UPPER MIDWEST

ORGANIC MANAGEMENT OF SPOTTED WING DROSOPHILA SWD

Andrew Petran, Mary Rogers, Bill Hutchison and Eric Burkness

Spotted wing drosophila (*Drosophila suzukii*, SWD) is an invasive fruit fly native to eastern Asia. SWD was first discovered on mainland US in 2008, and has since spread throughout the country. Unlike common fruit flies, which are not crop pests, SWD has the potential to infest 50-100% of healthy fruit crops in a single season.

Small fruits with soft flesh are among the most vulnerable crops In the Upper Midwest. This includes raspberry, blueberry, cherry, plum and strawberry, among others. SWD also infests a wide range of wild hosts, including dogwood, mulberry, elderberry and even buckthorn.

BIOLOGY AND BEHAVIOR

SWD lay their eggs in intact and developing fruit. A female SWD can lay up to 350 eggs in its lifetime, and SWD can cycle up to 12 generations within a single growing season in the Upper Midwest.

SWD typically appear in late June, with peak populations in late July and August. Selecting crops that don't overlap with peak SWD season can be a key to reducing infestation.

BIOLOGY AND PHENOLOGY: TIMING IS EVERYTHING

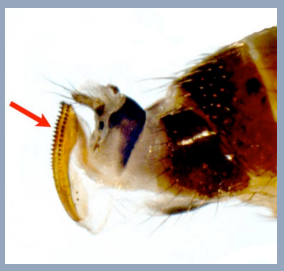
SWD is proving difficult to control due to its host range, fast generational turnaround and even its hearty immune system. Neither organic nor conventional sprays can approach 100% infestation control.

Beginning in 2016, a multi-University collaboration was funded by the USDA-OREI to develop organic practices for SWD control. Data from the 2016 field season suggests that the efficacy of SWD control practices may differ by geographic region or hardiness zone. Thus growers may be better served searching for research and recommendations conducted in similar environments to their own.

IDENTIFICATION

SWD average 2-3.5 mm in length, about the size of a raspberry drupelet.

Male SWD have distinctive spots on the first vein of their wings, and 2 black bands on each foreleg.



Female SWD do not have spotted wings, but can be identified by the serrated ovipositor on their abdomen.

Winter morphs of SWD are much darker in appearance.

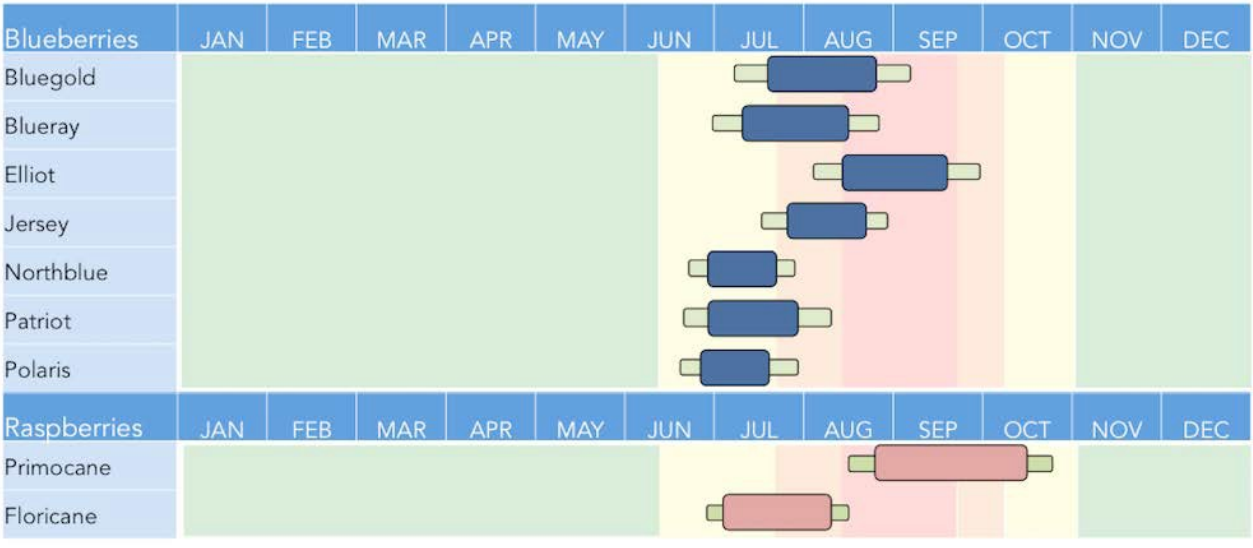
MONITORING FOR SWD

Baited traps are a common way to monitor for SWD. Traps will typically contain combinations of apple cider vinegar, sugar, and/or yeast; several commercial lures are available as well. While traps and lures are important for determining when SWD first arrive on a farm, they should *not* be considered an effective cultural practice for reducing infestation. Monitoring traps differ from 'attract & kill' lures, which are currently being researched for effectiveness in this USDA-OREI project.

MANAGING SWD

2016 data suggests that growers in the Midwest who use wood mulch in their fields may be inadvertently providing SWD eggs in fallen fruit with optimal conditions for development. Black landscape fabric created hotter floor conditions that halted development or killed SWD eggs. Canopy management through pruning did not appear to influence SWD infestation in raspberry or blueberry, but use of exclusion netting in high tunnels resulted in up to 100% control of infestations.

SWD presence & severity for common blueberry cultivars and raspberry types. Presence & severity determined from 3 years of trapping data taken from sites throughout MN.



Background colors: Green = No pressure Yellow = Light pressure Orange = Moderate pressure Red = Heavy pressure

Long bar = Possible harvest season
Short bar = Average harvest season

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