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SWD FLYer

What Backyard Fruit Growers Need to Know About SWD

Drosophila suzukii, a fly pest

For most current information, see central website:

spottedwing.com

Spotted **W**ing **D**rosophila (**SWD**) is a new invasive pest found in Oregon in 2009. SWD may infest a variety of fruits (**Fig. 1**) that are grown in Oregon backyards. Infested fruits are reduced in quality due to the damage caused by fly larvae as they consume the fruit and accelerate the rate of rotting. Do your part to minimizing SWD in the backyard. This fly also has the capacity to inflict economic losses to Oregon's vibrant small and stone fruit industries, if not controlled or managed. SWD favors intact, ripening fruit that is still on the plant, as opposed to favoring overripe and fallen fruit on the ground as in other drosophilid vinegar flies, which makes *D. suzukii* a particularly troublesome pest.

Fig. 1

Fruit affected by SWD*

Cherries • Raspberries

Blackberries • Strawberries

Blueberries

* Dependent on environment and backyard practices. Implementation of control and management strategies reduces risk to all fruit crops.

The Pest (see EM 8991)

The small fly (3mm) resembles the common fruit or vinegar flies, frequently seen in your kitchen or on fallen fruits in the outdoors (**Fig. 2**). At 2-3 mm in length, SWD are slightly larger than the common vinegar fly. SWD has reddish eyes, a yellowish-brown-colored body, and striped abdomen. Key characteristics which distinguish SWD from other vinegar flies are:

⇒**Male**: a black spot near the top edge of each wing and 2 black combs on each front leg (foot)

⇒**Female**: a prominent saw-like egg-laying device (ovipositor) on rear end used to insert her eggs into the surface of ripe fruit. It may be tucked under or may stick out of the abdomen when SWD are found in liquid bait.

Recognizing the Damage (see EM 9021)

After a female lays 1-3 **eggs** in a fruit, a tiny scar or spot appears on the fruit. Each egg has 2 fine 'hairs' that stick out of fruit which are adapted for breathing. You can sometimes see the hairs on the surface of the fruit. The female has the potential to lay several hundred eggs over her lifetime (avg. 20-60 days). The fruit will begin to collapse, bruise, or wrinkle and become soft after 2-3 days; and then can mold in the area where the eggs were laid and the larva e are feeding . The **larvae** will feed inside the fruit for about 5 to 7 days, until they are ready to pupate. The brownish **pupa** is a non-feeding stage lasting 4-5 days. They often remain inside of fruit until the fly emerges from the pupae. The **adult** fly will mate and begin a new generation. SWD produce an estimated 3-7 generations per year.

Monitoring In Your Backyard

Trapping Adult Flies

A plastic red 18 (**Fig. 3**) or clear 32 oz. (**Fig. 4**) **cup with lid** can be used to make a trap for capturing and monitoring adult flies. Here is how to make a trap:

- Drill a couple of rows of 3/16-inch size holes (20+) (**Fig. 4**) 1/2 way down and around side of cup, keeping 3 inches of pour space on side for changing bait solution. Alternatively, a small screen may be used in place of holes (**Fig. 3**).

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- Attach wire or twine to hang trap.
- Add 2 inches of pure **apple cider vinegar** + a drop of unscented dish soap to reduce surface tension so flies sink; or use a **yeast-sugar solution** (two teaspoons active dry baker's yeast, four teaspoons sugar and 12 ounces (1 ½ cups) water.
- Hang trap in shady area near fruit
- Once a week, filter out contents from bait solution and replace.
- Search for SWD flies. Confirm identification.
- Use a **magnifying glass** or **hand lens** to help see and identify key features on the male flies (spots near the tip of wing); and females with the prominent ovipositor. *


Fig. 3

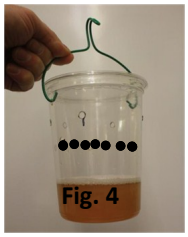


Fig. 4

* IMPROVED TRAP DESIGNS and BAITS are being researched. See spottedwing.org for current information.

Larvae Extraction Method

The following method can be used to check fruit for SWD larvae in your backyard.

Collect suspicious fruits with SWD damage and place in a sealable plastic bag.

Prepare a brown sugar or salt-water solution:

- Completely dissolve 2 ½ cups brown sugar **or** use 1 cup of plain salt in 1 gallon of warm water, whichever is your solute preference. Either salt or sugar work for larval sampling

Crush fruit inside sealable plastic bag.

Pour a solution over crushed fruit (**Fig. 5**).

- SWD larvae should exit fruit and float to top surface. Take a close look.
- Pour contents into shallow white pan for easier viewing, if you desire (**Fig. 6**).
- Allow time for larvae to exit; at least 15 minutes.
- **Detection of small larvae** may require the use of hand lens; and **good lighting** is necessary.

It's a good idea to keep track of your findings. Record locations with high fly numbers, date collected, etc.

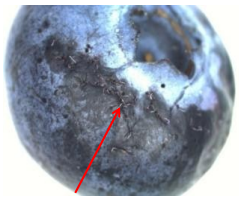
Fig. 5

Fig. 6

Fig. 2

Damage from SWD

- Scarring or spotting on fruit surface; juice may exit
- Softening and bruising; Mold can occur at damaged site
- Collapse at scarring site, ≈ 2-3 days after egg laying
- Presence of small white larvae



- Two hair-like white filaments attached to egg sticking out of surface of fruit at scar site

SWD Management Plan for Backyard Growers (see EM 9026)

1. Set up monitoring traps early in the spring to follow seasonal fly activity and confirm SWD presence before fruit begins to ripen.
2. Check fruit for larvae with the sugar or salt extraction method described to the left.
3. If possible, cover fruiting plants with fine netting (.98mm) to exclude flies from laying eggs.
4. Increase number of traps in fruit trees and around borders of your yard to trap out those flies that survived the winter before fruit ripens.
5. Pick ripe fruit frequently to avoid infestation by SWD. Ripe and overripe fruit appear most susceptible to SWD.
7. Clean up and destroy fallen or overripe fruit left on plant to reduce SWD populations. Include sanitation practices (e.g., solarize infested fruit by tightly covering fruit with 1-2 ml clear plastic, or collect in clear or black plastic bags and dispose).

8. If fly numbers are high and other methods are not providing adequate control, use insecticides registered for home use, such as spinosyns, pyrethroids, organophosphates, and carbamates.
   a. Follow the label. Do not apply when bees are present.

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