

***Drosophila* & Corn Earworm Management**

Anna D. Howell - UCCE Ventura Co.

Frank Zalom – UC Davis

Mark Bolda – UCCE Santa Cruz Co.

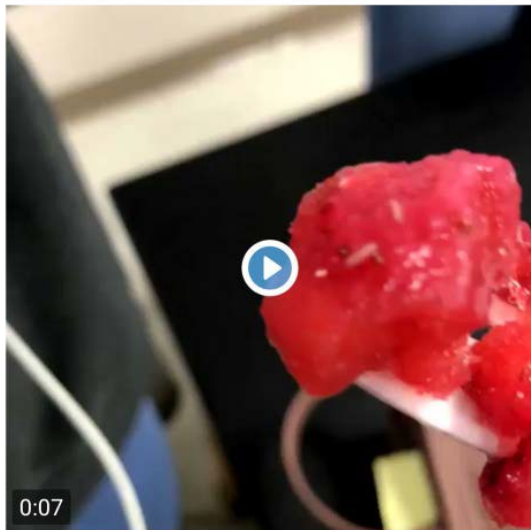
Here is (one of) the news reports that led to millions of servings of processed strawberries being cancelled.

A processor's label is shown in this video, but **we want everyone to know all processors are affected when effective controls for pests are not in place.**

<http://wate.com/2017/02/28/bount-county-high-school-student-finds-worm-in-cafeteria-fruit-cup/>

- 10.2% of last year's pack was contaminated
- 3 orders have been cancelled so far this year, resulting in 1 million lbs of product.
- USDA is considering holding off on developing products with strawberries

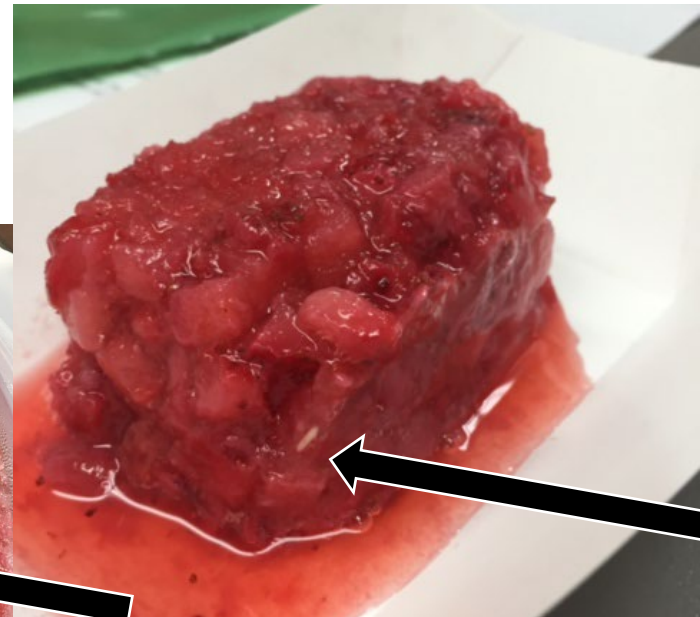
MAGGOTS ..



0:07

12:15 PM · 28 Feb 17

277 RETWEETS 247 LIKES



Drosophila spp. 'Vinegar flies'

- Adults- yellow brown with dark markings and red eyes
 - ~1/8" length
- Larvae- grow up to 3/16"
 - white and legless
- Pupae-amber ~1/8" have two breathing 'horns'



Drosophila spp. 'Vinegar flies' in general

- Always present
 - Abandoned fields, neighboring berries
- Attack over ripe or unharvested fruit
- A processing concern



Spotted Wing Drosophila (*Drosophila suzukii*)

- Female has a serrated ovipositor
 - attacks ripening fruit, not just damaged
- Can also cause secondary infections

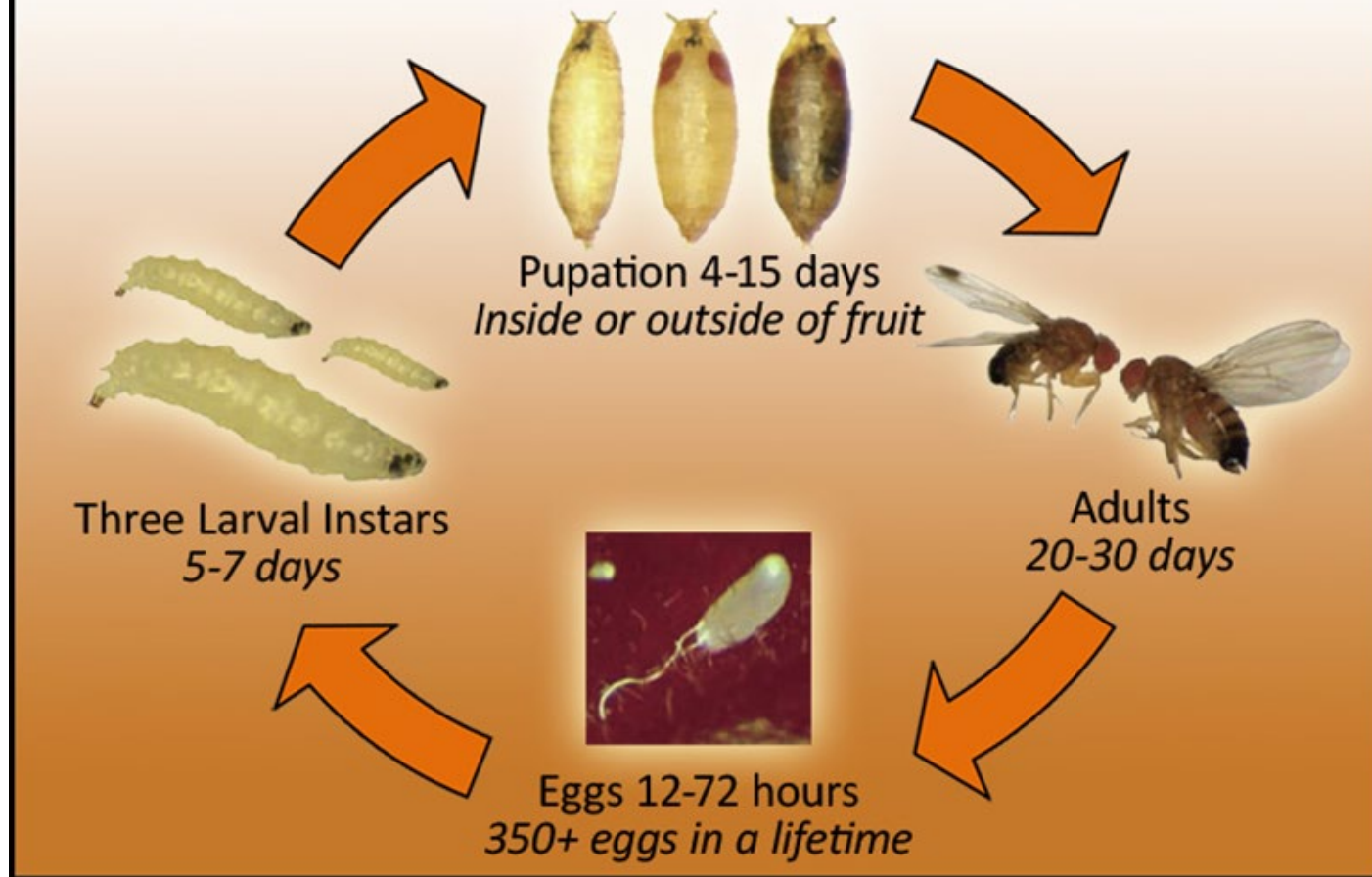




Photo by G. Arakelian

Life Cycle of the Spotted Wing Drosophila

Drosophila suzukii (Matsumura)



Most active at 60-80 °F
Activity decreases ≥ 86 °F
10 + generations per year

Monitoring

- Bait
 - Summertime: Yeast + Sugar + Water
 - Winter: Apple cider vinegar
- Check traps weekly



UC Statewide IPM Program
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Cultural prevention

Sanitation

Remove mature,
overripe, and culled fruit

Remove abandoned fields

Shorten harvest intervals



Photo: Dr. Frank Zalom

Chemical Sprays

Organophosphates

Malathion

Pyrethroids*

Danitol, Brigade, Bifenture

Spinosyns

Entrust, Success, Radiant

* Using pyrethroids can exacerbate *Lygus* resistance
Always consult the label

Keys to Successful Management

- **Sanitation-** remove old/overripe fruit
 - Eliminate alternative habitat (parts of a field no longer used)
 - Decrease harvest intervals for processing crop
- Monitoring & trapping to quickly detect infestations
- Use of sprays or baits to suppress fly populations

****SANITATION IS KEY!****



Corn Earworm

- Adults- Grayish-brown
 - ~1.5" wingspan
 - Flight: March - April
- Eggs laid singly under young leaves
- Larvae burrow into fruit



Monitoring

- Several traps with CEW pheromone lure can be used (Texas, wing, delta)
 - Start monitoring late Feb.
- Place traps upwind
- Also survey plants for eggs



Management

- When to treat: 10+ moths/week in traps
- Frequency of treatment will depend on the insecticide selected & infestation level
 - Insecticides most effective against early instars

Chemical Sprays

Conventional

Brigade, Radiant, Assail, Coragen, Danitol,
Intrepid

Organic

Entrust, Success, Bt,

****Rotate sprays of chemicals with
different IRAC categories to manage
resistance****