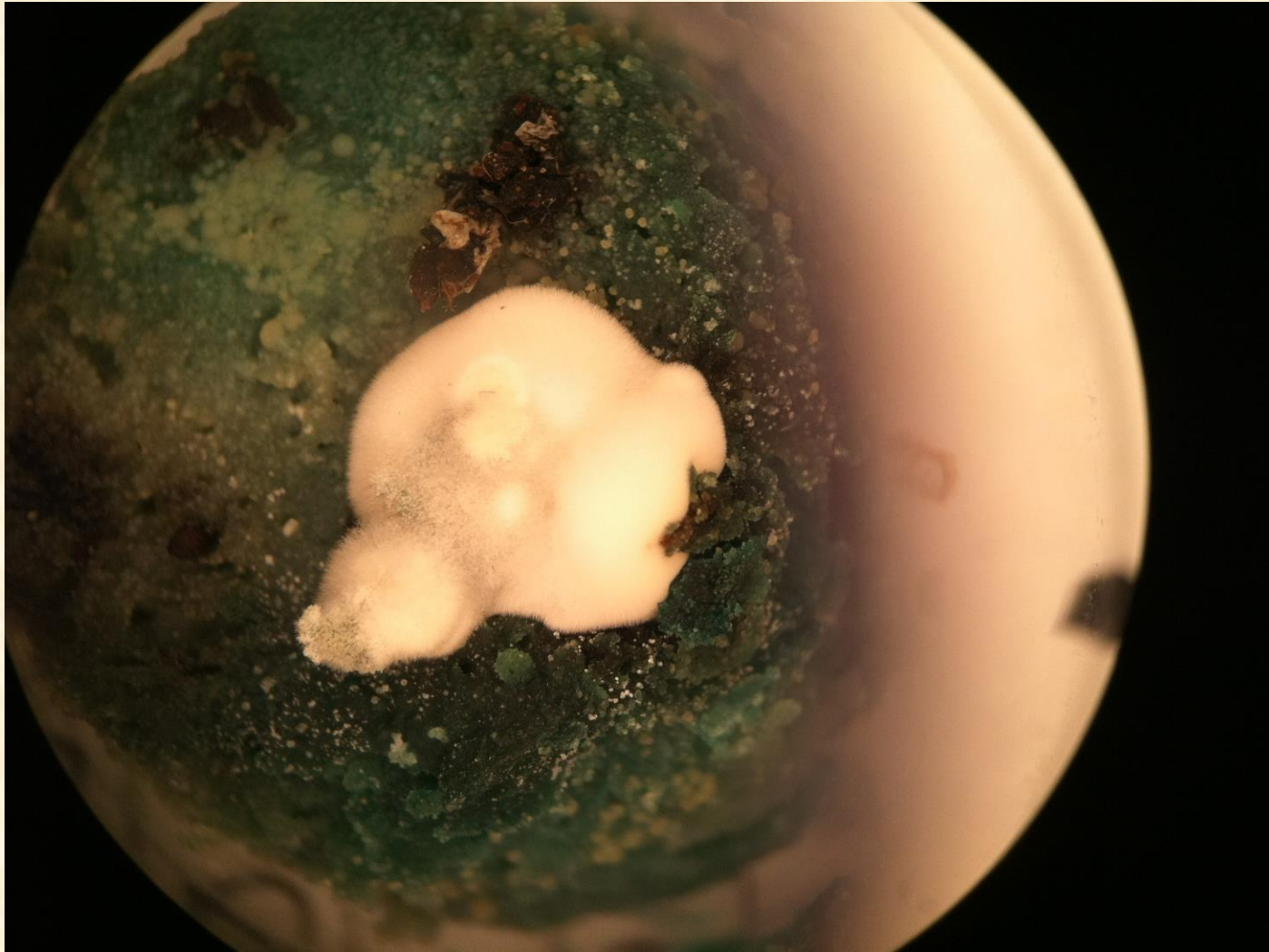


Mycotrol-O mycopesticide. (*Beauveria bassiana*) to control *D. suzukii* adults



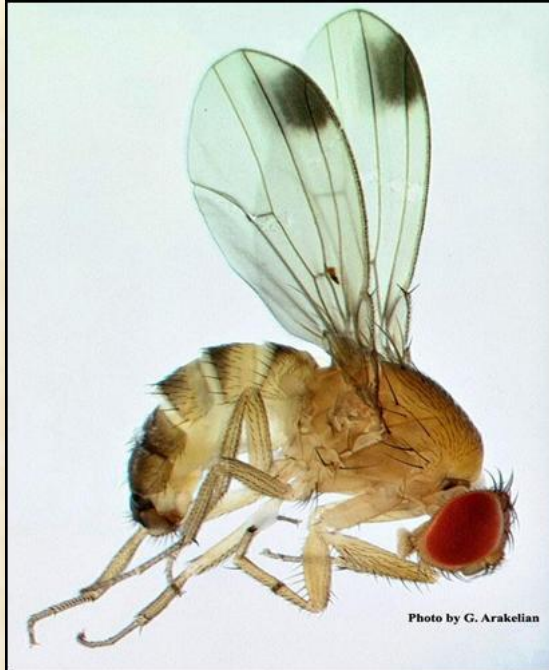
Advanced stage of fungal growth (~10 days of exposure).

**Mycotrol-O mycopesticide. (*Beauveria bassiana*)
to control *D. suzukii* larvae**



Advanced stage of fungal growth (~10 days of exposure) completely engulfing a cluster of 3rd instar Larvae.

Spotted Wing Drosophila Infestation of Pinot Noir DiJon Clones.



SWD Working group Meeting

September 16, 2014

Hudson Valley Ag. Research Laboratory
Highland, NY

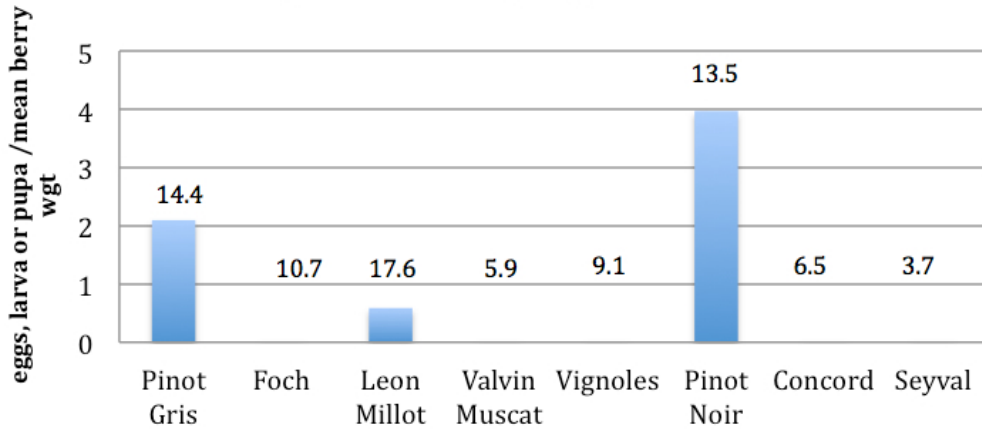
Peter Jentsch

Senior Extension Associate – Entomology

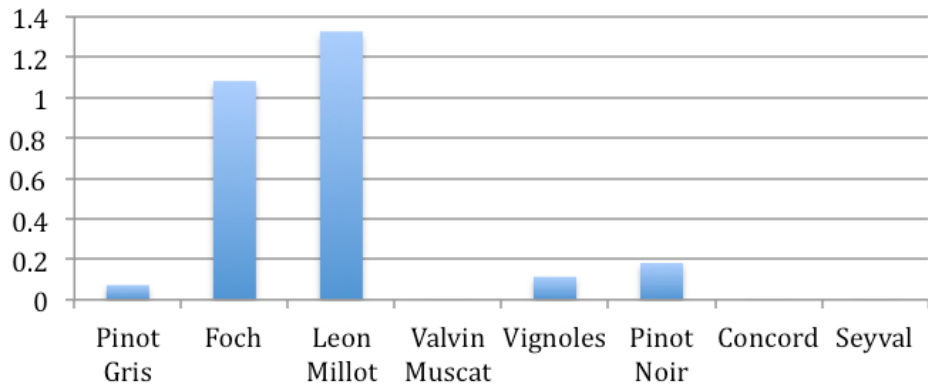
CORNELL

Hudson Valley
Research Laboratory

**SWD Oviposition in Wine Grape
Eggs and Larvae per gram- Choice**



**SWD Oviposition in Wine Grape
Eggs and Larvae per gram- No Choice**



Choice Test

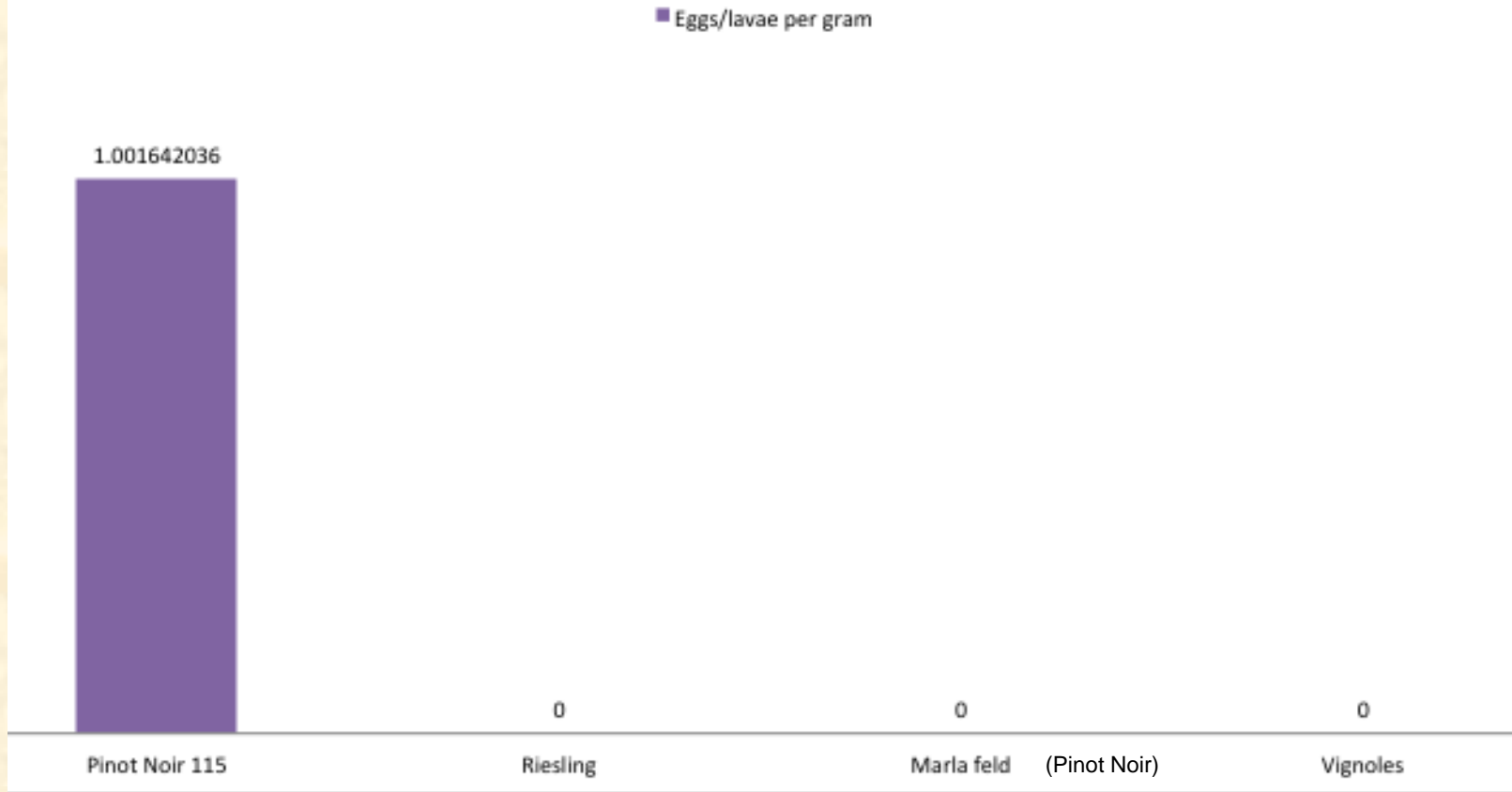
- Grape varieties placed in same container.
- 40 female SWD

Choice Test

- Grapes varieties placed in individual containers.
- 5 female SWD

- SWD ovipositional preference in pre-ripened grape varieties.
- Allowed 48 hours to oviposit.

SWD Infestation in Grape- Ulster County- September 16th



- Grapes collected and analyzed from an Ulster County vineyard indicated that Pinot Noir 115 is at high risk of SWD infestation.



Pinot Noir 115 var.

Vineyard with P115 with 100% injury levels.