MONITORING FOR LARVAE

Monitoring for spotted wing drosophila (SWD) larvae should be conducted weekly using ripe fruit. The number of samples depends on the size of the field and whether there is a high risk of infestation. Too few samples may miss an infestation; more samples increase confidence that an infestation will been found. Samples may range from 100 to 200 berries for large-acreage growers and should be collected from the field borders and the center of the field.

SALT TEST

1. Randomly collect undamaged, ripe or soft berries and place in a resealable plastic bag. Berries should be from the shaded parts of the bush/plant.
2. Lightly crush the berries in the bag.
3. Add enough salt solution to cover the berries.
4. Gently agitate the fruit and allow to soak for 15 min.
5. Pour contents of the bag into a light-colored tray or container.
6. Using a spatula or spoon, slowly stir the solution in the tray.
7. Use a wire mesh to press down the fruit material, exposing the larvae on the surface (optional).
8. Watch for larvae floating along the surface of the salt solution.

SALT SOLUTION

Salt	1 cup
Water	1 gal

SWD CONTROL

SANITATION

Sanitation removes excess host material from the field. When possible, remove fallen berries from the field and solarize using clear or black plastic mulch. Culls may be harboring SWD larvae or pupae that will emerge to further infest the crop.

FREQUENT HARVEST INTERVALS

Frequent harvest intervals will keep susceptible fruit off of the bushes and help to reduce the SWD population and prevent outbreaks. During the peak of harvest season, harvest intervals can be between 1 and 3 days.

EXCLUSION NETTING

Mesh netting can prevent SWD infestation in small fruits entirely when hole size is less than 0.98 mm (0.04 in). Wait until pollination is complete to install the netting so that bees and other pollinators will have access to the flowers.

SPRAY APPLICATIONS

Chemical applications should be based on monitoring data obtained from traps or larval counts from berries. Once SWD is recorded in the planting, the grower should embark on a spraying program and aim for a 10- to 14-day cycle. Products should be rotated between different classes to delay the onset of resistance to the pesticides. Always follow labels and take care to use selective pesticides that do not harm bees or other pollinators. Keep monitoring regularly for adults and larvae during the season.

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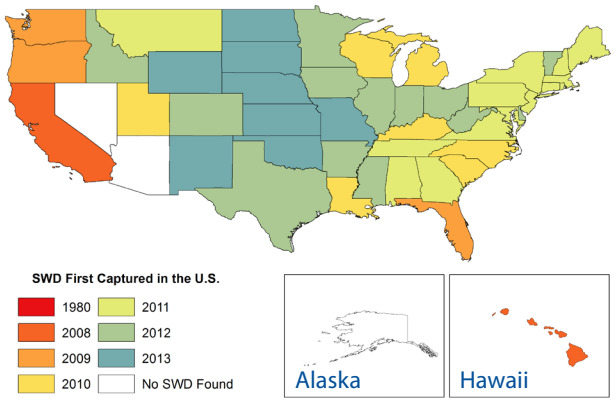
SPOTTED WING DROSOPHILA

Drosophila suzukii[1]

IDENTIFICATION, ECOLOGY, AND MANAGEMENT

December 2015

WHERE IS SWD?



Spotted Wing Drosophila (SWD) is an invasive pest of small fruits from Asia. It has been found infesting fruits in Europe and North and South America. Since its first capture in California in 2008, SWD has established populations throughout the United States in over 47 states.

SWD HOSTS & DAMAGE

Female SWD prefer ripe fruit to lay their eggs. Egg breathing tubes can be seen protruding from the skin of the fruit. Hatched larvae remain in the fruit during development, causing rapid decay and infection of fruit by secondary pathogens.

Cultivated hosts: blackberry, blueberry, cherry, grape, raspberry, strawberry, and other thin-skinned fruits

Wild hosts include: night shade (*Solanum* spp.), wild blackberry (*Rubus* spp.), wild grapes (*Vitis* spp.), sparkleberry and huckleberry (*Vaccinium* spp.), holly (*Ilex* spp.)

SWD IDENTIFICATION

MALE SWD

- Small, light brown to yellow flies with dark unbroken stripes on abdomen;
- Wings with single dark spot at end of the first vein;
- Forelegs with pair of spines that face downwards, which look like a pair of stripes with a hand lens;
- Other male *Drosophila* flies may have a single comb structure or be without.

FEMALE SWD

- Small, light brown to yellow flies with dark unbroken stripes on abdomen;
- Wings clear with no spots;
- Hardened, well-developed ovipositor (for egg laying) with dark serrations;
- Ovipositor of other female *Drosophila* flies are soft, light and without serrations.

SWD IMMATURE STAGES

- Eggs are milky white and oblong with two thread-like breathing tubes that protrude from the fruit skin;
- Three larval stages, milky to transparent with pointed ends and black mouthparts;
- Three pupal stages ranging from light to dark brown as they develop with pair of spiked filaments on anterior end.

MONITORING FOR ADULTS

TRAP DESIGN

Traps are made from 32-oz clear deli containers with secured lids. Entry holes should be ~1.4 inches above the top of the bait. There are 50 holes in three alternating rows, each with a diameter of 0.16 inch. There should be a space of ~3 inches where there are no holes to allow for the bait to be poured out during servicing.

Traps should be placed within the canopy of the crop in the shade. Establish 1 trap per 5 acres and service weekly.

BAIT

Place 6.75 oz of bait in each trap. Mark the level of the bait with a marker for easier service in the field.

To service the trap, pour liquid through a light-colored sieve with 0.04-inch mesh and identify SWD in the field with a hand lens. Liquid can also be transported in containers for identification elsewhere with a microscope.

YEAST SUGAR BAIT MIXTURE

Recipe makes bait for ~9 traps

Yeast	1.4 oz
White Sugar	3.7 oz
Water	0.5 gal
Dish Soap	0.1 fl oz

UF/IFAS Electronic Data Information Source (EDIS)
https://edis.ifas.ufl.edu/

2015 Southeast Regional Integrated Pest Managements Guides
www.smallfruits.org

UF Fruit & Vegetable IPM Laboratory
http://entnemdept.ifas.ufl.edu/liburd/fruitnvegipm