Spotted Wing Drosophila

By Valerie Jean Rose & Virgene Link

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Small pests pose big problems for Skagit fruit growers: tiny newcomers are unwelcome residents

A serious, relatively new pest has found a home in Skagit County. Unlike the annoying fruit flies hovering over your bananas, the spotted-wing drosophila (SWD) is a real threat to Skagit Valley soft-skinned fruit crops. This tiny, exotic (non-native) fly was first discovered in California in 2008, traveling up the west coast to reproduce in some of Skagit County's many soft-skinned fruits the following year.

Blueberries, raspberries, grapes, peaches and strawberries are among the crops all vulnerable to damage by the SWD. Unfortunately these pests can overwinter in our native berries including wild snowberry, wild blackberry and wild elderberry. The SWD has been found both east and west of the Cascade Mountains and commercial growers are very worried.

Which flies are the pests?

Collectively the drosophila species are known as vinegar flies. The common drosophila only lay their eggs in damaged, overripe or fallen fruit. But SWD females also lay their eggs inside ripening fruit still on the tree, vine or cane. The larvae then feed on the fruit, leaving it mushy and full of holes.

A tiny (2 to 3 mm) female spotted wing drosophila (SWD) explores a raspberry, in this highly magnified view. She can pierce the skin of soft or ripening fruit to lay her eggs, which hatch into maggots that damage the fruit. Many species of drosophila only feed on overripe or rotten fruit and are not considered pests. Correct identification of insects is an essential step in determining whether or not control is necessary.
Photo courtesy of Beverly S. Gerdeman / WSU NWREC

Last year Master Gardeners at the weekly Plant Diagnostic Clinic in Burlington identified this pest in more than one home garden. Many of the flies that were brought in for identification to the clinic were not the spotted wing drosophila. In 2010, SWD flies were found in traps set in home orchards as part of the apple maggot detection program.

Home fruit growers can help control this pest by learning how to identify, monitor and control SWD. Since the pest lays eggs in over-ripe fruit, we can be vigilant about removing fallen and overripe fruit in our gardens and orchards.

Set a trap for the SWD

Monitoring traps will tell you if the SWD is investigating the fruit in your garden. You can make a trap from a plastic drink cup by drilling six 3/16 or 3/8-inch holes through the side of the cup near the top. Thread wire, twine or twist-ties through two holes for hanging the trap – the other holes allow flies to enter. Pour in an inch or two of unflavored apple cider. You may also insert a yellow "sticky card" where insects get stuck. These are available where pest control products are sold. The yellow sticky card can help in distinguishing and identifying the various insects caught in the trap. Then attach the cup lid and hang the trap near fruit level or place on ground in cool area. Replace the cider and/or yellow sticky cards weekly.

Use this easy-to-make trap using apple cider to determine if you have SWD flies visiting your garden fruit. Never apply insecticide without knowing if there is an actual threat, as most garden insects are harmless or beneficial. **Photo courtesy of Hollis Spitler / WSU NWREC.**

At least once a week, remove the flies in the cider solution (or on the yellow sticky card) to count and identify them. You will need a 30X hand lens to see the SWD's unique features: startling red eyes, the female's ovipositor, or the males spotted wings. Or bring your trap to the Master Gardener Plant Diagnostic Clinic for your flies to be identified. For clinic schedules and locations, please visit http://skagit.wsu.edu/mg/clinics.htm or call (360) 428-4720 ext. 0.

An uninvited visitor that stinks

The brown marmorated stink bug (BMSB) is also a new pest in Skagit County. The insect's unique name reflects the foul odor released when it is crushed. In 1998 this pest was accidentally introduced into Pennsylvania from Asia and has been spreading westward. The BMSB is a known agricultural pest in its native range of Japan, Taiwan, China and Korea. It has been seen in Washington State, but it is not known if the population is large enough to reproduce here.

Generally in our Master Gardener Plant Diagnostic Clinic, we consider all varieties of stink bugs to be of "mixed consequence," not entirely beneficial or harmful. They are eaten by other insects, spiders, birds and small mammals, so they play a "good" role in the complex environment. They suck plant juices, which could be "bad," but normally their small numbers don't create enough damage to cause concern.

However, the BSMB has become a serious pest of fruit, vegetable and ornamental crops in the Mid-Atlantic states. If their numbers grow here, they could create a serious impact on many of Skagit County's crops. The pests attack apples, peaches and blackberries. Growers have also found BSMB feeding on a wide variety of other plants including sweet corn, peppers and cucumbers.

At next week's *Know and Grow Workshop*, Dr. Lynell Tanigoshi will share current research on controlling the SWD and BSMB. He and other staff at the WSU Mount Vernon Northwestern Research and Extension Center are studying ways to detect, identify and control these and other insect pests. This is an excellent opportunity for gardeners to learn how we can help monitor the SWD and BSMS, and help limit their impact on our verdant agricultural region.

A brown marmorated stink bug lays eggs on the underside of a leaf. The bug has been found only in small numbers in Washington state, and is one of many varieties of stink bugs. Always identify insects to determine whether they are friend, foe or not really a problem.
Photo by Peter Shearer / Oregon State University

Know & Grow Workshop

What:	Pests to Watch Out For: Spotted Wing Drosophila and Brown Marmorated Stink Bugs ***Know & Grow Workshop*** with Dr. Lynell Tanigoshi
When:	Tuesday, May 17
Time:	1:00 PM – 2:30 PM
Where:	WSU Mount Vernon Northwestern Research and Extension Center 16650 State Route 536 (Memorial Highway)
Speaker:	Dr. Lynell Tanigoshi**:** shares current research on the SWD and brown marmorated stink bug. Learn how home fruit-growers can help monitor, identify and control these pests.
Cost:	Cost is free but come early for a good seat. No reservations required.
For details:	Call (360) 428-4270 ext. 0.

<u>Resources</u>:

- SWD: Integrated Pest Management, WSU Bulletin: www.ipm.wsu.edu/small/pdf/SWD_Bulletin_Eastern_WA_v1_04.pdf
- SWD for Gardeners: Videos on making traps and identifying SWDs, Oregon State University, http://swd.hort.oregonstate.edu/gardeners
- Brown Marmorated Stink Bug, University of Maryland Extension: www.ipmnet.umd.edu/landscape/docs/BMSB-UMD.pdf