Light Brown Apple Moth (LBAM) in Caneberries

San Luis Obispo, April 13, 2016
Mark Bolda, UCCE
Why should this be important to you?
2016 Regulatory Activity in Caneberries and Strawberries

- USDA and CDFA regulatory program on the move.
- Many fields shut down for shipment outside of the quarantine, expensive and disruptive!
Identification of Light Brown Apple Moth
The Challenge

- Develop an integrated program of LBAM management which brings field populations near to zero, stops fields from being shut down.
Mating Disruption in Caneberries

- Concept
Pheromone based twist tie application for mating disruption
Using twist ties in the field

- 200-300 ties per acre, put ties further around the edge of the field as much as possible.
- Tie’s life is 4 to 6 months, replace afterwards.
- Pick up ties from country agricultural commissioner, call 763-8080 and talk to Rosemary.
Couple of items concerning the twist tie use
Chemical Efficacy in Order of Decreasing Effectiveness

- Intrepid, Delegate, Radiant, organophosphates, pyrethroids
- Entrust
- Bt’s
- Pyganic
- Oils
Physical removal of rolls from the field.
Putting it All Together

- Insecticide sprays on detection of leafrollers in the production field.
- Physical removal and destruction of leafrolls found in the field.
- Use of pheromone based mating disruption to keep overall numbers down.
Spotted Wing Drosophila

Mark Bolda, UCCE and Ed Show, Driscoll Research Associates
Keys to Successful Management of the Spotted Wing Drosophila

- Monitoring and trapping to quickly detect infestations.
- Use of sprays or baits to suppress fly populations.
- Use of enhanced sanitation to reduce numbers of flies remaining in the field.
Monitoring and trapping for spotted wing drosophila
Yeast + Sugar + Water

- One package Baker’s yeast (0.25 oz)
- 12 ounces water
- 4 teaspoons sugar
- Will fill 4 to 5 traps

OR

- Apple cider vinegar
Monitoring – Early Detection
What is the life cycle of SWD in the Central Coast?

Life Cycle of the Spotted Wing Drosophila
*Drosophila suzukii* (Matsumura)

- **Eggs**: 12-72 hours
- **Three Larval Instars**: 5-7 days
- **Pupation**: 4-15 days (inside or outside of fruit)
- **Adults**: 20-30 days
- **Eggs in a lifetime**: 350+

(Chart showing the stages of the life cycle with images of each stage)
Sampling to find where SWD is in the winter time

- Work done by Katrina Hunter as senior thesis
- Sampling of areas surrounding fields, further away from fields and pupae in soil.
Overwintering

- Overwintering as adults of both genders, in very low numbers but associated with agricultural areas.
- Not overwintering as pupae.
- Flies start flowing back into fields March, populations damaging from mid-July on.
Spraying to Control Spotted Wing Drosophila
Chemical Sprays for Spotted Wing Drosophila Management

- Work well
  Malathion, Mustang and Delegate

- Work OK
  Entrust, Pyganic

- Don’t work
  Oils
A note regarding the spinosyns Delegate, Success and Entrust

- Most of the activity is by ingestion.
- Therefore, by enhancing ingestion (addition of sugar or bait) we should be able to enhance efficacy.
- Note that Nulure or acetic acid acidify.
Organic Pesticide Testing 2015 – IR4

- Venerate
- Grandevo
- Entrust
- Veratran
- Cimex
Organic Management of SWD

- Pyganic and Entrust give very short periods of control.
- Two closely spaced max rate Pyganic applications.
- A single Entrust gives the same.
- Sanitation key.
Cultural management
Implementing Sanitation
Implementing Sanitation
Implementing Sanitation
Implementing Sanitation
Recommendations for Monitoring and Trapping Spotted Wing Drosophila

- Use an effective bait placed at regular intervals in the fruiting field to detect initial entrants into the field.
Recommendations for Spotted Wing Drosophila Management in Berries

- The pesticides malathion, Mustang and Delegate are very effective in controlling spotted wing drosophila.

- Organic growers: high, frequent rates of Pyganic or Entrust work.
Sanitation; removal and destruction of infested fruit will be essential in keeping down total numbers of flies.