

Spotted Wing Drosophila (SWD) *Drosophila suzukii*

THE CONCERN ABOUT THE SPOTTED WING DROSOPHILA

Drosophila suzukii, commonly known as Spotted Wing Drosophila or SWD, is of concern to home gardeners and commercial producers. It was first detected in the continental US in California in 2008 and quickly spread up the coast into Canada. There are over 2,000 native drosophila flies in the US but SWD is unique in that it lays eggs inside ripening fruit as well as rotting fruit. The maggots hatch from these eggs and feed inside fruit rendering it inedible.

It is considered a serious threat to fruit and berry crops including cherry, peach, nectarine, plum, pluot, thin-skinned grape, raspberry, blackberry, blueberry, and strawberry. It has been documented that English laurel (*Prunus laurocerasus*) is a host to SWD and it is probable that other native and landscape plants may be hosts, including hawthorn, Mt. ash, Oregon grape, and huckleberry.

There may be several generations of SWD produced during the growing season, which makes this pest particularly difficult to manage, especially on crops ripening after July. Preventing the spread of SWD in home gardens can ensure the production of home-grown fruits and berries and reduce the threat it poses to commercial producers of fruits and berries.

IDENTIFICATION

Identifying the male SWD is relatively easy. A 15X hand lens will be necessary as the fly is 2-3 mm, or less than an eighth of an inch, in length. Both males and females have red eyes, clear wings and yellow-brown body color. The male has a single black spot on the end of his wings, and two black 'combs' on his front legs. The female does not have these black spots or combs, so is more difficult to identify. A female SWD is equipped with a unique saw-like ovipositor that allows her to "sting" soft skinned fruit and insert her eggs.

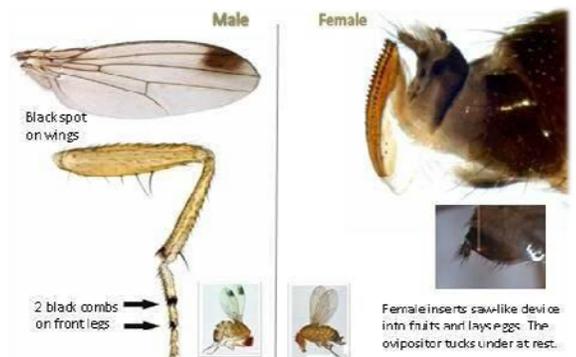


Image from swd.hort.oregonstate.edu

There may be two visible hair-like filaments sticking out of the sting site. These filaments are attached to the egg and allow the egg to breathe. The larvae, or maggots, that hatch from the eggs are creamy white or transparent and grow to a maximum size of one eighth inch long.

These maggots are legless and lack a head; but have mouth hooks in the front and 'tailpipes' in the back that they stick through the fruit surface to breathe. Maggots may pupate in the fruit or outside it. Pupae are about an eighth of an inch long and reddish brown.

LIFE CYCLE and DAMAGE

After the female lays her eggs in the fruit, a tiny scar (or sting) appears on the fruit. The fruit will collapse or bruise at this site and then mold. There are typically 1-3 eggs per sting. The maggots hatch within a few days

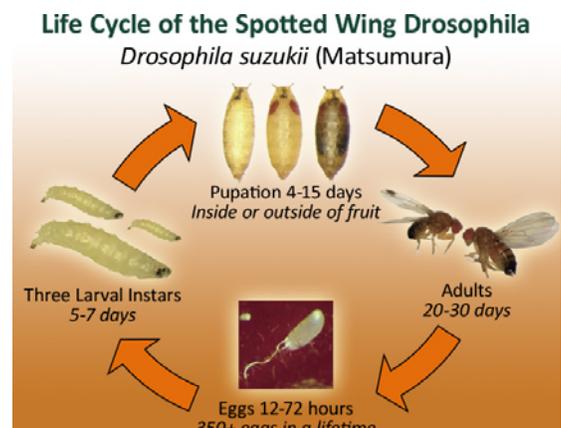


Photo by Beverly S. Gerdeman

and fruit tissue rots quickly where maggots feed. Maggots feed for 5 to 7 days before pupating. Pupae may stay inside the fruit or fall out. Adult flies will emerge after 4 to 5 days, mate and begin a new generation. A female SWD can lay more than 350 eggs during her 20-30 day lifetime and it is possible to have multiple generations within a growing season.

MONITORING

Trapping Adult Flies

Traps to monitor the SWD are easy to make. Researchers at WSU recommend using apple cider vinegar as bait with a drop of unscented dish soap to capture the flies in the traps.



*Photo from WSU Mt Vernon
Entomolnav*

An effective trap is as simple as a jar covered with netting and placed where it won't get knocked over, or a plastic cup hung in trees. Use plastic cups with lids. Poke or drill several small 3/16 inch holes in the top half of the cup (above the level of the liquid bait) for flies to get into the trap. Make two holes near the top of the cup and use string or wire to hang the trap as shown in the photo.

Do not let the vinegar evaporate and if the liquid becomes cloudy or other insects become trapped, replace weekly with fresh vinegar. Check traps for SWD at least 1 to 2 times a week, both females and males in May and June, then just males after June.

Monitoring Larvae

This monitoring method is effective only for noting the presence of drosophila larvae in fruit. It is not possible to distinguish one larval fruit fly species from another. Place damaged fruit in a plastic zip bag. Lightly crush it, add a solution of salt water (2 cups water, 2 Tablespoons salt). Watch for maggots floating to the surface.

MANAGEMENT

Management options are currently being researched and will be updated as more information becomes available. Chemical applications listed for SWD on HortSense (<http://pep.wsu.edu/hortsense>) are effective against adult flies only and will not control SWD larvae in fruits or berries. Monitoring first for the presence of SWD is essential. Good coverage of the foliage and ripening fruit is essential to prevent oviposition by the females. To reduce risk to bees, make pesticide applications in the evening after bees have returned to hives. Always read and follow the pesticide label for application instructions and timing, including interval before harvest.

Steps backyard fruit growers can take to reduce SWD infestation.

Cover plants with a fine netting to obstruct the flies from laying eggs on fruit. Harvest fruit frequently and destroy fallen, rotten, or over-ripe fruit left on the plant. If you have a SWD infestation, it may help to set a large number of traps around your yard to "mass-trap" and potentially reduce the SWD population. **Do not compost SWD infested fruit. Destroy infested fruit by burying it 18 inches deep, crushing, solarizing, or bagging and discarding in the garbage.**



Photo by Beverly S. Gerdeman

Home gardeners who do not wish to be bothered with pest management or who no longer care about the fruit and berry plants that grow in their yards should remove the plants. Doing so will reduce a number of pests, including SWD, that threaten neighboring gardens or farms.