

# Recognize Fruit Damage from Spotted Wing Drosophila (SWD)

*Drosophila suzukii*

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Spotted wing *Drosophila* (*Drosophila suzukii*; SWD) attacks several fruits in Oregon. It is crucial that growers identify an infestation early. Trapping can determine the presence of adult SWD in fields. The fruit-dunk method can be used to identify larval fruit infestation, but larvae must be large enough to be easily identified in the liquid mixture. In addition to these methods, early field identification of damage symptoms may be a tool to help growers identify SWD in fruit.

This publication shows damage caused by SWD on blueberries (Duke), raspberries (Malahat), strawberries (Seascape), cherries (Bing, Montmorency, and Rainier), and grapes (Pinot Noir, Chardonnay). Pictures show each fruit type a day or two after egg laying, 3 to 4 days later, and approximately 1 week after egg laying. Some pictures show uninfested berries and symptoms observed among fresh commercial fruit in Oregon fields.



Trapping to determine SWD presence

## Summary of Symptoms

### Observed symptoms due to SWD infestation

- Early mold, wrinkling and softening seen at 2 to 3 days
- Soft spots and collapse of berry structure
- Small holes created by larvae for breathing. Sometimes breathing tubes visible
- Expulsion of berry sap from oviposition holes
- Scarring of tissue
- Dark spots in white grapes, light spots in dark grapes. (Do not confuse with lenticells)
- Splitting of grape berries
- Larvae emerging from berries
- Pupae in or outside berries

### Observed damage likely due to aging

- Most mold in approximately 4 to 5 days
- General wrinkling and softening without specific soft spots
- Darkening of skin

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## Strawberries

Egg laying



Infested fruit

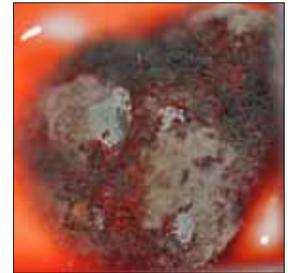
Oblong egg under the surface

3-days after egg laying



Quick deterioration. The skin wrinkles and fruit softens; mold may appear ~3 days after infestation.

More than 5 days after egg laying



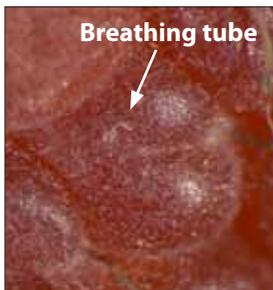
Uninfested fruit



Uninfested strawberries may stay firm with minimal damage.

## Raspberries

Egg laying



Infested fruit

Breathing tube

3-4 days after egg laying



Raspberries show damage quickly. The skin wrinkles and fruit becomes juicy. Scarring and collapse of berry may occur as soon as 1-2 days following infestation.

More than 5 days after egg laying



Dark scarring apparent

Uninfested fruit



Uninfested raspberries may show mild overall softening.

**Recognize fruit damage from spotted wing *Drosophila* (SWD)**

**Cherries**

**Egg laying**

Breathing tubes visible under 30X magnification

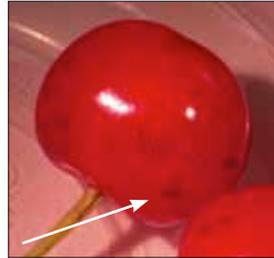


**More than 5 days after egg laying**



Collapsed berries with pupae on surface (arrow)

Oviposition holes often associated with black necrotic scar tissue



Emerging prepupal stages and damage directly under the cherry surface

**Blueberries**

**Egg laying**

**Infested fruit**



**3-4 days after egg laying**



Blueberries start to show visible damage ~3 days following infestation. Larval holes allow fruit juice to escape the berry, and soft areas become pronounced.

**More than 5 days after egg laying**



Collapsed fruit



Larvae may be visible when suspect fruit are split open.



Pupae may be found in fruit.

**Uninfested fruit**



Uninfested blueberries can remain firm up to 6 or 7 days. By day 3, mild wrinkling may occur.

**Recognize fruit damage from spotted wing *Drosophila* (SWD)**

**Grapes**

**Egg laying**



**Infested fruit**

**3–4 days after egg laying**



Dark area in light fruit



Light area in darker fruit

**More than 5 days after egg laying**

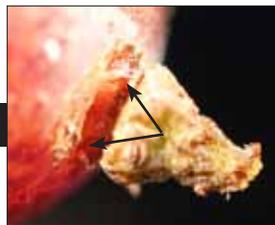


Berry splitting due to Botrytis. SWD lays eggs in the split areas.

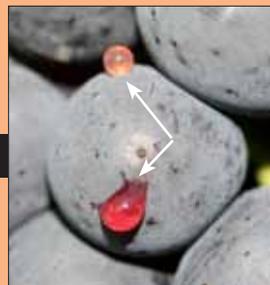


Larvae may be visible when suspect fruit are split open.

**Field-infested fruit**



Oviposition in damaged areas, where the pedicel has detached



Infested berries where turgor pressure caused expulsion of liquid through oviposition hole



Emerging larvae and collapsing berries

**Figures provided in this document are intended as a tool for growers and do not indicate that marketed fruit may contain live SWD.**

*Photos by: Emily Parent and Thomas Whitney, USDA ARS Horticultural Crops Research Unit, Corvallis, OR; Peter Shearer, Oregon State University Mid-Columbia Research and Extension Center; Mike Reitmajer, Daniel Dalton, and Vaughn Walton, Department of Horticulture, Oregon State University. Reprinted with permission.*

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