2017 SWD Task Force Accomplishments

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Spotted Wing Drosophila Timeline

- 2008 – first SWD captured in California
- 2009 – first SWD identified in North America
- 2010 – first SWD adult caught in Michigan
- 2011 – first year SWD disrupted MI fall red raspberries
- 2012 – first year SWD disrupted MI blueberries
- 2015 – first year SWD disrupted MI tart cherries
- 2017 – earliest first trap catch and population surge recorded in MI
Funding

Michigan State Horticultural Society

MBG Marketing

Montmenery Tart Cherries

Project GREEEN

United States Department of Agriculture
National Institute of Food and Agriculture

Specialty Crop Research Initiative
Organic Research and Extension Initiative

Specialty Crop Block Grant

Rapid Outcomes from Agricultural Research
SWD Research at MSU

- Alternate food/hosts
  - SWD reared out of grape, pear, and apple fruit wastes – Bal (Grieshop Lab)
  - Honeysuckle near blueberry associated with higher SWD pressure in crop – Leach (Isaacs Lab)
  - SWD in traps higher in SW wooded edges than in cherry orchards but not in WC or NW – Rothwell, Jones, and Haas (Gut Lab)
SWD Research at MSU

• Fruit susceptibility/preference
  • Undamaged peaches are not preferred; when plums reach 3.5 lbs pressure, they become susceptible, pick plums early to avoid infestation (Jones)
  • SWD will infest tart cherries just starting to color, but given a choice, will select sweet cherries or other berries over tart cherries; yellow processing cherries, not preferred (Rothwell)
• Overwintering habitat
  • SWD found in greater numbers in pine groves than in other habitats during the winter near organic blueberry plantings in MI, FL, GA – Bal (Grieshop Lab)
SWD Research at MSU

• Microclimate manipulation
  • Raspberries in high tunnels: no effect on infestation as a result of increased pruning – Fanning (Isaacs Lab)
  • Blueberries: pruning (lowers humidity) or use of black weed fabric (increases temp) both reduced infestation – Fanning (Isaacs Lab)
  • Tart cherries: reported later – Rothwell
SWD Research at MSU

• Interactions with other pests
  • Grapes: SWD infestation may result in higher infestation by other drosophila, but did not increase fruit rots – Mason (Isaacs Lab)
  • Blueberries: control of SWD has led to an increase in gall wasps because of a loss of the natural enemy that once suppressed them – Fanning (Isaacs Lab)
SWD Research at MSU

• Parasitoids/biocontrol
  • Completed 2 years of collections to identify parasitoids already attacking SWD, will be used as baseline when new parasitoids are proposed for introduction – Leach (Isaacs Lab)
SWD Research at MSU

• Screening yeast strains for baits
  • Seven yeast strains tested; so far none attract better than Scentry lures – Huang (Gut Lab)

• Attract & kill technologies
  • Tart cherries: pouch style units worked in lab trials, but so far no success in field trials – Huang (Gut Lab)
  • Blueberry: ISCA-Splat product appears to work – (IR4 - Wise)

• Repellents
  • Evaluated a number of essential oils or their components in tiny arenas; scaling up to wind tunnels with Gut Lab to see if effects hold – Dong Lab
2017 Activities

- 175 sites
- 20 counties
- ~8 crops
- Traps
  - Deli cup or red panel
  - Scentry lures
- 11 weeks
  - Mid-May to end of July
- 7 reports

Michigan counties where spotted wing drosophila flies were monitored in 2017

- Northern counties (49 sites)
- Central counties (46 sites)
- Southern counties (80 sites)
- No traps set (also none in the U.P.)
Main Findings

- High pressure year
- First sustained catch 3 weeks earlier than last year
- Summer population surge 4 weeks earlier than last year in southern and central regions

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SWD Research at MSU
Presented later this morning:

• Improving/understanding trapping – Gut
• Screening for insecticide resistance – Fanning
• Rainfastness of insecticides – Wise
• Efficacy trials and orchard modification - Rothwell
• Winter morphs – Leach
• Evaluating spray programs – Pochubay