(revision date:3/10/2017)

Boysenberry: Spotted wing Drosophila (SWD)

Use Integrated Pest Management (IPM) for successful plant problem management.

Biology

Spotted wing Drosophila (SWD) resembles other Drosophila species (fruit flies or vinegar flies) in appearance, but unlike other members of the family which attack only overripe, damaged or decaying fruit, SWD attacks healthy fruit as it ripens on the plant. Adult SWD flies are about 1/8 inch long, with red eyes and a yellow-brown body. Darker bands may be visible on the abdomen. Male flies have a distinctive dark spot on the leading edge of the wing near the tip. SWD is the only fruit fly species in our area with this spotted wing, making identification of males relatively simple. Females lack the spotted wing, but have a large, sawlike egg-laying organ called an ovipositor at the tip of their abdomen. It is used to deposit eggs in fruit (oviposition). The eggs are laid beneath the surface of ripening fruit as it begins to soften and show color (from first green-pink stage in caneberries), continuing through to harvest. Scars left by oviposition may appear as indented, soft spots on the fruit surface. Small white- or cream-colored larvae hatch within a few days and feed in the fruit, causing the fruit to soften and collapse around the feeding site. Further damage may be caused by secondary pathogens (fungi and bacteria) which attack the damaged fruit. At maturity, the larvae may be up to 1/8 inch long. They may pupate inside or outside the fruit. The length of the life cycle depends on temperature, with adults most active at cool temperatures (around 68 degrees F). Most soft-skinned fruits are vulnerable to attack by SWD, including peach, plum, cherry, grapes (table and wine), strawberry, blueberry, and cane fruits. It has also been found in Asian pear, fig, and hardy kiwi. See SWD under Common Insects for an additional image of the larval stage.

Management Options

Non-Chemical Management

~ Monitor for SWD using vinegar traps. For information on building and placing traps, see Spotted Wing Drosophila (SWD) Monitoring, Identifying, and Fruit Sampling (WSU Extension Fact Sheet FS049E, available at https://pubs.wsu.edu/). IMPORTANT: Numerous species of Drosophila and other insects will also be attracted to vinegar traps. Learn to identify SWD (if in doubt, contact your local Extension office).
~ Vinegar traps are for MONITORING PURPOSES ONLY and will not provide control of SWD. Remember, chemical control is not necessary if SWD is not present.
~ Composting infested fruit in home compost piles is not likely to be effective at destroying SWD larvae and pupae.
~ Pick fruit regularly. Remove overripe or damaged fruit which may attract SWD.
~ Remove infested and fallen fruit from the garden. Dispose of infested fruit in a sealed container, or bury at least 6 inches deep in an area that will not be disturbed.

Select non-chemical management options as your first choice!

Chemical Management

IMPORTANT: Visit Home and Garden Fact Sheets for more information on using pesticides

Chemical applications are effective against ADULTS ONLY and will not control SWD eggs, larvae, or pupae in fruits. BLACKBERRY or BOYSENBERRY must be listed on the pesticide label. Monitoring for the presence of SWD is necessary to determine correct application timing, as these products are strictly protective. Good spray coverage of the foliage and ripening fruit is essential to prevent oviposition by the females. Since SWD are active for several months, multiple applications may be needed. To help prevent development of SWD resistance to pesticides, DO NOT make multiple applications of the same active ingredient. Alternate between different active ingredients, remembering to observe the pre-harvest interval (PHI) on the product label. Most of the products listed are expected to have residual activity against SWD for approximately 7-10 days. Products containing pyrethrins have little to no residual activity, but because of their shorter PHI they may be used to protect fruit closer to the harvest date. CAUTION: These pesticides

are toxic to bees. To reduce risk to pollinating bees, make pesticide applications in the evening after bees are done working for the day. Do not apply on or near flowering plants.

Listed below are examples of pesticides that are legal in Washington. Always read and follow all label directions.

~ ferti-lome Borer, Bagworm, Tent Caterpillar & Leafminer Spray
- *active ingredient: spinosad (spinosyn A+D)*
- *EPA reg no: 62719-314-7401*

~ ferti-lome Broad Spectrum Insecticide
- *active ingredient: bifenthrin*
- *EPA reg no: 53883-228-7401*

~ Garden Safe Fruit & Vegetable Insect Killer
- *active ingredient: pyrethrins, piperonyl butoxide*
- *EPA reg no: 478-125-39609*

~ GardenTech WorryFree Brand Conc Insecticide & Miticide
- *active ingredient: pyrethrins, piperonyl butoxide*
- *EPA reg no: 1021-1798-71004*

~ Monterey Garden Insect Spray [Organic]
- *active ingredient: spinosad (spinosyn A+D)*
- *EPA reg no: 62719-314-54705*

~ This list may not include all products registered for this use.

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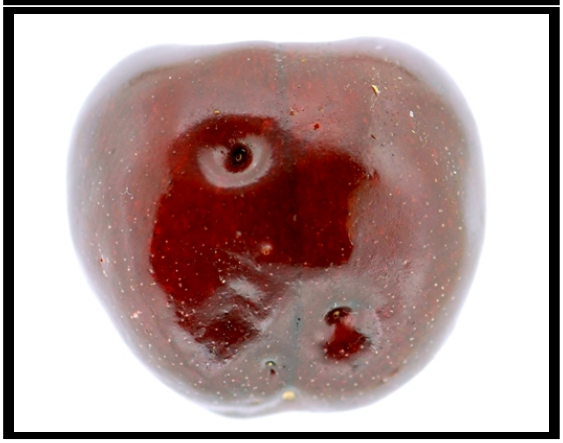
Images

~ Caption:
~ Photo by: W. Hoashi-Erhardt



~ Caption: male SWD (thumbnail), damage on cherry (large)
~ Photo by: Fly: J. Davis; fruit: M. Hauser, CDFA