

Spotted Wing Drosophila Identification Guide

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With practice, identifying spotted wing drosophila (*Drosophila suzukii*) is possible using a hand lens in the field. For the novice, this will take some practice but it is achievable after seeing a few traps with spotted wing drosophila (SWD) captures. One of the biggest challenges is identifying SWD from among the many other small flies, including other species of drosophila captured in traps. This guide has been prepared based on experiences in Michigan, to help the user identify SWD.

Identifying spotted wing drosophila. Adult SWD are 2-3 mm long, have rounded abdomens, and may be seen on the outside of fruit or in traps. Flies are light yellow or brown with red eyes. Dark unbroken bands are seen across the abdominal segments. One major distinguishing characteristic is that the adult male SWD has one distinctive dot on each of its wings along the 1st vein (Figure 1). Male SWD also have two dark bands on each of the forelegs. These bands are known as combs and contain three to six teeth (Figure 2). Female SWD are harder to identify, as they do not have these wing spots. Female SWD have serrated ovipositors with two rows of serration that are longer than other vinegar fly species (Figure 3).

Figure 1.

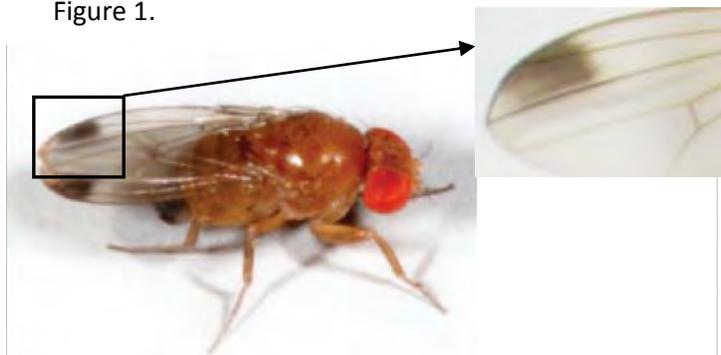


Figure 2.

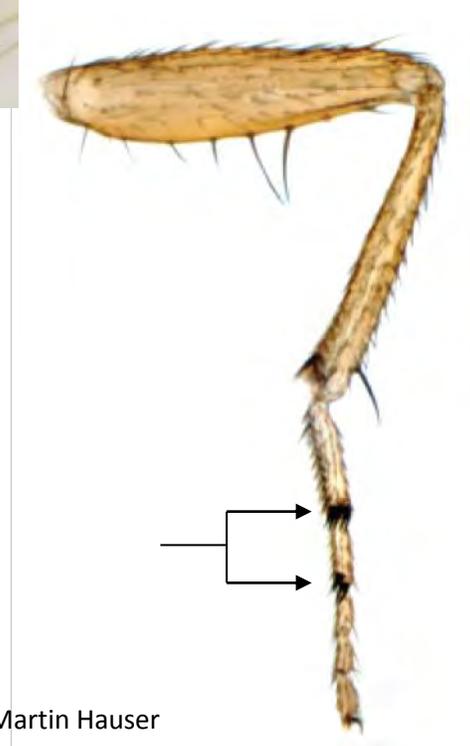
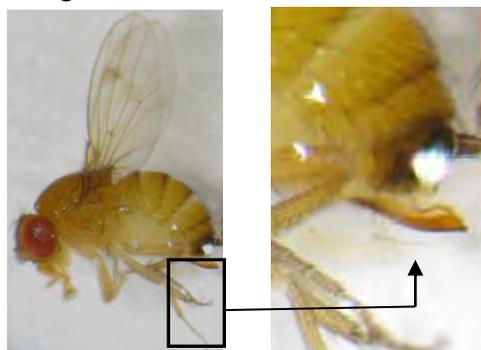


Figure 3.



Photos by Martin Hauser

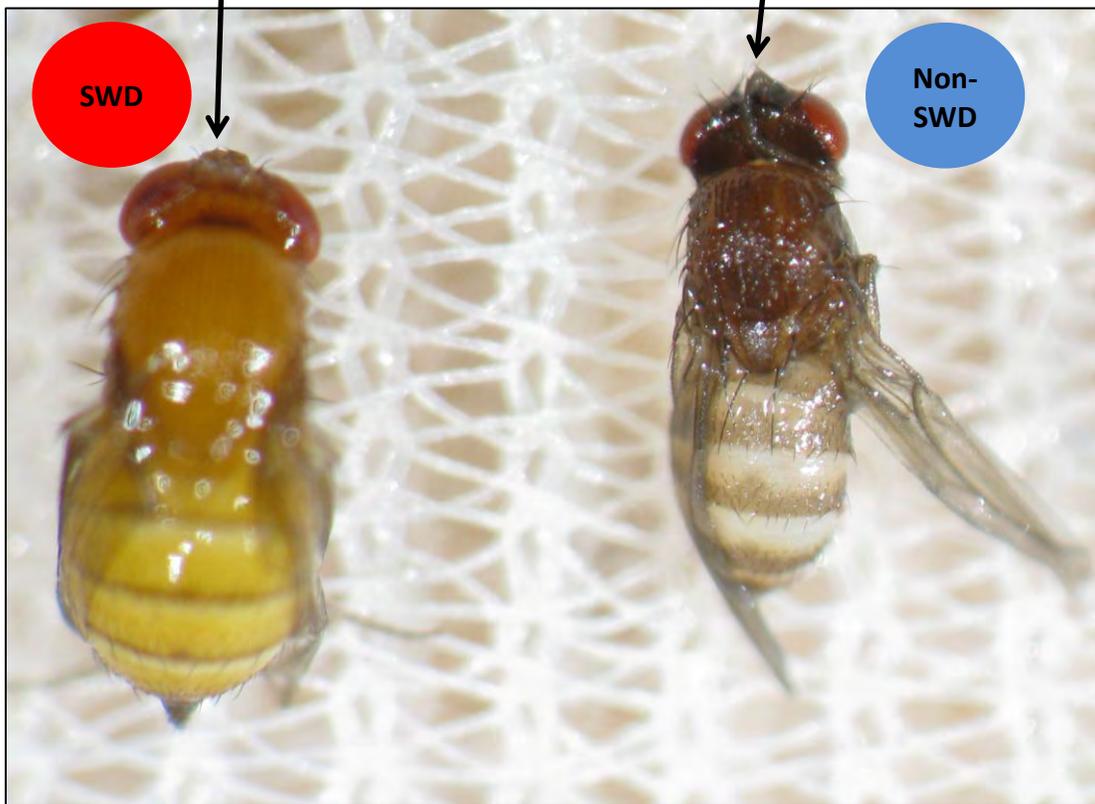
Comparison of SWD Imitator Flies in Michigan

Note: this guide is NOT designed for the positive identification of SWD, only to tell which flies are not SWD.

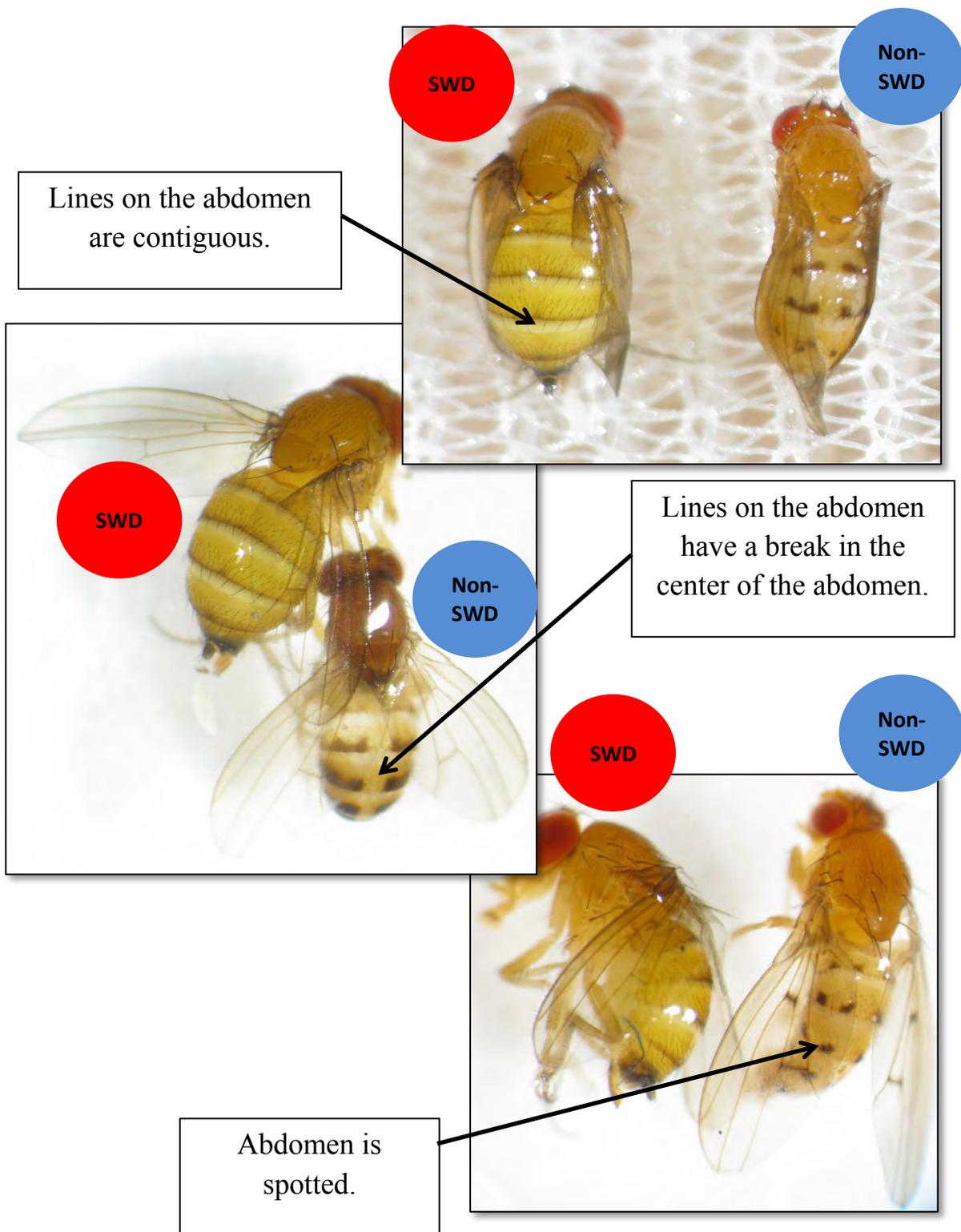
1. Body and head color

Head and body are a golden brown color.

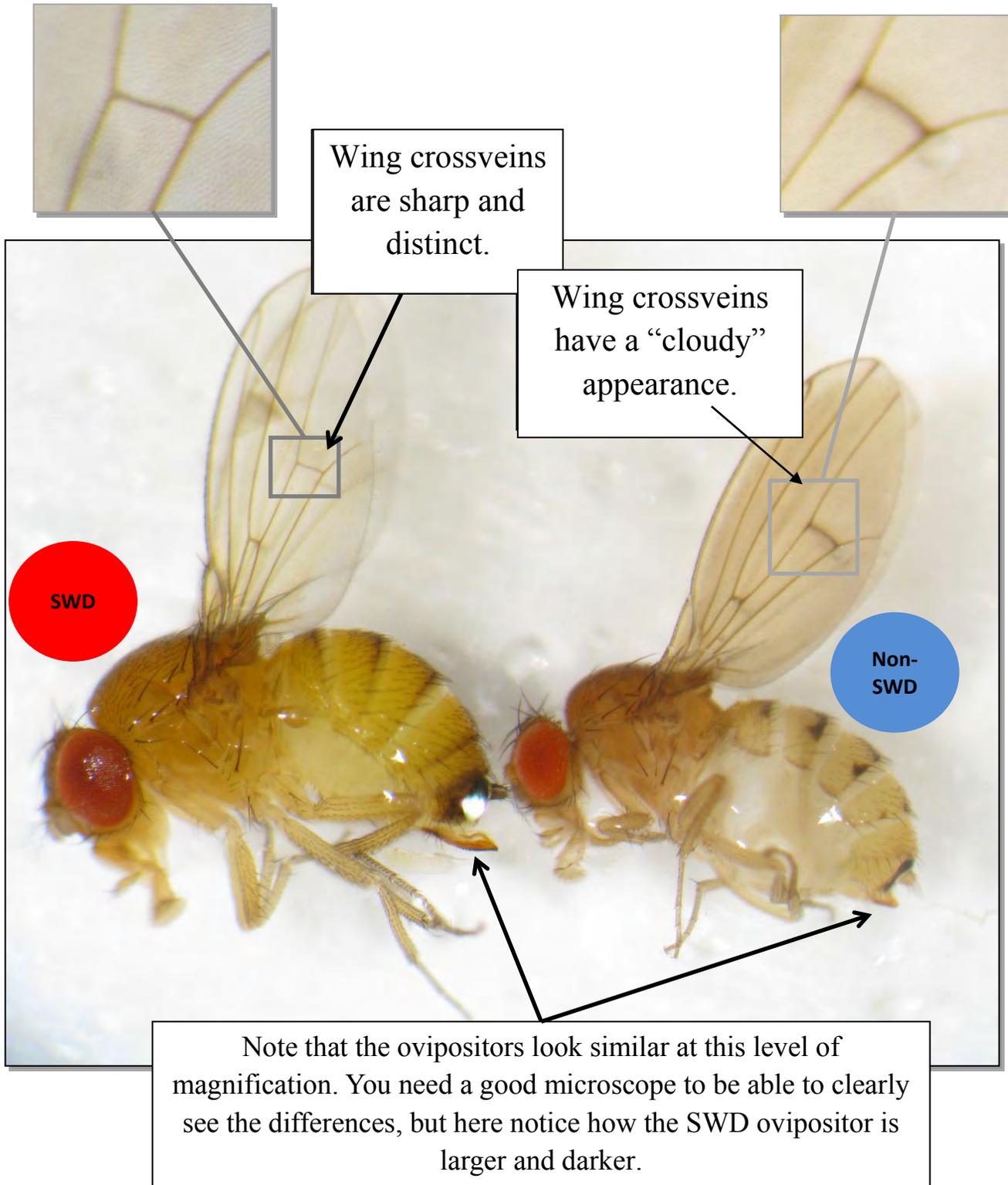
Head and thorax are dark. The darkness of the specimen can vary greatly, but usually at least the head is dark.



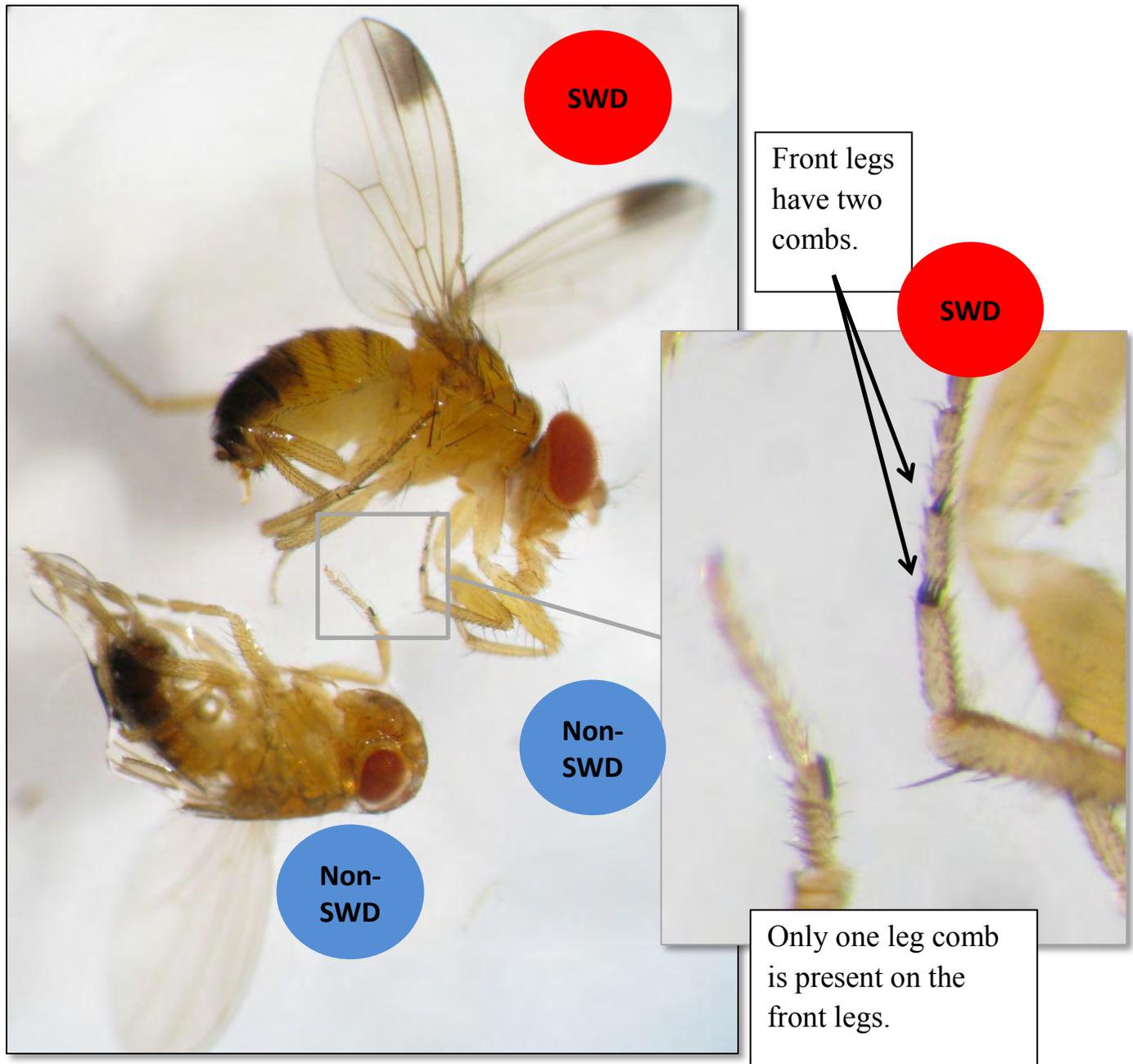
2. Abdominal Pattern



3. Wing crossveins

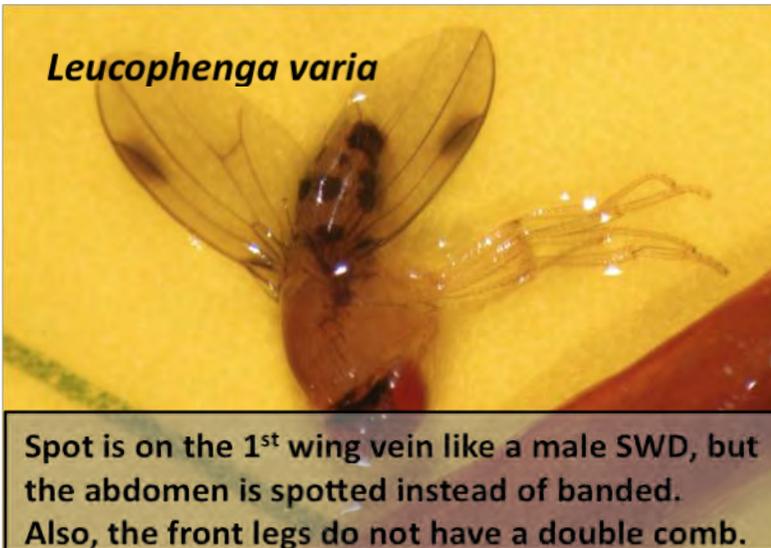


4. Front legs on males



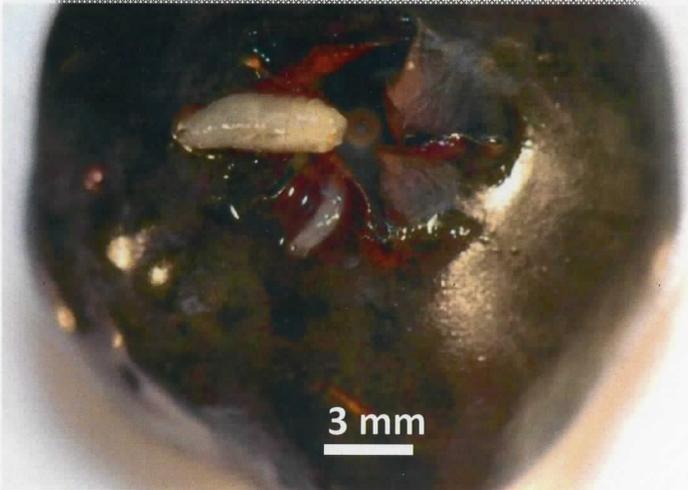
Common SWD Imitator Flies

These images are of flies on yellow sticky boards collected from spotted wing *Drosophila* traps. With practice, these can be distinguished from SWD with relative ease.



Sampling berries for spotted wing drosophila larvae

Blueberry maggot larva (top) and
SWD larva (bottom)



Boil Test:

- Place fruit in a microwaveable container and fill with water until fruit are covered.
- Heat in microwave until water boils for 1 minute.
- Pour through 0.25 inch hardware cloth onto a dark tray.
- Crush berries with the back of a spoon and pour some cold water over the crushed berries.
- Look for larvae floating in the water on the tray.

SWD larva close up



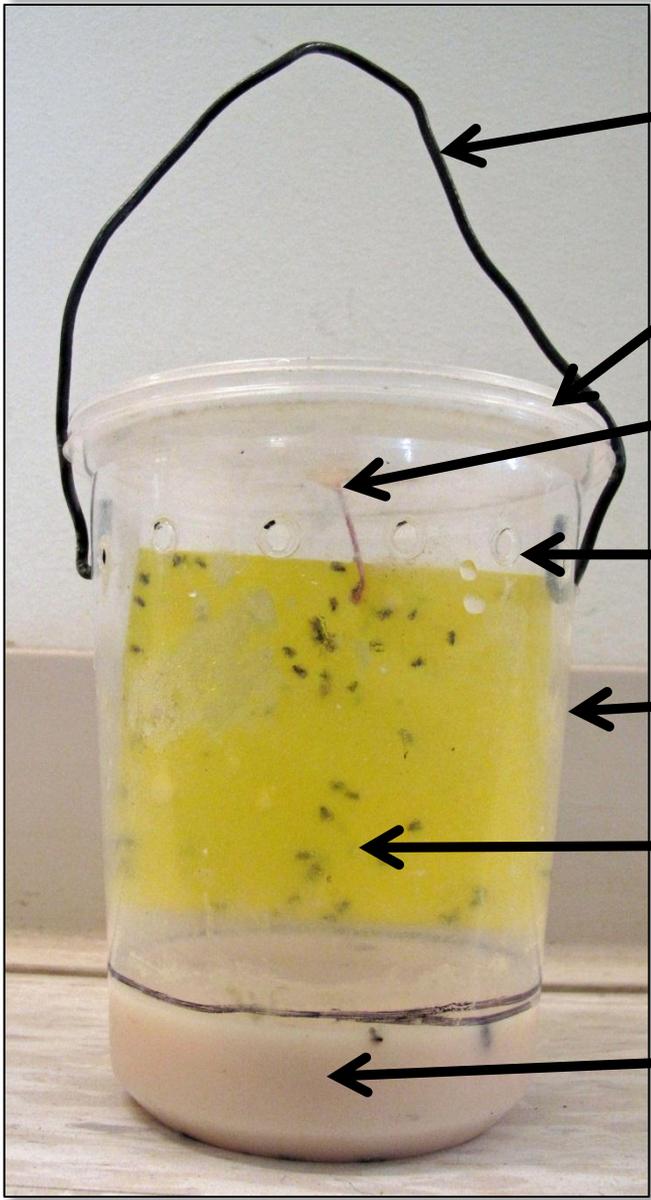
Brown Sugar Test:

- Place fruit in a gallon Ziplock bag and lightly crush the berries.
- Mix up a brown sugar solution (**4 cups brown sugar, 1 gallon water**) and add enough sugar water to the bag to cover the berries.
- Seal bag, removing as much air from bag as possible.
- Let bag sit for at least 30 minutes.
- Larvae can be placed back into fruit and reared out to adults if species identification is needed.

Salt Test:

- Place fruit in a gallon Ziplock bag and lightly crush the berries
- Mix up a salt water solution (**1 cup salt, 1 gallon water**) and add enough salt water to the bag to cover the berries.
- Seal bag, removing as much air from bag as possible.
- Let bag sit for at least 30 minutes.
- Place bag against a dark surface in good lighting and count the number of larvae.

Building a spotted wing drosophila trap



12" of 14 gauge solid core wire.

Deli cup lid

Plastic-coated paper clip poked through lid; hole sealed with hot glue to prevent water leaking in trap.

Melt 3/16" diameter holes in side of cup using a soldering iron.

32 oz plastic deli cup

Yellow sticky insert cut down to 3.5"x3"

5 oz of yeast bait. Recipe:
1 Tablespoon active dry yeast
4 Tablespoons white table sugar
12 oz water



Using your spotted wing drosophila trap

- Put out traps just prior to fruit ripening.
- More traps=better early detection. Try to place at least 1 trap for every 5-10 acres.
- Place traps along field borders, if possible in an area with fewer insecticide applications.
- Place trap in a shady spot in the middle of foliage, the cooler and more humid the better.
- If there are early ripening wild fruit nearby (wild blackberry, honeysuckle, etc.) place a trap nearby.
- Place at least one trap in the middle of the field.
- Flies can be filtered from liquid in the trap using any sort of screen, such as the grease splatter screen pictured to the right.
- Once any flies are found in a trap, assume all fruit in your orchard is vulnerable.
- As soon as fruit is ripe start monitoring for larvae using salt or boil test.

