

Insecticide	Rate (per acre)	R.E.I (hours)	P.H.I. (days)	OMRI <sup>1</sup> Listed	Ovicidal <sup>2</sup>	Larvicidal <sup>2</sup>	Activity
<b>Insect Growth Regulator - Ecdysone mimic (IRAC Group 18)</b>							
<b>Intrepid® 2F</b> (methoxyfenozide)	8-16 fl oz	4	30	no	yes	yes	Ingestion
<b>Microbial insecticide (IRAC Group 11)</b>							
<b>Dipel® DF</b> (Bt Kurstaki)	0.5-1 lb	4	0	yes	no	yes	Ingestion
<b>Biobit® HP</b> (Bt Kurstaki)	0.5-1 lb	4	0	yes	no	yes	Ingestion
<b>Diamides (IRAC Group 28)</b>							
<b>Altacor®</b> (chlorantraniliprole)	2-4.5 oz	4	14	no	yes	yes	Mainly Ingestion, slight contact
<b>Belt® SC</b> (flubendiamide)	3-4 fl oz	12	7	no	no	yes	Ingestion
<b>Sodium channel blockers (IRAC Group 22)</b>							
<b>Avaunt®</b> (indoxacarb)	5-6 oz	12	7	no	no	yes	Ingestion
<b>Spinosyns (IRAC Group 5)</b>							
<b>Success®</b> (spinosad)	4-8 fl oz	4	7	no	no	yes	Ingestion
<b>Entrust®</b> (spinosad)	1.25-2.5 oz	4	7	yes	no	yes	Ingestion
<b>Delegate® WG</b> (spinetoram)	3-5 oz	4	7	no	no	yes	Ingestion, Contact, Translaminar
<b>Pyrethroids (IRAC Group 3)</b>							
<b>Danitol® 2.4EC</b> (fenpropathrin)	10.67-21.33 fl oz	24	21	no	no	yes	Contact
<b>Baythroid® XL</b> (beta-cyfluthrin)	2.4-3.2 fl oz	12	3	no	no	yes	Contact
<b>Brigade® WSB</b> (bifenthrin)	8-16 oz	12	30	no	no	yes	Contact
<b>Renounce® 20 WP</b> (cyfluthrin)	3-4 oz	12	3	no	no	yes	Contact, Ingestion
<b>Tombstone Helios®</b> (cyfluthrin)	2.4-3.2 fl oz	12	3	no	no	yes	Contact
<b>Carbamates (IRAC Group 1A)</b>							
* <b>Lannate® SP</b> (methomyl)	0.5-1 lb	7(21) <sup>3</sup> days	14	no	yes	yes	Contact
* <b>Sevin® XLR Plus</b> (carbaryl)	2 qt	12	7	no	no	yes	Contact <sup>5</sup>
* <b>Sevin® 80S or 80 WSP</b> (carbaryl)	2.5 lb	12	7	no	no	yes	Contact <sup>5</sup>
<b>Organophosphates (IRAC Group 1B)</b>							
<b>Imidan® 70W</b> (phosmet)	1-2.125 lb	5 days	7 (14) <sup>4</sup>	no	no	yes	Contact

\* Restricted

<sup>1</sup> Approved for use in organic vineyards

<sup>2</sup> **Ovicidal:** applied at egg deposition; **larvicidal:** applied at egg hatch

<sup>3</sup> 21 days REI August 16 and beyond

<sup>4</sup> 14 days PHI for rate greater than 1.33 lb

<sup>5</sup> sprays concentrated on the bunch can result in visible residues

Use of trade names is in no way an endorsement of the product, nor should it be considered a recommendation. Always consult the product label before making any pesticide application.

Insecticides used in Europe not available in California for use on grapes	
Organophosphate (IRAC Group 1B)	
Lorsban® (chlorpyrifos)	Registered in California for delayed dormant and post harvest use only
Insect Growth Regulator - Chitin synthesis inhibitor (IRAC Group 15)	
(lufenoxuron)	Not registered in the US
(lufenuron)	Not registered in the US
Insect Growth Regulator - Ecdysone mimic (IRAC Group 18)	
Confirm® 2F (Tebufenozide)	Withdrawn from US by Dow AgroSciences; replaced by Intrepid 2F
Carbamates (IRAC Group 1A)	
Fenoxycarb	In the US only registered as fire ant bait (1% active ingredient)

Insecticide	Toxicity			Signal word	Tank mix compatible	Max. applications <sup>10</sup>	Max lbs AI (Max product) per acre per year	Minimum interval between applications (days)
	Predator	Parasitoid	Bee					
<b>Insect Growth Regulator - Ecdysone mimic (IRAC Group 18)</b>								
<b>Intrepid® 2F</b> (methoxyfenozide)	low	low	low	Caution	yes	No	0.75 lb (48 fl oz)	10-18
<b>Microbial insecticide (IRAC Group 11)</b>								
<b>Dipel® DF</b> (Bt Kurstaki)	low	low	low	Caution	yes	No	No maximum	3-14
<b>Biobit® HP</b> (Bt Kurstaki)	low	low	low	Caution	yes	No	No maximum	3-14
<b>Diamides (IRAC Group 28)</b>								
<b>Altacor®</b> (chlorantraniliprole)	low	low	low	None/Reduced Risk	yes	4	0.2 lb (9 oz)	7
<b>Belt® SC</b> (flubendiamide)	low	low	low	Caution	yes	3	0.375 lb (12 fl oz)	5
<b>Sodium channel blockers (IRAC Group 22)</b>								
<b>Avaunt®</b> (indoxacarb)	low	medium	high	Caution	yes	2	0.22 lb (12 oz)	21
<b>Spinosyns (IRAC Group 5)</b>								
<b>Success®</b> (spinosad)	low	medium to high	medium	None/Reduced Risk	yes <sup>6</sup>	No	0.45 lb (29 fl oz)	5
<b>Entrust®</b> (spinosad)	low	medium to high	medium	Caution	yes <sup>6</sup>	3 in 30 days	0.375 lb (7.5 oz)	5
<b>Delegate® WG</b> (spinetoram)	medium	high	high	Caution	yes	5	0.305 lb (19.5 oz)	4
<b>Pyrethroids (IRAC Group 3)</b>								
<b>Danitol® 2.4EC</b> (fenpropathrin)	high	high	high	Warning	yes	2	0.8 lb (42.67 fl oz)	7
<b>Baythroid® XL</b> (beta-cyfluthrin)	high	high	high	Warning	yes <sup>7,8</sup>	4	0.10 lb (12.8 fl oz)	14 (3.2 fl oz rate) <sup>11</sup>
<b>Brigade® WSB</b> (bifenthrin)	high	high	high	Warning	yes	No	0.10 lb (16 oz)	
<b>Renounce® 20 WP</b> (cyfluthrin)	high	high	high	Caution	yes <sup>7,8</sup>	No	0.20 lb (16 oz)	14 (4 oz rate) <sup>11</sup>
<b>Tombstone Helios®</b> (cyfluthrin)	high	high	high	Danger-Peligro	yes	4	0.20 lb (12.8 fl oz)	14 (3.2 fl oz rate) <sup>11</sup>
<b>Carbamates (IRAC Group 1A)</b>								
* <b>Lannate® SP</b> (methomyl)	high	high		Danger-Peligro	yes <sup>9</sup>	5	4.5 lbs (5 lbs)	
* <b>Sevin® XLR Plus</b> (carbaryl)	high	high	high	Caution	yes <sup>9</sup>	5	10 lbs (10 qt)	7
* <b>Sevin® 80S or 80 WSP</b> (carbaryl)	high	high	high	Danger-Peligro	yes <sup>9</sup>	5	10 lbs (12.5 lb)	7
<b>Organophosphates (IRAC Group 1B)</b>								
<b>Imidan® 70W</b> (phosmet)	high	medium to high	high	Warning	yes	No	4.55 lbs (6.5 lb)	

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<sup>6</sup> avoid acidifying buffers

<sup>7</sup> see label for max rates for combination of beta-cyfluthrin and cyfluthrin to same crop in same year

<sup>8</sup> except with products that release free chlorine or contain boron

<sup>9</sup> except with Bordeaux mix, triphenyltin hydroxide, lime sulfur, Rayplex iron, casein lime spreaders and highly alkaline solutions

<sup>10</sup> Maximum applications per season unless otherwise noted

<sup>11</sup> Maximum product allowed per 14 days interval