Spotted Wing Drosophila Recommendations for Sweet Cherry

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These recommendations are derived from translated Japanese research articles on spotted wing drosophila (SWD), preliminary trapping data from Janet Caprile (UCCE Farm Advisor – Contra Costa County) and Bill Coates (UCCE Farm Advisor- San Benito County), insecticide efficacy data from Denny Bruck (USDA-ARS Corvallis) and Mark Bolda (UCCE Farm Advisor - Santa Cruz) and fruit maturity susceptibility data from Jana Lee (USDA – Corvallis, OR). Control procedures are conservative due to the lack of insecticide efficacy data on California cherries and damage experience by cherry growers this past season. These are our best guesses with limited data and we expect the recommendations to change over time.

Monitoring: Place a commercial bucket style trap or a 1 qt. plastic container with screen (3/16 inch holes) on the side and bait the trap with 1 inch of apple cider vinegar with about 1 ml of detergent soap per pint of apple cider vinegar. The 3/16 inch holes will limit the number of large moths, flies and bees captured in the traps. The plastic containers are about $1.00 each and apple cider vinegar is about $3.00/gal from Smart & Final. Replace the vinegar weekly (remove spent bait from the orchard – do not dump the spent bait on the ground in the orchard). Place trap about 3-5 ft. off the orchard floor and monitor twice weekly from first color change (light green to straw) until completion of harvest. Count only flies with spots on the tip of the wings (male SWD). OptiVISOR (optical glass binocular magnifier) will aid in the identification of flies. If any SWD are found in the traps, take control action immediately (see insecticide control below).

Generation time: One generation requires 338 DD with a lower threshold limit of 48˚ F. The table below shows the approximate generation times throughout the spring and summer in the northern San Joaquin Valley (Linden) and the central coast (Hollister). These generation times are based on 30-year average temperatures from the UC IPM weather network and will vary depending on current temperatures.

Approximate generation time for SWD by date infestation and location

	Number of days until adult emergence	
Infestation date (egg laying)	San Joaquin Valley (Linden)	Central Coast (Hollister)
April 1	28 days	34 days
May 1	20 days	29 days
June 1	15 days	22 days
July 1	13 days	18 days

Fruit Susceptibility: There are differences among cherries cultivars. Fruit that matures early in the season and that soft at maturity such as Black Tartarian, Early Burlat are more susceptibility to attached compared to Bing.

Cultural Control: If conventional insecticide treatments are not an option (organic growers), and if fruit from pollinizer varieties matures earlier than the main variety and the pollinizer fruit will not to be picked and sold, then pick and remove pollinizer fruit at least one week before harvest of the main variety. This will prevent the SWD from emerging from the pollinizer fruit during the main variety harvest. Fruit removal is a critical control step for organic growers because of the lack of known effective organic insecticides. Conventional growers can suppress SWD on pollinizer fruit by insecticide applications (below).

Chemical Control: Begin applications when the pollinizer or the earliest variety in the orchard, changes color from straw to pink. Recent research indicates that SWD is capable of infesting cherries when the fruit in light straw in color. This fruit appears about week or two before blush/pink fruit appears. The fruit remains susceptible through harvest. Repeat applications at 7 to 10 day intervals until harvest with one of the materials listed below. From the Japanese literature it appears that 3 or 4 applications are required to control the pest and that the organophosphate and pyrethroid insecticides

are effective for one to possibly two weeks. Observe all pre-harvest intervals (PHI) and re-entry interval (REI) periods and rotate between materials of different chemical classes between applications to slow the development of resistance. At this point in time, we are recommending adding Nu-Lure bait at 3 pt/100 gal with a final spray volume of 50 gal/ac. Do not include a surfactant with Nu-Lure. Nu-Lure should be removed during post-harvest washing.

Trade Name	Common Name	Chemical Class [a]	PHI	REI	Rating [b]
GF-120[c]	Spinosad	SPIN	0 days	0 hr	4
Sevin 80S	Carbaryl	CAR	1 day	12 hr	3
Malathion	Malathion	OP	3 days	12 hr	1
Danitol[d]	Fenpropathin	PYR	3 days	24 hr	3
Ambush/ Pounce	Permethrin	PYR	3 days	12 hr	3
Renounce/ Tombstone	Cyfluthrin	PYR	7 days	12 hr	3
Baythroid	Beta-Cyfluthrin	PYR	7 days	12 hr	3
Assail	Acetamiprid	NEONIC	7 days	12 hr	3
Provado	Imidacloprid	NEONIC	7 days	12 hr	4
Leverage (Baythroid + Provado)	Beta-Cyfluthrin Imidacloprid	PYR + NEONIC	7 days	12 hr	3
Entrust/ Success	Spinosad	SPIN	7 days	4 hr	2
Delegate[e]	Spinetoram	SPIN	7 days	4 hr	1
Actara	Thiomethoxam	NEONIC	14 days	12 hr	4
Mustang	Zeta-Cypermethrin	PYR	14 days	12 hr	1
Asana	Esfenvalerate	PYR	14 days	12 hr	3
Warrior II	Lambda-Cyhalothrin	PYR	14 Days	12 hr	3
Diazinon[f] 50WSB	Diazinon	OP	21 Days	4 Days	1

[a] The chemical classes are: SPIN is spinosyns, CAR is carbamate, OP is organophosphates, PYR is pyrethroids, NEONIC is neonicotinoids.

[b] The rating scale is: 1= control for 7 to 14 days, 2 = control for 3 to 7 days, 3 = control for 1 to 3 days, and 4 = control for only 1 day.

[c] GF-120 is slow acting and does not have knock-down activity but will suppress population over time.

[d] There is no MRL established for Danitol in Taiwan at this time. Please consult your packer/shipper for export implications.

[e] There is no MRL established for Delegate in Asia and Australia. Please consult your packer/shipper for export implications.

[f] Diazinon requires a closed cab.