



What do North Carolina *home gardeners* need to know about spotted wing drosophila?

What is spotted wing drosophila?

Spotted wing drosophila (SWD, *Drosophila suzukii*) is an invasive pest of soft skinned fruit first detected in North Carolina in 2010.

How do SWD damage fruit?

SWD preferentially lay their eggs in sound, harvestable fruit and their larvae (maggots) develop internally. SWD differs from native *Drosophila* spp., or vinegar flies, which feed on fungus growing on rotting fruit, not the fruit itself. Female SWD use their serrated ovipositor (egg laying organ) to insert their eggs just below the skin of fruit, and the larvae (maggots) develop inside fruit for roughly 7 days before pupating inside the fruit or in the soil. Adults emerge in approximately 5 days, for a total generation time of 15 day, on average. SWD larvae can feed on strawberries, blueberries, blackberries, raspberries, peaches, nectarines, figs, plums, persimmons, grapes, cherries, and their wild relatives. SWD prefer ripe and ripening fruit. SWD damage is hard to detect, and larvae can potentially be present in harvested fruit.

Where has SWD been found in North Carolina?

To date, SWD had been found in 22 NC counties: Anson, **Ashe**, Burke, Bladen, Craven, Davidson, Edgecombe, Greene, **Henderson**, Johnston, Lee, Lenoir, **Lincoln**, **Montgomery**, **New Hanover**, Onslow, Pender, Person, Randolph, Rowan, Sampson, and Wayne. We are not monitoring adult flies in every county, however, so just because we do not have records does not necessarily mean SWD is not present. **Bold** counties indicate locations where SWD larvae have been found in non commercial (research or non marketed) plantings. **To date, no commercially marketed fruit in North Carolina has been compromised by SWD.**

Where are you monitoring SWD?

We are currently monitoring 31 locations in North and South Carolina. In addition, cooperators are monitoring sites in Georgia, Arkansas, and Virginia.

Where else has SWD been found and what has it done in those locations?

SWD was first detected in the continental US in California in fall 2008. SWD was subsequently detected in Oregon and Washington in 2009. On the east coast, SWD was detected in Florida in 2009 and was confirmed from south Georgia in spring 2011. We detected SWD in NC and SC in July 2010. SWD has also been confirmed from Michigan and Louisiana. Crop losses to SWD have averaged 20% in the west coast but have been up to 100% in raspberries, blackberries, and cherries.

How should I manage SWD in my home garden?

If SWD has been detected in your county, it is safe to assume that it could potentially infest fruit in your garden. SWD will only feed on soft skinned fruit, so apples, pear, tomatoes, and other hard fruit or vegetables are unlikely hosts. If SWD has not been detected in your county, you cannot necessarily assume it is not present. If you are concerned about SWD in your garden, consider monitoring for adult flies and larvae (see below for monitoring information). If SWD is present in your garden, the best management strategy is sanitation. Ripe fruit should be thoroughly and frequently picked. Inedible fruit should be removed from the plants, bagged, and discarded. Do not compost inedible fruit, since SWD can survive in composting and buried fruit.

Fine netting or row cover wrapped around plants is a non chemical strategy to prevent SWD infestation. Several insecticides (both organic and conventional) are effective against SWD but must be used weekly to suppress populations. Consult your local cooperative extension agent for SWD insecticide information.

How do I determine if SWD is my yard?

Homeowners should monitor for SWD adults (see here for a step by step guide: <http://ncsmallfruitsipm.blogspot.com/2011/06/do-it-yourself-spotted-wing-drosophila.html>) and check fruit for larval infestation.

How do I identify SWD adults?

SWD adults are monitored using traps baited with apple cider vinegar. Male SWD can readily be distinguished by a single spot on the end of each wing. Magnification (minimum 10x) is necessary to identify SWD females. There are numerous native *Drosophila* spp. that can easily be confused with SWD. It is important to compare suspected SWD to known samples and to seek confirmation if you are uncertain. Cooperative extension agents and specialists can assist with SWD identification.

How do I identify SWD larvae?

Sample only sound fruit for SWD. SWD larvae can be observed by gently crushing fruit in a sugar or salt solution. Larvae will leave fruit and can be counted. Sampling only sound fruit minimizes the likelihood of confusion with native *Drosophila* spp.

Where can I find more information about SWD?

NC Small Fruit, Specialty Crop, and Tobacco IPM (www.ncsmallfruitsipm.blogspot.com), a blog maintained by my laboratory, contains information about SWD biology and management in blueberries and other crops. You can also find links to current trapping sites and data.

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