Integrated Strategies for Management of Spotted Wing Drosophila in Organic Small Fruit Production

Heather Leach, Matthew J. Grieshop, and Rufus Isaacs
Department of Entomology, Michigan State University
December 2016

Introduction

Spotted wing Drosophila (SWD) is an important pest of berries, cherries, and some thin-skinned grape varieties. The berry crops at greatest risk are raspberries, blackberries, strawberries, and blueberries. For many berry and small fruit growers, SWD has rapidly become their most critical insect pest. SWD is native to Asia and was first detected in the Midwest in 2010. It is now well-distributed throughout the United States. Female SWD have a saw-like egg laying device that can cut into ripe or ripening fruit and deposit an egg (Figure 1). The resulting larvae degrade the fruit from the inside, increasing the risk of fungal pathogens and other pest damage. Larvae go through three larval stages within the fruit. The larger larvae are visible to the naked eye, creating concern of noticeable fruit contamination.

In Michigan's southern peninsula, first SWD fly activity is typically in mid-June to early July and the population builds through the summer as temperatures continue to rise. Highest densities of SWD occur in August and September, so SWD is especially problematic for later-season berry crops, including blackberries, fall raspberries, ever-bearing strawberries, and late-season blueberries. Adults live for two to three weeks and females can lay more than 300 eggs, so they have the capacity for many generations per growing season. Typical IPM programs for pests including cherry fruit fly and blueberry maggot will not provide sufficient control of SWD. Its host range, fast generation time, and damage characteristics make it an extremely challenging pest to manage.

Fig 1. Spotted wing Drosophila (SWD), male (top left), female (top right), and the females serrated ovipositor (bottom). Actual size of the fly is shown in the top left corner.