

Farm Notes₄

Spotted Wing Drosophila

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Fruit Flies Threaten Bradford Berry Crops

An invasive, exotic fruit fly has taken up residence in Bradford County. The fly, called spotted wing drosophila (SWD), *Drosophila suzukii* (Matsumura), is an invasive pest that was first reported in the United States in California in 2008 and in Hillsborough County, Florida in 2009.

This pest has caused an estimated economic losses as high as 40% for blueberries and 50% in strawberries in California.

SWD infests most of the thin-skinned, small and stone fruits including blueberries, strawberries, raspberries, blackberries, cherries and grapes and many wild plants like night shade and galberry.

Originating in the Orient, this fly resembles common fruit flies that accumulate on over-ripe bananas, flats of strawberries left without refrigeration, old fallen citrus, discarded watermelon rinds, and other decomposing fruit.

The common fruit fly and the SWD are both small (1/8 inch), have prominent red eyes and are close-

ly related.

However, wing tips of male spotted wing drosophila incorporate a dark spot that is lacking in common fruit flies. SWD males and females also have continuous



Males with wing spots



Females with serrated ovipositor (egg laying structure)

dark bands on their abdomen.

Female SWD have serrations on the egg laying organ (ovipositor) that can cut soft surfaces of fruit to lay eggs inside. Common fruit flies lack this capability and only lay eggs on soft, over-ripe or rotting fruit surfaces.

Spotted wing drosophila eggs that hatch inside fruit become white maggots that can soften and ruin fruit in the field or can accompany harvested fruit undiscovered until the fruit is in consumers' hands



SWD damage on Blackberry.

SWD Management Strategies

Given the swift colonization of SWD from California to Florida, berry growers should be prepared to encounter this fly. The presence of SWD is not obvious because eggs are laid deep in fruit and larvae develop in hiding.

Scouting for SWD is necessary to learn if flies are present to determine if insecticides are needed to control adult flies.

Adult flies can be trapped in clear plastic cups baited with about 6 ounces of apple cider vinegar. The cup traps can be hung in strawberry fields protected from direct sun, tractor and irrigation operations.



Flies enter the trap through holes in cup side. Preserved in the vinegar, SWD traps should be checked weekly.

In blueberries and cane berries plastic cups are hung on the south side of the plants away from the morning sun and ~ 1 foot (30 cm) below the top of the bush.

Remove All Ripe Fruit

Cultural practices that deny SWD its breeding sites and kill immature stages inside cull fruit include removing marketable berries quickly, before they are infested, and by properly disposing of unmarketable fruit and the immature insects they harbor.

Any unsold fruit should be collected and buried 1 foot (30 cm) deep to ensure the insects do not emerge from the soil. If buried too shallow, the fly larvae will crawl to the soil surface, develop to adults, and damage fruit.

Remove alternative host like wild blackberry from land adjacent to your farm.

Insecticide Strategies

Applications of appropriate insecticides should be made as SWD presence is detected. Insecticides that are useful in controlling adults are listed below.

There are no insecticides available for egg or larva control inside fruit.

Recurring applications of pesticides at close intervals may be required under heavy pressure, for populations of mixed life stages, or when flies regularly move from outside sources into fruiting fields. When these conditions are absent, applications could be held to one lifecycle or longer, probably 10 days to 2 weeks.

Do not spray insecticides if SWD is not present. Re-entry and post harvest intervals and pesticide rotation strategies to prevent pesticide resistance are discussed in:

<http://edis.ifas.ufl.edu/in839>

Active Ingredient	Trade Name	Blueberry & Blackberry	Strawberry
Bifenthrin	Brigade	X	X
Fenpropathrin	Danitol	X	X
Malathion	Malathion	X	X
Naled	Dibrom		X
Spinetoram	Radiant		X
	Delegate	X	
Spinosad	SpinTor	X	X
	Entrust	X	X
Zeta-Cypermethrin	Mustang Max	X	