

Fruit fly pest identified in wine grapes

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A newly recognized pest in Oregon continues to concern fruit growers and researchers with the recent discovery of a Spotted Wing *Drosophila* fly in a sample of Willamette Valley wine grapes.

Since the tiny fly, *Drosophila suzukii*, was first confirmed in [Oregon](#) less than two months ago, there have been an increasing number of reports of its occurrence in a variety of fresh fruits, including [blueberries](#), peaches, raspberries, strawberries, blackberries, plums - and now grapes, according to Amy Dreves, a research entomologist at Oregon State University.

"This is an insect that, up to last year, had never been seen in the continental United States," Dreves said. "Now, suddenly, it is showing up in lots of places."

Losses to fruit crops have been significant in some places this year, according to OSU entomologist Vaughn Walton, who is working with Dreves and others on strategies to combat this invasive fruit fly. California lost about one-third of its cherry crop from Davis to Modesto. Willamette Valley peach growers were hit hard, especially in the late season, with losses up to 80 percent in some orchards. Crop losses up to 20 percent were seen in Oregon raspberries.

In early October, two blueberry fields were sampled, and one showed no damage at all while another had approximately 20 percent infestation (sampled and dissected approximately 400 berries at each site). "We have frozen samples from an infected blueberry field," Walton

explained. "The berries were picked at different times, and we can dissect them to help determine times of the first infestations this season in Benton County."

New reports of its occurrence have been confirmed almost every week since OSU researchers first identified the fly in a sample of Oregon blueberries in August.

Dreves and Walton are now reporting that adult Spotted Wing *Drosophila* had emerged from [wine grapes](#) that had been collected in the northern Willamette Valley two weeks earlier. Also confirmed by the Oregon Department of Agriculture were flies emerging from infested red table grapes collected from the Willamette Valley.

At this stage, growers have not seen noticeable damage to harvested grapes, Dreves said, and the harvest of grapes is nearly complete in the Willamette Valley without signs of Spotted Winged *Drosophila* impact.

Dreves and Walton are part of a team of researchers from OSU, U.S. Department of Agriculture, and Oregon Department of Agriculture working to uncover the extent of infestation and to test methods for controlling its spread.

Their work is one part science, one part Extension, and one part detective work.

Native to Japan and parts of Southeast Asia, *D. suzukii* had been introduced into Hawaii in the 1980s and was first confirmed in Florida and California last year. Since August 2009, the fly has been reported throughout California, from Vancouver, Wash., to Abbotsford in British Columbia, and in 12 counties in Oregon.

"That's because we're looking for it now and this year's environmental

conditions were right," said Dreves. Because the *Drosophila* fly larvae are small, shapeless and pale, Dreves and her colleague, OSU entomologist Vaughn Walton, culture suspicious larvae from sampled fruit to confirm the identity of the insect in adulthood.

Other research partners, in recent reports, suspect the fly has been found on pears in Oregon, Dreves said. What might be good news for Oregon is that *D. suzukii*, at least in Japan, only lays eggs in apples that are already damaged; apples seem not to be a primary host.

The Spotted Wing *Drosophila* is a close relative of the so-called "fruit or vinegar fly" associated with overripe bananas. That fly, *Drosophila melanogaster*, feeds on spoiled and rotting fruit and is the star attraction in high school biology classes when students learn about genetics and mutations. The spotted wing *Drosophila* fly, in contrast, infests fresh fruit, which presents a significant economic threat to fruit growers.

Discovery of the Spotted Wing *Drosophila* in wild Himalayan blackberries has the researchers worried. Despite the efforts growers will put toward cleaning their orchards of all left-over fruit, these feral areas could offer a refuge for overwintering populations of flies, according to Dreves. "We just don't know."

There's a lot that researchers don't know about this new invader, but they are learning fast. Dreves is scouring the scientific literature, going back to Japanese monographs from the 1930s to learn everything that is known about *D. suzukii*.

"In Japan, these flies are reported to reproduce up to 13 times in one season," she said, which suggests that the population could explode toward the end of the season, as seems to have happened this year.

According to reports, these flies thrive in cooler areas and are most

active at temperatures of 68 degrees. Activity, longevity and egg-laying are said to decrease at temperatures above 86 degrees, although infestations have been found in warm parts of California and Florida.

Much of western Oregon's growing season would seem to favor conditions favored by these flies, which means that most of Oregon's berry crops could be at-risk during the growing season, according to Dreves. And because Oregon has a variety of crops that ripen at different times during the season, the spotted wing *Drosophila* fly could move from one crop to another as the season progresses, and populations could build up to high numbers in many crops.

On the other hand, the fly might be gone by next season, Walton said, pointing out the uncertainty associated with a new invasive species.

Planning for the worst, the OSU team is working with colleagues in the USDA Agricultural Research Service and ODA to develop management plans for this new pest in Oregon. They are sampling fruits at farmers' markets and receiving samples from growers and OSU Extension agents in the field to map the extent of the infestation. And they are testing baits to monitor population levels this fall. In small areas, it may be a possibility to lure flies away from vulnerable fruit by setting up traps.

For now, Dreves said, two principles are at the heart of controlling the fly regardless of crop. First, reduce the fly's breeding sites by immediately removing and disposing of the source - infested fruit. And monitor for the presence of adult flies before they lay eggs.

Signs of possible infestation include:

- Spotted *Drosophila* flies with a pale black spot at the leading edge of the wing (only the male flies of this species have this

marking).

- Small puncture wound on hanging fruit, where female drilled in to lay her eggs.
- Soft fruit on plant, starting at puncture scar. Secondary decay can establish at this point.
- Small pale maggots in intact fruit on the plant.

Source: Oregon State University ([news](#) : [web](#))

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