

The Fruit Fly and the Hummingbird



Spotted Wing Drosophila larvae.
University of Michigan

In 2008, a unique species of fruit fly was discovered in California. Originally from Southeast Asia, it quickly spread worldwide and is now prevalent all over the United States, Canada, Mexico, South America, and Europe. By August, 2012 Spotted Wing Drosophila or SWD (aka *Drosophila suzukii* Matsumura) had arrived in Minnesota. It is in Ramsey County. It is one bad fruit fly.

What makes this pest so bad? You thought that the Japanese beetle was a problem? SWD is worse, and harder to treat. With her saw-like egg-laying ovipositor, the female slices into fresh, ripening fruit (not over-ripe or decayed fruit, as with other fruit flies). She lays 1-3 eggs into the fruit, and can lay over 350 eggs in her lifetime. The egg scars can open the fruit up to other insects, fungal decay, or bacterial decay. Life cycles of the pest vary from only 7-10 days to 25 days or longer, if it is cooler. A day after they emerge from pupation, the females are ready to lay eggs and start a new cycle. It is estimated that there are about 10 generations of this fly per season in Minnesota. The SWD population can easily explode. An entire field of raspberries can be infested in less than a month. The fly attacks soft-skinned fruit such as cane berries, blue berries, strawberries, cherries, stone fruit, grapes, and even cherry tomatoes. Fruit loss can be up to 80% of the entire crop. In the United States damages to our \$4.37 billion fruit crop are estimated to be up to \$718 million each year. Although the tiny fly maggots are not poisonous, the “yuck factor” discourages the home gardener when he bites into the fruit and finds very small, crawling, white worms present. You might find 20 or more in a raspberry!

The adult flies are tiny - only 2-3 mm (about 1/10 inch) long. The flies are similar in size and shape to our common fruit flies that seem to be present on any over-ripe banana. However, the mature spotted wing male has clear wings with a prominent dark spot. Both sexes are yellow to brown in color, have dark and unbroken bands around the abdomen, and have prominent red eyes. Females are harder to identify; they lack distinguishing spots, but have a double edged, dark toothed, saw-like ovipositor (egg laying device) which is easily seen with good magnification.

Control is difficult and involves continuous spraying with insecticides during the ripening season. Eggs and larvae are unaffected by sprays; control is directed toward the adults. Recent recommendations call for a 5-day schedule of spraying. The grower must be careful to ensure complete coverage of the plants. If even ½ inch of rain occurs, plants must be resprayed quickly. It is important to use different classes of insecticide throughout the season, so that the development of pesticide resistance is avoided. Spraying is recommended for the evening hours, when the fly is most active and bees (which might be harmed) are less active. Package directions and intervals before harvest must be followed strictly. For the organic grower, the range of acceptable insecticides is very limited. To exclude the insect, 80 gram insect netting has been used; timing is important to allow access for bee pollination.

The University of Minnesota Extension publication, [Spotted Wing Drosophila in Home Gardens](https://www.extension.umn.edu/garden/insects/find/spotted-wing-drosophila-in-home-gardens/) (<https://www.extension.umn.edu/garden/insects/find/spotted-wing-drosophila-in-home-gardens/>)

lists the latest recommendations for control of this pest. Check other University of Minnesota Extension material for more information.

It is important to harvest fruit frequently and completely. Damaged or dropped fruit must be removed and destroyed. Studies have shown that strict field sanitation will lessen egg-laying sites and can decrease *D. suzukii* numbers as the season progresses. Bag up fruit debris and kill larvae and adults by leaving the bag in the sun for a few days. In untreated fruit, SWD can survive composting or burial up to 18 inches. SWD overwinters as adults under vegetation on the ground.

Refrigeration of fruit right after harvest is recommended to stop development of any larvae present.

Wild fruit, such as honeysuckle, buckthorn, pin cherry, and pokeweed, can harbor and spread the pest. It is not known if removing such plants will actually help control this pest.

The goal of pruning crops, especially raspberries, is to provide an open canopy. Dry conditions with adequate air flow discourage the insect from laying.

Here is where hummingbirds enter the picture. An anecdotal reference refers to a Mississippi blackberry farmer who uses hummingbirds to eliminate the SWD problem. Over 500 hummingbirds are attracted by numerous sugar water feeders, 25 per acre on his 6 acre farm. When feeding their young, mother birds can consume up to 2,000 small insects daily. Although hummingbirds need sugar for energy, their protein needs are met by feeding on insects. This organic method warrants further research, in the home garden and in scientific studies.



Hummingbirds are attracted to red, and as long as your feeder has red on it, birds will be attracted. It is easy to make your own sugar water by mixing 1 cup of cane sugar and 3 to 4 cups of water. Do not add red food coloring. Do not use brown sugar, honey, artificial sweeteners. You can store the mixture for up to a week in the refrigerator. Clean the feeder with mild detergent, rinse well, and change the mixture every five days to prevent disease. Mount the feeder at least 4 feet above ground level to discourage cats and other predators. More feeders, scattered throughout the property, will attract more hummingbirds. For additional information, google “feeding hummingbirds” on the internet.

Numerous studies are underway in the United States and Canada to combat Spotted Wing Drosophila. It has become a major problem to both the commercial and home grower, and is hard to control, but hopefully in the near future one or more “magic bullets” will be found to combat the pest. I am sorry to be the bearer of bad news. Be on the lookout for Spotted Wing Drosophila this summer.

Happy Gardening,

Joe Baltrukonis