

Invasive Species

**Monitoring, Damage Assessment & Mass Trapping of Spotted Wing *Drosophila* in the Northern San Joaquin Valley**

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*Keywords:* Spotted Wing *Drosophila*, *Drosophila suzukii*, SWD, monitoring, damage, mass trapping

*Abstract:* Spotted Wing *Drosophila* (SWD) flight was monitored in orchards in the Northern San Joaquin Valley with deli style traps baited with apple cider vinegar. Flight began in early April, peaked for several weeks around cherry harvest in May and June, dropped to low levels in August and September and peaked again in late October and early November. In orchards with a complete harvest, flight dropped off quickly after harvest. In orchards with fruit left after harvest, flight continued for another six weeks through July. From emergence in spring through harvest, the male flight was typically lower and later than the female flight making treatment decisions based on male capture difficult. After harvest, male and female flights were similar. Other *Drosophila spp.* were also attracted to these traps with very high catches throughout May, obscuring the SWD in traps during a critical treatment decision window.

White wine was compared to apple cider vinegar as bait in deli style traps in a randomized, replicated trial in an unsprayed orchard over a 14-week period from April through June. Traps were rotated and bait changed weekly. Apple cider vinegar caught significantly more SWD and other *Drosophila spp.* than the white wine.

The longevity of the apple cider vinegar bait in deli traps was evaluated in a replicated trial during June and July. Traps were checked and rotated daily and a new set of traps baited with fresh vinegar put out weekly. The attractiveness of the vinegar dropped off during the course of the week and was no longer catching after six days.

A damage survey was conducted in 10 orchards with differing SWD management practices. In the five sprayed orchards damage ranged from 0-37% with those that applied 3-4 well timed, effective sprays in the month before harvest having no or minimal damage. Damage in the four unsprayed orchards ranged from 0-45%. Bing typically had about twice as much damage as Rainier in the same orchard. The two unsprayed or minimally sprayed orchards that had very low damage (0-3%) at harvest despite high SWD trap catches both had very dry orchard floors, open canopies, and strong prevailing winds.

Using mass trapping to control SWD was evaluated in 10 residential sites with unsprayed cherry trees. Mass trap were paired with control sites by climate and variety. The mass trap sites hung four deli style traps per tree baited with a wine, molasses, and baker's yeast mixture that was changed weekly. At harvest there was no significant difference in damage between the mass trap sites (62.1%) and the control sites (63.2%).