

# ALERT: NEW INVASIVE FRUIT PEST

## SPOTTED WING DROSOPHILA (*DROSOPHILA SUZUKII*)



Spotted Wing Drosophila (SWD) is a small vinegar fly (or fruit fly) that feeds on a wide variety of soft-skinned fruits. There are several native fruit flies that are found in the United States, but unlike the

native fruit flies that require damaged fruit to attack, SWD will infest healthy fruit as well as damaged or rotting fruit. Originally discovered in the western United States in 2008, this recently introduced invasive pest has rapidly made its way to other fruit producing regions where it has caused significant crop injury. In the summer of 2012, SWD was confirmed in several Illinois counties. Natural spread of SWD to new areas is relatively slow, though major weather systems may carry flies along storm fronts. It is likely that the human transportation of infested fruit accounts for most of its spread. While SWD is suspected to be present in much of the state, many counties have yet to be surveyed.

### SWD CROP HOSTS:

Apple, Asian Pear, Asian Plum, Blackberries, Blueberries, Boysenberries, Cherries, Cold Hardy Kiwis, Elderberries, Grapes, Italian Plums, Mulberries, Nectarines, Peaches, Persimmons, Plumcots, Raspberries, Strawberries, Tomatoes

### SWD WILD HOSTS:

Apple, Asian Pear, Asian Plum, Blackberries, American Pokeweed, Autumn Olive, Beach Plum, Climbing Nightshade, Crab-apple, Fox Grape, Japanese Yew, Kousa Dogwood, Porcilainberry, Wild Rose

### DAMAGE:

Female SWD use a serrated ovipositor (egg-laying organ) to cut a slit and deposit eggs just under the skin of fruits. Larvae emerge inside the fruit and are present during ripening. Infestation symptoms are not obvious at first. Only a small pin-prick may be visible from egg laying. Larval feeding will cause the flesh to break down, leading to discoloration of the fruit, decay, and complete destruction of the tissues.

During this time, fungal pathogens may be introduced. While primarily a pest of berry crops and some stone fruits, SWD has a wide host range that includes tomatoes, and it persists through late fall in high tunnel production systems.

While female SWD are more difficult to identify, they have an ovipositor with 2 rows of dark, serrated teeth that allow the female to saw open fruit and lay eggs.

### IDENTIFICATION:

It is very important to distinguish native fruit flies from SWD. They are similar in appearance to other *Drosophila* species. SWD adults are small flies (1/8 inch), with red eyes, a brown thorax, and black stripes on the abdomen. Male SWD have a very distinct black spot on the tip of each wing that is visible with a hand lens (see picture at top of page). While female SWD are more difficult to identify, they have

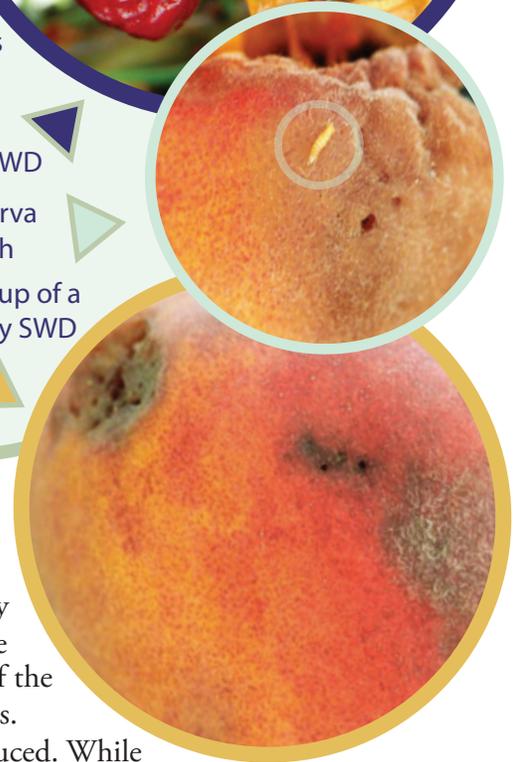


**Above:** SWD adults on a raspberry

**Upper Right:** Cherries damaged by SWD

**Right:** Life size SWD larva on a damaged peach

**Lower Right:** Close up of a peach damaged by SWD





**MONITORING :** Determining the presence of SWD is very important. Traps should be placed as soon as the fruit begins to ripen. A simple trap can be made using the following steps.

- 1)** Find a 16 to 32 oz. clear plastic cup or container with a lid. On the upper portion of one side drill four to six holes approximately 3/16" in diameter. These holes are for insects to enter. You will also need to drill 2 holes, opposite each other, in the top of the cup to secure a wire hanger to the cup.
- 2)** Prepare the bait and pour it into the container to a depth of about 1 in . For bait, there are two options: apple cider vinegar or make a yeast and sugar mixture (0.25 oz. of yeast + 4 teaspoons of sugar + 12 fl oz of water). Both will work, though the apple vinegar may be less attractive. Add a drop of dish soap to the liquid to ensure flies remained trapped.
- 3)** Hang traps at fruit level, in the shade. Check traps weekly to change bait. Dispose of contents away from the trap.

**IDENTIFICATION CONTINUED:** a very large ovipositor with 2 rows of dark, serrated teeth that allow the female to saw open fruit and lay eggs (see picture to the right). Larvae are small white maggots that are found feeding in fruit (see picture on reverse). SWD have a very short life cycle. They may develop from egg to adult in as little as 8 days, and adults can live up to 2 weeks. Research has indicated that this fly can lay more than 100 eggs in a day. The potential for more than 10 generations in a growing season facilitates their ability to move quickly through a field if uncontrolled and increases the likelihood of infested fruit.



**Above: Close up of ovipositor on *Drosophila Suzukii* female**

**MANAGEMENT :** The potential for more than 10 generations in a growing season means that infestations can build up and spread rapidly within a crop. To prevent attracting SWD or keep populations down, remove overripe fruit and wild host plants (listed earlier) from growing areas and harvest fruit promptly. Infested fruit that remains in the field produces additional egg-laying flies. If ripening fruit is present and SWD is active in the area, several insecticides, including certain pyrethroids, organophosphates, spinosads, and natural pyrethrins can be used to prevent damage.

Neonicotinoids are not effective against SWD and should not be used. Appropriate insecticides for SWD control differ among crops; the Midwest Tree Fruit Spray Guide (<http://www.hort.purdue.edu/fruitveg/2012ID168.pdf>) and the Midwest Small Fruit and Grape Spray Guide (<https://ag.purdue.edu/hla/Hort/Documents/ID-169-2012.pdf>) list effective and approved products by crop. Insecticide selection also should take into account the required pre-harvest interval between pesticide application and harvest. Additional information on SWD management is available at [http://www.ipm.msu.edu/invasive\\_species/spotted\\_wing\\_drosophila](http://www.ipm.msu.edu/invasive_species/spotted_wing_drosophila). Neonicotinoids are not effective against SWD and should not be used. The presence of other pests (as well as beneficial insects), harvest date, and re-entry intervals should all be taken into account during insecticide selection.

## HOW DO I REPORT AN SWD SIGHTING?

We are interested in documenting the presence of SWD in Illinois. Please report your observations and submit suspected specimens to Rick Weinzierl at the University of Illinois.

**Rick Weinzierl**  
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