



Nine Annual Production Workshop for Commercial Caneberry Growers

Spotted Wing Drosophila (SWD; *Drosophila suzukii*)

13 FACTORS CONTRIBUTING TO RISK

- 1) LACK OF AWARENESS:** If you do not monitor regularly for fly activity using traps, or visit the OSU-IPPC degree-day model (<http://uspest.org/swd>) that forecasts/predicts SWD events, or check suspect fruit using a larval extraction method, SWD problems may arise. Visit the <http://spottedwing.org> website for current information.
 - Use an abundance of baited traps along the borders of the fruiting crop and adjacent landscape to increase chances of detecting fly presence, and as a tool for control.
 - Trap on the adjacent landscape to detect immigrating flies from outside the crop. Trapping and recording fly numbers provides growers with insights about immigrating flies, subsequent generations of flies, and the protective residual of an insecticide application.
 - Know how to identify *Drosophila suzukii* (SWD) from other *Drosophila spp.* There are slight variations in appearance (gpdn.org/webinar_2012 and oregon.gov/ODA/PLANT_suzukii_id_guide10.pdf)
- 2) FRUIT RIPENESS:** When fruit begins to ripen (or color), SWD risk increases.
- 3) UNTIMELY HARVEST:** Crops that are not harvested regularly when ripe can lead to over-ripe, damaged, or split fruits that attract SWD to fruit juices and are susceptible to egg-laying.
- 4) CROP DIVERSITY:** Diversified fruit farms can provide continuous food and egg-laying sites for SWD throughout the season. SWD are “fruit followers!” Target the first activity of SWD with a treatment to minimize future population increases. SWD can multiply quickly and exponentially.
 - If one female survives the winter, she can lay ≈ 300 eggs; = 300 ♀+♂ SWD (F1); 150 are ♀ x 300 eggs = 45,000 (F2); 22,500 are ♀ x 300 eggs = 6.75 Million (F3) in one month!
- 5) UNTIMELY MANAGEMENT:** Fruits that are not monitored regularly with trapping and larval checks, timely chemical applications, and use of other tools to protect fruit from first ripening to last picking, are at risk.
 - Use effective pesticide rates, ensure adequate coverage of foliage and fruit, and reapply after a rain.
 - Address the SWD situation early in the season to avoid population explosions later on.
- 6) INCORRECT PESTICIDE USAGE:** Not following the pesticide label, not knowing PHI and REI (and MRL’s for export markets) of the insecticide, and lack of rotating chemical classes (modes of action) when developing a pest management program can lead to resistance and pesticide residue violations.
- 7) LATE-SEASON HARVEST:** Late-season fruit crops (e.g., raspberries, blackberries, blueberries, etc.) are most susceptible to SWD, and can be problematic as SWD populations build up quickly. Fruits that mature later in the season, are thinner-skinned, or are soft, have increased chances of SWD attack and infestation.
- 8) SANITATION:** Leftover hanging or fallen ripe and over-ripe fruit can be a source of food or breeding site for SWD.
 - Clean up fruit by removing, destroying, crushing, pureeing, bagging, or solarizing by tightly covering infested fruit with clear plastic for a period of time.
 - Weed mats under plants (e.g., blueberries) can cook fallen berries with SWD eggs, reducing SWD source.
- 9) OVERHEAD IRRIGATION:** Overhead watering systems appear to encourage SWD presence when compared to drip irrigation. This is likely due to increased humidity under the plant canopy. Use drip irrigation if possible.
- 10) REPAIR IRRIGATION LINES and FILL LOW SPOTS ON FARM** to avoid unnecessary moisture that SWD desires.
- 11) DENSE PLANT CANOPY:** Mature plants with thick, closed, and shaded canopies favor SWD; pruning and aerating plants reduce humidity and habitat for SWD.
- 12) WEATHER:** Mild winters increase fly survival; populations can build up earlier in season if weather remains favorable.
 - Long periods of low precipitation (dry), low humidity, and high temperatures (greater than 86°F) during harvest have shown reduced fly activity, decreasing crop risk. The question still remains if flies are dying, emigrating to more favorable environments, or resting in cooler refuges until satisfactory conditions return.
- 13) ADJACENT LANDSCAPE.** Abundant and diverse non-crop landscape near commercial fruit crops can provide food nutrients, refuge, protection, and alternative egg-laying sites for SWD. Identify “hot spots” where increased numbers of SWD may be residing. Consider habitat management.