

## Spotted Wing Drosophila – What We Learned in 2011

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Though many of us expected to find spotted wing drosophila (SWD) in Pennsylvania in 2011, the widespread occurrence and sheer numbers found during the fall in some locations were surprising. Because of high SWD infestations, some growers gave up on harvesting fall raspberries and day-neutral strawberries. The problem was probably made worse by drenching rains from Hurricanes Irene and Lee which ruined berries that were then left in the field. SWD and other vinegar flies multiplied in the unharvested fruit, which then resulted in more SWD to infest ripening fruit that otherwise could have been harvested later. Fortunately, SWD populations were relatively low this year until fall. The concern for next year is that we don't yet know how well SWD will survive the winter here, so we don't know how many will be present at the beginning of the growing season next spring.

So, where was SWD found in PA in 2011? Essentially, in every thin-skinned fruit crop in which we looked, except for spring strawberries. Personnel in the Entomology Department (D. Biddinger and post-doctoral scholar Neelendra Joshi) set out traps in various crops in southcentral PA, and tracked movement among crops. Within individual locations, which crops had the highest populations may have depended on what other fruit choices were available. High populations were found in cherries, fall raspberries, and blackberries, with lower populations found in blueberries. High numbers were also found in grapes in some instances, though in the Pacific Northwest (D. Walsh, personal communication) SWD larvae in fruit were not as big of an issue in grapes as in some other crops. With the help of extension educators and growers, by the end of the growing season, we had set out traps for SWD in 16 counties in PA, and found it in all 16. That's hardly comforting. Surprisingly, high numbers were still trapped in fruit plantings in October from which fruit had been harvested for months. We also learned that it is easier, when examining specimens, to have them in vinegar or alcohol rather than on sticky cards.

During the process of trapping for SWD, most people setting out traps noticed that a number of other vinegar or fruit flies had spots on their wings. These could be differentiated from SWD by certain characteristics. The additional species of vinegar flies that people were finding fell into 3 different genera. For comparison, Photo 1 below is a male SWD, *Drosophila suzukii*. Note the large black spot on each wing that is just a little forward of the wingtip. An additional defining characteristic of male SWD is two black bands on each front leg. Photo 2 is of a male fruit fly from a different genus (*Scaptomyza*), and was found in large numbers in strawberry plantings that had straw between the rows. This nearly put some of us in a panic at first glance, but it is not a pest of fruit crops. It feeds on decomposing straw or damaged and unmarketable fruit. Photo 3 is also a species from a different genus (*Leucophenga*) and it is known to feed on fleshy fungi.



Photo 1. Male Spotted Wing Drosophila. Note spot on each wing and 2 black bands on each front leg. Note that coloration on abdomen is in solid bands. (Photo by Alex Surciã).



Photo 2. Male *Scaptomyza* specimen. Spot is at very tip of wing, and there are no black bands on the front legs (Photo by Alex Surciã).



Photo 3. Male *Leucophenga varia* specimen. Wing spots are further forward and are smaller than on SWD. Abdomen has spots, not bands. (Photo by Alex Surciã).

The problems some growers experienced with SWD made apparent the fact that we either need to better understand and monitor for SWD, or face challenges when producing thin-skinned fall fruit crops. Fortunately, along with Bryan Butler from the University of Maryland, we secured funding from the NE-IPM Center through an Urgent IPM Grant, which will allow us to continue monitoring efforts for SWD in PA and MD next summer, produce a series of factsheets for growers, and present information on this pest at meetings this winter. The first factsheet in this series will focus on differentiating SWD from other species that are similar in appearance. Additional factsheets will cover information on monitoring and management. The complete series of factsheets will be posted on the Web and will also be made available at winter meetings.

Earlier articles on SWD monitoring and management were included in the Fruit Times (<http://extension.psu.edu/fruit-times/news/2011>) in May and August, with an additional article appearing in the Vegetable and Small Fruit Gazette in September (<http://extension.psu.edu/vegetable-fruit/newsletter/2011-issues/the-vegetable-small-fruit-gazette-september-issue/view>). Information on SWD from the NE-IPM program can be found at <http://www.northeastipm.org/about-us/publications/ipm-insights/spotted-wing-drosophila-in-the-northeast/>.