Spotted Wing Drosophila (*Drosophila suzukii*)
....a new pest attacking fruit

http://swd.hort.oregonstate.edu

Mid-Columbia SWD Workshops March 23, 2010 co-sponsored by OSU & Columbia Gorge Fruit Growers
Fruits affected by SWD

Blueberries  Nectarines  Other Potential Hosts:
Raspberries  Asian Plums  Rubus spp.
Blackberries  Plumcots  Cornus spp.
Boysenberries Satsyma Plums  Prunus spp.
Strawberries  Elderberry  Wild rose
Cherries  Cold Hardy Kiwis  Flowering Cherry
Peaches  Italian Prunes  Snowberry
Asian Pears  Persimmon  CrabApple (Malus)
Figs  Tomato  Mtn. Ash
Grapes  Apple  Rosaceae, Vitaceae,
  Elaeagnaceae, Moraceae,
  Solanaceae plant families
Fruit Damage

Look for Oviposition Scarring

Look for small hair-like filaments sticking out of fruit scar

Fruit will collapse at scarring site, seen 2-3 days after egg laying

Look for small Larvae inside Fruit

Molding can occur at damaged sites
SWD Identification – key characters

**Male**
- Black spot on wings
- 2 black combs on front legs

**Female**
- She inserts saw-like device (ovipositor) into fruits and lays eggs
Common vinegar flies (Drosophilidae) feed on rotting decaying fruit.

Watch out! Be careful NOT to mistake common fruit or vinegar flies for the Spotted wing Drosophila.

Western cherry fruit fly (Tephritidae) lays eggs in cherries.

Drosophila melanogaster

Rhagoletis indifferent
Female lays 1-3 eggs/fruit (350 eggs total)

20-30 days 12-72 hours 12-14 days per generation

SWD Life Cycle

Pupate inside or outside of fruit

Adult

1st Instar Larva

2nd Instar Larva

3rd Instar Larvae

4-15 days 5-7 days
Assembling Traps
• Obtain 32 oz clear plastic cups or 16 oz cups for use in strawberry fields.
• Drill four to five, 3/16 to 3/8-inch holes on the side of the cup; leave a 2-inch area on side of cup for pouring out bait.
• Place yellow sticky card and arch loosely inside the top half of cup for easy counting of male flies stuck on card.
• Add a heavy wire or durable string to hang and secure trap on plant.
• Add ≈1 ½ inches of apple cider vinegar bait to cup.

Placing Traps
• Begin monitoring early with baited traps, when day time air temperatures are greater than 50°F for several days.
• Hang trap on shady or cooler side of plant; or securely place on ground next to strawberry plants.

Recording Trap Numbers & Servicing Traps
• Check traps at least once a week. Take counts of male flies only (black spot on each wing) stuck on yellow sticky card. Use a 30x hand lens or OptiVisor to better see the spots on male fly wings.
• Record fly counts in record book and follow abundance of seasonal fly catch.
• Replace apple cider vinegar bait and yellow card weekly. Dump bait solution away from fruiting plants.
• Collect 80-100 ripening fruits; place in quart-size zip-lock bag.

• Lightly crush fruit to break open and release larvae.

• Add a cup of sugar-water solution (1/4 cup: 1 quart water) to bag with crushed fruit; stir mixture.

• After several minutes, SWD larvae will separate from fruit pulp and float to top of water.

• Detection of small white larvae may require a hand lens.
Monitor orchard and surrounding area with traps
Manage alternate host plants in surrounding habitat
Treat crop with “preferred” insecticides
Rotate chemistries using IRAC codes
Continue to monitor with traps to evaluate IPM program
Sample fruit for infestation
Consider post-harvest clean-up spray to reduce population
Stay informed
  • http://swd.hort.oregonstate.edu/
Insecticide Precautions

✓ Ensure good fruit zone coverage
✓ Rotate pesticide classes to avoid resistance
✓ Reduce impact on bees by following label precautions
✓ Reduce impact on beneficial organisms by choosing less toxic compounds
✓ Follow buffer requirements & use BMPs when spraying near surface water
✓ Follow REIs and PHIs
✓ Follow pesticide label, it is the law
OSU SWD information website  http://swd.hort.oregonstate.edu

Trap count reporting website http://berrygrape.org/pest-alert-forms/

Monitoring supplies
32 ounce cups – Cash & Carry
Yellow sticky cards
   Great Lakes IPM http://www.greatlakesipm.com/
   OBC Northwest  http://www.obcnw.com/
OptiVisor & other magnifiers
   Great Lakes IPM http://www.greatlakesipm.com