

SPOTTED WINGED DROSOPHILA IN WILLAMETTE VALLEY BERRIES: 2012

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Commercial berry fields were trapped for Spotted Winged Drosophila, *Drosophila suzukii* (SWD), using lidded 16 oz. plastic cups, drilled with 5 mm holes and baited with apple cider vinegar. Fruit infestation was assessed by two methods, salt extraction of larvae and rearing of adults. For salt extraction, berries were placed in plastic bags and covered with a solution of one part salt to three parts water. After 30 minutes the solution was poured into a shallow pan and examined for Drosophila larva. For rearing, berries were sealed in paper bags for three to six weeks and then examined for Drosophila pupa and adults. Trapping continued in the backyard site trapped in 2010 and 2011, using the same trap locations.

Spring trap catches in the backyard site ranged from 5.4/trap/day in February to 0.2/trap/day in May. Spring catches were 5-10x greater than prior years. Trap catches increased during the summer, but were only 0.5 to 0.8/trap/day through the end of August. During June and July of 2010 & 2011, trap catch was only 0.01 to 0.04/trap/day at these sites. Trap catches increased dramatically in the fall, but November 2012 had only 90/trap/day compared to 150/trap/day in 2010 and 300/trap/day in 2011.

SWD trap catches in commercial berry fields followed the same pattern as the backyard site, with low numbers of overwintering flies caught during the spring, slightly higher trap catches during the summer, while fruit was ripening, and substantially higher catches in traps left in the fields during the fall. SWD adults were trapped in a higher percentage of fields compared to 2010 and 2011. The total number of flies caught in blackberry and blueberry fields was also greater than 2010 or 2011, but the catch was about the same in strawberry.

The increased trap catches of SWD in 2012, did not produce an increase in fruit infestation. Only 50% of blackberry fields had infested fruit (vs. 80% in 2011) and no blueberry fields had infested fruit (vs. 17% in 2011). The decline in fruit infestation is probably due to more intensive spray programs. Many fields received five insecticide applications for SWD in 2012; but only three or four sprays were applied to most fields in 2011.

Additional observations:

The relationship of trap catches to fruit infestation was examined in an unsprayed, backyard raspberry planting. Ripe berries collected within a 1-meter radius of a trap were placed individually in lidded, 1 oz. plastic cups to rear SWD. Adults and pupae were counted after 3-5 weeks. SWD were trapped in the raspberry bush on 6/10 & 17, but not during the following three weeks. Two percent of the berries collected on 7/8, were infested with SWD, even though adult SWD had not been trapped since 6/17. By 7/22, SWD were present in 98% of ripe fruit with an average of 13.1/berry. During this period the trap catch increased from 0 to 3.6/trap/day.

SWD trap catches in an unsprayed blackberry field (cv. Hull) ranged from two to 24/trap/day between 7/20 and 9/17. Fruit samples collected from this field between 7/27 to 9/19, had 2 to 14 SWD per berry. In contrast, a field of this variety sprayed five times between 7/18 and 8/20, had SWD trap catches ranging from 0.2 to 2.0/trap/day and fruit samples that ranged from 0.02 to 0.3 SWD per berry. The fruit infestation level was substantially lower in the sprayed field, but SWD were still detected in every berry sample.

Paired samples of Hull blackberries were collected from the unsprayed field on 8/23, 8/30 and 9/6, to compare the recovery efficiency of salt extraction and rearing. Infestation levels ranged from 5 to 12 SWD/berry. There was no significant difference ($p < 0.05$) between salt extraction and rearing methods.