

2010 New England Tree Fruit Production Guide Updates -- June 3, 2010

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Additions to Table 18.1 – Preharvest intervals

	<u>Apples</u>	<u>Apricots</u>	<u>Cherries</u>	<u>Peaches</u>	<u>Pears</u>	<u>Plums</u>
buprofezin & flubendiamide Tourismo	14	14	14	14	14	14
chlorantraniliprole & thiamethoxam Voliam Flexi WDG	35*	14	14	14	35*	14
	* 60 day PHI if adjuvant used					
chlorantraniliprole & cyhalothrin Voliam Xpress WDG	21	14	14	14	35*	14
clothianidin Clutch 50 WDG	7	–	–	–	7	–
deltamethrin *Battalion 1.5 EC, *Battalion 0.2 EC *Delta Gold 1.56 EC	21	–	–	–	21	–
flubendiamide Belt SC	14	7	7	7	14	7
novaluron Rimon 0.83 EC	14	8	–	8	–	8
oil JMS Stylet Oil	0	0	0	0	0	0
Omni Oil 6E	0	0	0	0	0	0
Purespray Spray Oil	0	0	0	0	0	0
potassium fatty acids §Des-X, §M-Pede	0	0	0	0	0	0
	(See label comments about possible phytotoxicity after fruit formation on pears, cherries, and smooth skinned stone fruit).					
spirodiclofen Envidor 2 SC	7	7	7	7	7	7
zeta cypermethrin *Mustang Max EC	14	14	14	14	14	14

Additions to Table 18.2 EPA #, Reentry Interval (REI) and Personal Protective Equipment (PPE)

		EPA #	common name	REI	Applicator PPE	Early entry PPE
*Carzol	SP	10163-265	formetanate hydrochloride	120	efghjl	efghj
Clutch 50 WDG		59639-152	clothianidin	12	abc	bck
*Battalion 0.2 EC		264-1007-66330	deltamethrin	12	dfghij	dfghj
*Battalion 1.5 EC		66330-374	deltamethrin	12	dfghij	dfghj
*Delta Gold 1.5 EC		264-1011-1381	deltamethrin	12	dfghij	dfghj
§Des-X		67702-22-70051	potassium salts of fatty acids	12	dfghij	dfghj
JMS Stylet Oil		65564-1	paraffinic oil	12	acf	cfk
*Mustang Max EC		279-3327	zeta-cypermethrin	12	acfh	cfk
Omni Spray Oil 6E		5905-368	mineral oil	12	acf	cfk
Purespray Spray Oil		69526-5	petroleum oil	4	acf	cef
Tourismo		71711-33	buprofezin & flubendiamide	12	abcj	cfghj
Voliam Flexi		100-1319	chlorantraniliprole & thiamethoxam	12	acf	cfk
Voliam Xpress		100-1320	chlorantraniliprole & cyhalothrin	24	acf	cfk

Table 7.1.1a Activity spectrum against key pome fruit insect pests and beneficial arthropods

IRAC	Brand name – active ingredient	Insect Pest Ratings														Toxicity to Beneficials				
		AM	Aph	EAS	Int	GF	LH	OBL	PC	RAA	RBL	SJS	TLM	TPB & SB	WA	Bees	Af	Tp	Sp	Aa
6	abamectin – *Agri-Mek, Abacus*, Abamectin*, Abba*, Epi-Mek*, etc.	—	—	—	—	—	3	—	—	—	—	—	3	—	—	H	M	M	M	L
4A	Actara – thiamethoxam	1	1	3	1	—	3	0	3	3	0	0	2	2	—	H	L	L	L	L
28	Altacor – chlorantraniliprole	2	1	3	3	3	—	3	0	—	3	2	3	1	—	L	L	L	L	L
3A	Asana*, Adjourn* – esfenvalerate	3	2	2	3	3	3	2+	3	2	3	1	3	3	1	H	H	H	H	M
4A	Assail – acetamiprid	3	3	2	3	—	3	0	2	3	0	2	3	2	2	M	M	L	M	M
22A	Avaunt – indoxacarb	2	1	2	2	2+	3	0	3	0	2+	0	2	2	—	M	L	L	L	L
UN	azadirachtin – Aza-Direct\$, Azatin\$, Neemix\$, Trilogy\$ etc.	—	2	1	2	1	2	1	0	2	1	1	3	1	1	M	L	L	L	L
3A	Baythroid*, Tombstone* – cyfluthrin	3	2	2	3	3	3	2+	3	2+	3	1	3	3	1	H	H	H	H	H
9C	Beleaf – flonicamid	—	3	—	—	—	—	—	—	—	—	—	—	3	2	L	L	L	—	—
28	Belt – flubendiamide	1	—	3	3	3	—	3	1	—	3	—	3	—	—	L	L	L	L	L
3A	bifenthrin [Pears only] – Bifenture*, Brigade*, Discipline*, Fanfare*, etc.	—	2+	—	2+	2+	—	—	2	—	3	1	—	3	—	M-H	—	—	—	—
11	Bt, Bacillus thuringiensis toxin – Agree\$, Biobit\$, Deliver\$, Dipel\$, Javelin\$, MVP\$ etc.	0	0	—	2	3	0	3	0	0	3	—	0	0	—	L	L	L	L	L
4A	Calypso* – thiacloprid	3	3	3	3	—	3	1	3	1	1	2	3	1	2	M	L	L	M	L
—	Carpovirusine\$, Cyd-X\$ – granulosis virus [a]	—	—	—	3	—	—	—	—	—	—	—	—	—	—	L	L	L	L	L
1A	Carzol* – formetanate hydrochloride	0	0	—	0	0	3	0	0	0	0	—	0	1	—	M-H	H	H	M	—
16	Centaur – buprofezin	—	—	—	—	—	?	—	—	—	—	3	—	—	—	L	L	L	M	—
4A	Clutch – clothianidin	?	3	—	2	—	3	1	?	—	—	—	3	—	—	H	L	L	M	L
3A	cyhalothrin – Lambda-Cy*, Silencer*, Taiga Z*, Warrior*, Proaxis*	3	2	2	3	3	3	2+	3	2	3	1	3	3	3	H	H	H	H	H
3A	Danitol* – fenpropathrin	3	2	2	3	3	3	2+	3	2	3	1	3	3	1	H	H	H	H	H
5	Delegate – spinetoram	2	0	—	3	3	—	3	2	—	3	—	3	—	—	L	M	M	L	L
3A	deltamethrin – Battalion*, Decis*, Delta Gold*	3	1	2	3	3	3	2	3	2	3	1	3	2+	1	M	H	H	H	M
1B	Diazinon*, AG600* – diazinon	3	1	—	2	2	1	0	2	3	0	2	1	1	3	H	M	M	M	H
1B	Dimethoate – [Pears only]	3	2	—	3	2	3	0	2	2	0	2	1	2	—	H	H	H	M	H
7C	Esteem – pyriproxyfen	0	0	—	2	0	0	0	0	3	0	3	2	0	—	L	L	L	M	L
5	GF-120\$ – spinosad bait	2	—	—	—	—	—	—	—	—	—	—	—	—	—	—	L	L	L	L
1B	Guthion* – azinphosmethyl	3	1	3	3	1	1	1	3	1	3	2	1	1	1	H	L	L	L	H
4A	imidacloprid – Provado*, Pasada*, Sherpa*	1	3	—	—	—	3	—	—	3	—	2	3	2	2	H	L	L	M	L

IRAC	Brand name – active ingredient	Insect Pest Ratings														Toxicity to Beneficials				
		AM	Aph	EAS	Int	GF	LH	OBL	PC	RAA	RBL	SJS	TLM	TPB & SB	WA	Bees	Af	Tp	Sp	Aa
1B	Imidan – phosmet	3	1	3	3	1	1	1	3	1	3	2	1	1	1	H	L	L	L	M
—	insecticidal soap – Des-X\$, M-Pede\$,	0	2+	0	0	0	1	0	0	1	0	1	0	0	—	L	L	L	L	L
18	Intrepid – methoxyfenozide	0	0	—	2	—	0	3	0	0	3	0	2	0	—	L	L	L	L	L
1A	Lannate* – methomyl	2	2	1	3	3	3	2+	2	1	3	2	3	1	1	M	H	H	M	H
3 A 4 A	Leverage* – cyfluthrin & imidacloprid	3	3	2	3	3	3	2+	3	3	3	2	3	3	1	H	H	H	H	H
1B	Lorsban, Nufos, Yuma – chlorpyrifos [b]	—	—	3	2	3	1	3	3	2	2	3	1	1	—	H	M	M	L	—
23	Movento – spirotetramat	—	3	—	—	—	—	—	3	—	3	—	—	3	L	L	L	—	—	
3A	Mustang Max* – zeta cypermethrin	?	?	?	?	?	?	?	?	?	?	—	?	?	—	H	—	—	—	—
21A	Nexter – pyridaben	—	0	—	—	—	2	—	—	—	—	—	2	—	—	M	M-H	M-H	M	M
—	oil, dormant – JMS Stylet oil\$, Omni\$, ProNatural\$, PureSpray\$ etc.	—	2	—	—	—	—	—	2	—	3	—	—	—	—	M	L-M	L-M	L	L
—	oil, summer – JMS Stylet\$, Omni\$, PureSpray\$ etc.	—	—	—	1	—	—	—	—	—	2	1	—	1	M	L-M	L-M	L	L	
3A	permethrin – Ambush*, Pounce*, Perm-Up* [b]	—	2	2	—	3	2+	2+	3	2	3	1	3	3	1	H	H	H	H	L
21A	Portal – fenpyroximate	—	—	—	—	—	?	—	—	—	—	—	—	—	—	L	L	L	M	—
6	Proclaim* – emamectin benzoate	0	0	—	2	3	0	3	1	0	3	0	3	0	—	M	L	L	—	—
3A	pyrethrin – Pyganic\$, Pyrenone\$ [c]	?	?	?	?	?	?	?	?	—	?	—	—	?	—	M	—	—	—	—
15	Rimon – novaluron	—	—	—	3	—	—	3	—	—	3	—	3	—	—	H	L	L	H	—
1A	Sevin – carbaryl	2	1	2	2	1	3	2	2	1	1	2	1	1	1	H	M	L	H	H
5	SpinTor, Entrust\$ – spinosad	2	0	—	2	3	0	3	0	0	3	—	2	0	—	M	L	L	L	L
1B	Supracide* – methidathion	—	—	—	—	—	—	—	—	3	3	3	—	2	—	H	—	—	—	—
—	Surround\$ – kaolin	2	1	—	2	2	1	1	2	0	1	2	2	0	—	L	L	L	L	L
2A	Thionex* – endosulfan	0	2	—	0	3	3	2	0	2	2	1	1	1	2	M-H	L	L	M	M
16	Tourismo – flubendiamide & buprofezin	1	—	—	3	3	—	3	1	—	3	2	3	—	—	—	L	L	M	—
3 A 2 8	Voliam Flexi – chlorantraniliprole & thiamethoxam	1	3	2	3	3	3	3	2+	3	3	—	3	2+	—	H	L	L	M	M
3 A 2 8	Voliam Xpress – chlorantraniliprole & cyhalothrin	?	?	—	?	?	?	?	?	?	?	?	?	?	—	H	H	H	H	H
1A	Vydate* – oxamyl	0	2	—	0	—	2	0	0	2	—	1	3	1	1	M-H	H	H	L	M

KEY TO INSECTICIDE AND MITICIDE RATINGS:

EFFICACY AGAINST PEST SPECIES

3 = Good,

2+ = between Fair and Good on the Cornell Poor-Fair-Good scale, or “Good” on the Penn State Poor-Fair-Good-Excellent scale.

2 = Fair, 1+ = Poor to Fair, 1 = Poor, 0 = not effective.

— = Unknown or does not apply in this case.

? = Rating not available but product lists pest on label and thus presumed to have at least some effect.

IRAC = Insecticide Resistance Action Committee mode of action classifications, version 6.3.3. Arthropod pest populations are more likely to exhibit cross-resistance to materials within the same IRAC group.

Major groups: 1A – Carbamates, 1B – Organophosphates; 3A – Pyrethroids and pyrethrins; 4A – Neonicotinoids;

5 – Spinosyns; 10A, 10B Mite growth inhibitors; 21A – METIs; 28 – Diamides.

§ = Potentially acceptable in certified organic programs.

• Honey bee toxicity:

L Low; not hazardous to honey bees at any time. 1 hour to 1 day residual toxicity.

- Ratings assume blooming plants present at time of application. Based in part on “*How to Reduce Bee Poisoning from pesticides*” by H. Riedl, E.

M Moderate; not hazardous if applied either in evening or early morning when honey bees are not foraging, except during periods of high temperature. 3 hour to 1 day residual toxicity.

H High; hazardous to honey bees if applied to blooming plants at any time of day. 1 day to 2 week residual toxicity.

L Low impact on population (less than 30% mortality).

L-M Impact varies with lifestage, but populations usually recover in about a week.

M Moderate impact on population (between 30% and 70% mortality).

M-H Moderate to High impact depending on pesticide dose.

H High impact on population (more than 70% mortality).

— No data or product not registered for use at appropriate time of year.

Johansen, L. Brewer, and J. Barbour.

Pacific Northwest Extension #591, 2006.

• Toxicity ratings for other

Beneficials:

- Pesticides with long residual activity (such as pyrethroids) will have a greater impact than those with a shorter residual.

Footnotes

* Restricted-use pesticide; may be purchased and used only by certified applicators, or used by someone under the supervision of a certified applicator.

§ Some formulations of this product group may be acceptable for organic certification.

[a] Granulosis virus has good efficacy against codling moth, fair against oriental fruit moth, and is not effective on lesser appleworm.

[b] Ambush, Perm-Up, Pounce (permethrin) and Lorsban cannot be used after petal fall, therefore cannot be used at optimum or typical threshold timing for some of the insect pests for which ratings are stated. Ratings only apply for prebloom applications.

[c] Pyrethrin residual activity is much shorter than for alternative products, for some pests repeated applications at short intervals would be required to achieve stated rating.

[d] Kelthane ratings assume local mite population has not developed resistance. A lower 1+ rating may apply if there is orchard history of repeated Kelthane applications.

KEY TO PESTS:

AM = Apple maggot

Aph = Spirea aphid and apple aphid

ARM = Apple rust mite

EAS = European apple sawfly

ERM = European red mite

GF = Green fruitworms

Int = Internal Lep (Codling moth, Oriental fruit moth, and Lesser appleworm larvae that feed inside apples and pears.)

LH = White apple, Rose, & Potato leafhoppers

OBL = Obliquebanded leafroller

PC = Plum curculio

PLBM = Pear leaf blister mite

PP = Pear psylla

PRM = Pear rust mite

RAA = Rosy apple aphid

RBL = Redbanded leafroller

SB = Stink bugs

SJS = San Jose scale

TLM = Apple blotch and spotted tentiform leafminers

TPB = Tarnished plant bug.

These ratings should also apply to stink bugs.

TSM = Twospotted spider mite

WA = Woolly apple aphid

KEY TO BENEFICIALS:

Bees = Honey bee, *Apis mellifera*

Af = *Amblyseius fallacis*, a predatory mite.

Tp = *Typhlodromus pyri*, a predatory mite.

Sp = *Stethorus punctum*, a ladybird beetle predator of mites

Aa = *Aphidoletes aphidimyza*, a cecidomyiid predator of aphids

Table 7.1.1b Activity spectrum against apple mite pests and beneficial arthropods

IRAC	Brand name – active ingredient	Mite pest ratings			Toxicity to Beneficials				
		ARM	ERM	TSM	Bees	Af	Tp	Sp	Aa
6	abamectin – Agri-Mek*, Abacus*, Abamectin*, Abba*, Epi-Mek*, Temprano*, etc.	3	3	2	H	M	M	M	L
UN	Acramite – bifenazate	0	3	3	M	M	M	L	L
10A	Apollo – clofentezine	1	3	1	L	L	L	L	L
UN	azadirachtin – Aza-Direct§, Azatin§, Neemix§, Trilogy§ etc.	1	1	1	M	L	L	L	L
1A	Carzol* – formetanate hydrochloride	—	3	—	M-H	H	H	M	—
3A	Danitol* – fenpropathrin	—	1+	—	H	H	H	H	H
23	Envidor – spiroticlofen	3	3	3	H	L	L	M	—
20B	Kanemite – acequinocyl	—	3	3	L	L	L	L	—
UN	Kelthane – dicofol [e]	2+	2+	3	L	M	M	L	L
19	Mitac – amitraz [CT Pears only]	—	3	2	L	H?	H?	?	?
21A	Nexter – pyridaben	2	3	2	M	M-H H	M-H H	M	M
—	oil, dormant – Dormant oil 435§, JMS Stylet oil§, Omni§, ProNatural§, PureSpray§ etc.	—	3	—	M	L-M	L-M	L	L
—	oil, summer – JMS Stylet§, Omni§, PureSpray§ etc.	2	3	1	M	L-M	L-M	L	L
21A	Portal – fenpyroximate	3	3	3	L	L	L	M	—
6	Proclaim* – emamectin benzoate	—	2	2	M	L	L	—	—
10A	Savey, Onager – hexythiazox	1	3	1	L	L	L	—	—
—	Surround§ – kaolin	—	2	—	L	L	L	L	L
2A	Thionex* – endosulfan	2+	—	—	M-H	L	L	M	M
12B	Vendex* – fenbutatin oxide, hexakis	2	1+	2+	L	L	L	L	L
1A	Vydate* – oxamyl	2+	2	2+	M-H	H	H	L	M
10B	Zeal – etoxazole	0	3	3	L	M	M	—	L

Table 7.1.1c Activity spectrum against key pear pests (pear-only pests in green)

See apple insecticide table for impact ratings against beneficial arthropods

IRAC	Brand name – active ingredient	Insect Pest Ratings													Mite Pest Ratings		
		AM	Aph	Int	GF	OBL	PC	PLB	PP	RAA	RBL	SJS	TPB & SB	WA	ERM	PRM	TSM
6	abamectin – Agri-Mek*, Abacus*, Abamectin*, Abba*, Epi-Mek*, Temprano*, etc.	–	–	–	–	–	–	3	3	–	–	–	–	3	3	2	
UN	Acramite – bifenazate	–	–	–	–	–	–	–	–	–	–	–	–	3	–	3	
4A	Actara – thiamethoxam	1	1	1	–	0	3	–	3	3	0	0	2	–	–	–	
28	Altacor – chlorantraniliprole	2	1	3	3	3	0	–	–	–	3	2	1	–	–	–	
10A	Apollo – clofentezine	–	–	–	–	–	–	–	–	–	–	–	–	3	1	1	
3A	Asana*, Adjourn* – esfenvalerate	3	2	3	3	2+	3	–	2	2	3	1	3	1	–	–	
4A	Assail – acetamiprid	3	3	3	–	0	2	–	2	3	0	2	2	2	–	–	
22A	Avaunt – indoxacarb	2	1	2	2+	0	3	–	–	0	2+	0	2	–	–	–	
UN	azadirachtin – Aza-Direct\$, Azatin\$, Neemix\$, Trilogy\$ etc.	–	2	2	1	1	0	–	–	2	1	1	1	1	–	1	
3A	Baythroid*, Tombstone* – cyfluthrin	3	2	3	3	2+	3	–	3	2+	3	1	3	1	–	–	
9C	Beleaf – flonicamid	–	3	–	–	–	–	–	–	–	–	3	2	–	–	–	
28	Belt – flubendiamide	1	–	3	3	3	1	–	–	–	3	–	–	–	–	–	
3A	bifenthrin [Pears only] – Bifenture*, Brigade*, Discipline*, Fanfare*, Tundra*	–	2+	2+	2+	–	2	–	2+	–	3	1	3	–	–	–	
11	Bt, Bacillus thuringiensis toxin – Agree\$, Biobit\$, Deliver\$, Dipel\$, Javelin\$, MVP\$ etc.	0	0	2	3	3	0	–	0	0	3	–	0	–	–	–	
4A	Calypso* – thiacloprid	3	3	3	–	1	3	–	3	1	1	2	1	2	–	–	
–	Carpovirusine\$, Cyd-X\$ – granulosis virus [f]	–	–	3	–	–	–	–	–	–	–	–	–	–	–	–	
1A	Carzol* – formetanate hydrochloride	0	0	0	0	0	0	3	1+	0	0	–	1	–	3	3	
16	Centaur – buprofezin	–	–	–	–	–	–	–	2+	–	–	3	–	–	–	–	
4A	Clutch – clothianidin	?	3	2	–	1	?	–	2+	–	–	–	–	–	–	–	
3A	cyhalothrin – Lambda-Cy*, Silencer*, Taiga Z*, Warrior*, Proaxis*	3	2	3	3	2+	3	–	2	2	3	1	3	3	–	–	
3A	Danitol* – fenpropathrin	3	2	3	3	2+	3	–	2	2	3	1	3	1	1+	–	
5	Delegate – spinetoram	2	0	3	3	3	2	–	3	–	3	–	–	–	–	–	
3A	deltamethrin – Battalion*, Decis*, Delta Gold*	3	1	3	3	2	3	–	3	2	3	1	2+	1	–	–	
1B	Diazinon*, AG600* – diazinon	3	1	2	2	0	2	–	0	3	0	2	1	3	–	–	
1B	Dimethoate – [Pears only]	3	2	3	2	0	2	–	0	2	0	2	2	–	–	–	
23	Envidor – spiroticlofen	–	–	–	–	–	–	–	–	–	–	–	–	–	3	3	
7C	Esteem – pyriproxyfen	0	0	2	0	0	0	–	3	3	0	3	0	–	–	–	
5	GF-120\$ – spinosad bait	2	–	–	–	–	–	–	–	–	–	–	–	–	–	–	
1B	Guthion* – azinphosmethyl	3	1	3	1	1	3	–	0	1	3	2	1	1	–	–	
4A	imidacloprid – Provado*, Pasada*, Sherpa*	1	3	–	–	–	–	–	2	3	–	2	2	2	–	–	
1B	Imidan – phosmet	3	1	3	1	1	3	–	0	1	3	2	1	1	–	–	
–	insecticidal soap – Des-X\$, M-Pede\$,	0	2+	0	0	0	0	–	2	1	0	1	0	–	–	–	
18	Intrepid – methoxyfenozide	0	0	2	–	3	0	–	–	0	3	0	0	–	–	–	
20B	Kanemite – acequinocyl	–	–	–	–	–	–	–	–	–	–	–	–	–	3	–	
UN	Kelthane – dicofol [e]	–	–	–	–	–	–	–	–	–	–	–	–	–	2+	2+	
1A	Lannate* – methomyl	2	2	3	3	2+	2	–	0	1	3	2	1	1	–	–	
3A 4A	Leverage* – cyfluthrin & imidacloprid	3	3	3	3	2+	3	–	2	3	3	2	3	1	–	–	
1B	Lorsban, Nufos, Yuma – chlorpyrifos [d]	–	–	2	3	3	3	–	0	2	2	3	1	–	–	–	
19	Mitac – amitraz [CT Pears only]	–	–	–	–	–	–	3	2+	–	–	–	–	–	3	3	

IRAC	Brand name – active ingredient	Insect Pest Ratings													Mite Pest Ratings		
		AM	Aph	Int	GF	OBL	PC	PLB	PP	RAA	RBL	SJS	TPB & SB	WA	ERM	PRM	TSM
23	Movento – spirotetramat	—	3	—	—	—	—	—	3	3	—	3	—	3	—	—	—
3A	Mustang Max* – zeta cypermethrin	?	?	?	?	?	?	—	?	?	?	—	?	—	—	—	—
21A	Nexter – pyridaben	—	0	—	—	—	—	—	3	—	—	—	—	—	3	2	2
—	oil, dormant§ – Dormant oil 435, JMS Stylet oil, Omni, ProNatural, PureSpray etc.	—	2	—	—	—	—	—	2+	2	—	3	—	—	3	2	—
—	oil, summer§ – JMS Stylet, Omni, PureSpray etc.	—	—	1	—	—	—	—	2	—	—	2	—	1	3	2	1
3A	permethrin – Ambush*, Pounce*, Perm-Up* [d]	—	2	—	3	2+	3	—	2	2	3	1	3	1	—	—	—
21A	Portal – fenpyroximate	—	—	—	—	—	—	—	3	—	—	—	—	—	3	3	3
6	Proclaim* – emamectin benzoate	0	0	2	3	3	1	—	2	0	3	0	0	—	2	—	2
3A	pyrethrin – Pyganic§, Pyrenone§ [g]	?	?	?	?	?	?	—	?	—	?	—	?	—	—	—	—
15	Rimon – novaluron	—	—	3	—	3	—	—	—	—	3	—	—	—	—	—	—
10A	Savey, Onager – hexythiazox	—	—	—	—	—	—	—	—	—	—	—	—	—	3	1	1
1A	Sevin – carbaryl	2	1	2	1	2	2	—	0	1	1	2	1	1	—	—	—
5	SpinTor, §Entrust – spinosad	2	0	2	3	3	0	—	—	0	3	—	0	—	—	—	—
1B	Supracide* – methidathion	—	—	—	—	—	—	—	1+	3	3	3	2	—	—	—	—
—	Surround§ – kaolin	2	1	2	2	1	2	—	2	0	1	2	0	—	2	—	—
2A	Thionex* – endosulfan	0	2	0	3	2	0	2	0	2	2	1	1	2	—	2	—
16	Tourismo – flubendiamide & buprofezin	1	—	3	3	3	1	—	2	—	3	2	—	—	—	—	—
12B	Vendex* – fenbutatin oxide, hexakis	—	—	—	—	—	—	—	—	—	—	—	—	—	1+	2	2+
3A 28	Voliam Flexi – chlorantraniliprole & thiamethoxam	1	3	3	3	3	2+	—	3	3	3	—	2+	—	—	—	—
3A 28	Voliam Xpress – chlorantraniliprole & cyhalothrin	?	?	?	?	?	?	—	—	?	?	?	?	—	—	—	—
1A	Vydate* – oxamyl	0	2	0	—	0	0	2+	0	2	—	1	1	1	2	2+	2+
10B	Zeal – etoxazole	—	—	—	—	—	—	—	—	—	—	—	—	—	3	—	3

Sorted listed 1: Not Restricted, Dermal toxicity, Signal Word, Brand name

Brand name – active ingredient	Insect Pest Ratings														Mites		Toxicity to Beneficials		Use Regulations - Check Label!				Safety Categories			
	AM	Aph	EAS	Int	GF	LH	OBL	PC	RAA	RBL	SJS	TLM	TPB & SB	WA	ERM	TSM	Bees	Af	REI	PHI	Org	Rest	Signal Word	Oral Tox.	Derm Tox.	Resp.
Altacor – chlorantraniliprole	2	1	3	3	3	—	3	0	—	3	2	3	1	—	—	—	L	L	4	14	N	N	none	LI	LI	N
SpinTor, §Entrust – spinosad	2	0	—	2	3	0	3	0	0	3	—	2	0	—	—	—	M	L	4	7	P	N	none	LI	LI	N
Acramite – bifentazate	—	—	—	—	—	—	—	—	—	—	—	—	—	—	3	3	M	M	12	7	N	N	Caution	LI	LI	N
Apollo – clofentezine	—	—	—	—	—	—	—	—	—	—	—	—	—	—	3	1	L	L	12	45	N	N	Caution	LI	LI	N
Avaunt – indoxacarb	2	1	2	2	2+	3	0	3	0	2+	0	2	2	—	—	—	M	L	12	14	N	N	Caution	S II	LI	N
Bt, Bacillus thuringiensis toxin – Agree§, Biobit§, Deliver§, Dipel§, Javelin§, MVP§ etc.	0	0	—	2	3	0	3	0	0	3	—	0	0	—	—	—	L	L	4	0	P	N	Caution	LI	LI	N
Carpovirusine§, Cyd-X§ – granulosis virus [a]	—	—	—	3	—	—	—	—	—	—	—	—	—	—	—	—	L	L	4	0	P	N	Caution	LI	LI	Y
Clutch – clothianidin	?	3	—	2	—	3	1	?	—	—	—	3	—	—	—	—	H	L	12	7	N	N	Caution	S II	LI	N
Delegate – spinetoram	2	0	—	3	3	—	3	2	—	3	—	3	—	—	—	—	L	M	4	7	N	N	Caution	LI	LI	N
GF-120§ – spinosad bait	2	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	L	4	0	P	N	Caution	LI	LI	N
Intrepid – methoxyfenozide	0	0	—	2	—	0	3	0	0	3	0	2	0	—	—	—	L	L	4	14	N	N	Caution	LI	LI	N
oil, dormant§ – Dormant oil 435, JMS Stylet oil, Omni, ProNatural, PureSpray etc.	—	2	—	—	—	—	—	—	2	—	3	—	—	—	3	—	M	L-M	12	PB	P	N	Caution	LI	LI	N
oil, summer§ – JMS Stylet, Omni, PureSpray etc.	—	—	—	1	—	—	—	—	—	—	2	1	—	1	3	1	M	L-M	12	0	P	N	Caution	LI	LI	N
pyrethrin – Pyganic§, Pyrenone§ [c]	?	?	?	?	?	?	?	?	—	?	—	—	?	—	—	—	M	—	12	0	P	N	Caution	LI	LI	N
Savey, Onager – hexythiazox	—	—	—	—	—	—	—	—	—	—	—	—	—	—	3	1	L	L	12	28	N	N	Caution	LI	LI	N
Surround§ – kaolin	2	1	—	2	2	1	1	2	0	1	2	2	0	—	2	—	L	L	4	0	P	N	Caution	LI	LI	Y
Zeal – etoxazole	—	—	—	—	—	—	—	—	—	—	—	—	—	—	3	3	L	M	12	14	N	N	Caution	S II	LI	N
Imidan – phosmet	3	1	3	3	1	1	1	3	1	3	2	1	1	1	—	—	H	L	72	7x	N	N	Warning	M III	LI	Y
Rimon – novaluron	—	—	—	3	—	—	3	—	—	3	—	3	—	—	—	—	H	L	12	14	N	N	Warning	LI	LI	N
Kelthane – dicofol [d]	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2+	3	L	M	48	7	N	N	Danger	LI	LI	Y
Actara – thiamethoxam	1	1	3	1	—	3	0	3	3	0	0	2	2	—	—	—	H	L	12	35	N	N	Caution	LI	S II	N
Assail – acetamiprid	3	3	2	3	—	3	0	2	3	0	2	3	2	2	—	—	M	M	12	7	N	N	Caution	S II	S II	N
azadirachtin – Aza-Direct§, Azatin§, Neemix§, Trilogy§ etc.	—	2	1	2	1	2	1	0	2	1	1	3	1	1	1	1	M	L	4	0	P	N	Caution	LI	S II	N
Beleaf – flonicamid	—	3	—	—	—	—	—	—	—	—	—	—	3	2	—	—	L	L	12	21	N	N	Caution	S II	S II	N
Belt – flubendiamide	1	—	3	3	3	—	3	1	—	3	—	3	—	—	—	—	L	L	12	14	N	N	Caution	S II	S II	N

Brand name – active ingredient	Insect Pest Ratings													Mites		Toxicity to Beneficials		Use Regulations - Check Label!			Safety Categories					
	AM	Aph	EAS	Int	GF	LH	OBL	PC	RAA	RBL	SJS	TLM	TPB & SB	WA	ERM	TSM	Bees	Af	REI	PHI	Org	Rest	Signal Word	Oral Tox.	Derm Tox.	Resp.
Centaur – buprofezin	—	—	—	—	—	?	—	—	—	—	3	—	—	—	—	—	L	L	12	14	N	N	Caution	L I	S II	N
Envidor – spiroticlofen	—	—	—	—	—	—	—	—	—	—	—	—	—	—	3	3	H	L	12	7	N	N	Caution	S II	S II	N
Esteem – pyriproxyfen	0	0	—	2	0	0	0	0	3	0	3	2	0	—	—	—	L	L	12	45	N	N	Caution	S II	S II	N
Kanemite – acequinocyl	—	—	—	—	—	—	—	—	—	—	—	—	—	—	3	3	L	L	12	14	N	N	Caution	L I	S II	N
Movento – spirotetramat	—	3	—	—	—	—	—	—	3	—	3	—	—	3	—	—	L	L	24	7	N	N	Caution	S II	S II	N
Sevin – carbaryl	2	1	2	2	1	3	2	2	1	1	2	1	1	1	—	—	H	M	12	3	N	N	Caution	S II	S II	?
Tourismo – flubendiamide & buprofezin	1	—	—	3	3	—	3	1	—	3	2	3	—	—	—	—	—	L	12	14	N	N	Caution	S II	S II	N
Voliam Flexi – chlorantraniliprole & thiamethoxam	1	3	2	3	3	3	3	2+	3	3	—	3	2+	—	—	—	H	L	12	60x	N	N	Caution	L I	S II	N
Dimethoate – [Pears only]	3	2	—	3	2	3	0	2	2	0	2	1	2	—	—	—	H	H	240x	—	N	N	Warning	M III	S II	Y
Nexter – pyridaben	—	0	—	—	—	2	—	—	—	—	—	2	—	—	3	2	M	M-H	12	25	N	N	Warning	S II	S II	Y
Portal – fenpyroximate	—	—	—	—	—	?	—	—	—	—	—	—	—	—	3	3	L	L	12	14	N	N	Warning	S II	S II	N
Lorsban, Nufos, Yuma – chlorpyrifos [b]	—	—	3	2	3	1	3	3	2	2	3	1	1	—	—	—	H	M	96	?	N	N	Warning	M III	M III	Y
Mitac – amitraz [CT Pears only]	—	—	—	—	—	—	—	—	—	—	—	—	—	—	3	2	L	H?	?	—	N	N	?	S II	M III	?
insecticidal soap – Des-X5, M-Pede5,	0	2+	0	0	0	1	0	0	1	0	1	0	0	—	—	—	L	L	12	?	P	N	Warning	L I?	L I?	N
Mustang Max* – zeta cypermethrin	?	?	?	?	?	?	?	?	?	?	—	?	?	—	—	—	H	—	12	14	N	Y	Caution	S II	L I	N
Diazinon*, AG600* – diazinon	3	1	—	2	2	1	0	2	3	0	2	1	1	3	—	—	H	M	96	PFx	N	Y	Caution	M III	S II	Y
imidacloprid – Provado*, Pasada*, Sherpa*	1	3	—	—	—	3	—	—	3	—	2	3	2	2	—	—	H	L	12	7	N	Y	Caution	S II	S II	N
Proclaim* – emamectin benzoate	0	0	—	2	3	0	3	1	0	3	0	3	0	—	2	2	M	L	48x	14	N	Y	Caution	S II	S II	Y
abamectin – Agri-Mek*, Abacus*, Abamectin*, Abba*, Epi-Mek*, Temprano*, etc.	—	—	—	—	—	3	—	—	—	—	—	3	—	—	3	2	H	M	12	28	N	Y	Warning	M III	S II	Y
Baythroid*, Tombstone* – cyfluthrin	3	2	2	3	3	3	2+	3	2+	3	1	3	3	1	—	—	H	H	12	7	N	Y	Warning	S II	S II	N
bifenthrin [Pears only] – Bifenture*, Brigade*, Discipline*, Fanfare*, Tundra*	—	2+	—	2+	2+	—	—	2	—	3	1	—	3	—	—	—	M-H	—	12	—	N	Y	Warning	M III	S II	N

Brand name – active ingredient	Insect Pest Ratings														Mites		Toxicity to Beneficials		Use Regulations - Check Label!			Safety Categories				
	AM	Aph	EAS	Int	GF	LH	OBL	PC	RAA	RBL	SJS	TLM	TPB & SB	WA	ERM	TSM	Bees	Af	REI	PHI	Org	Rest	Signal Word	Oral Tox.	Derm Tox.	Resp.
	Calypso* – thiacloprid	3	3	3	3	—	3	1	3	1	1	2	3	1	2	—	—	M	L	12	30	N	Y	Warning	M III	S II
cyhalothrin – Lambda-Cy* , Silencer* , Taiga Z* , Warrior* , Proaxis*	3	2	2	3	3	3	2+	3	2	3	1	3	3	3	—	—	H	H	24	21	N	Y	Warning	M III	S II	N
Danitol* – fenpropathrin	3	2	2	3	3	3	2+	3	2	3	1	3	3	1	1+	—	H	H	24	14	N	Y	Warning	M III	S II	N
Leverage* – cyfluthrin & imidacloprid	3	3	2	3	3	3	2+	3	3	3	2	3	3	1	—	—	H	H	12	7	N	Y	Warning	S II	S II	N
permethrin – Ambush* , Pounce* , Perm-Up* [b]	—	2	2	—	3	2+	2+	3	2	3	1	3	3	1	—	—	H	H	12	PF	N	Y	Warning	S II	S II	N
Voliam Xpress – chlorantraniliprole & cyhalothrin	?	?	—	?	?	?	?	?	?	?	?	?	?	—	—	H	H	24	60x	N	Y	Warning	M III	S II	N	
Carzol* – formetanate hydrochloride	0	0	—	0	0	3	0	0	0	0	—	0	1	—	3	—	M-H	H	120	PF	N	Y	Danger-Poison	H IV	S II	N
deltamethrin – Battalion* , Decis* , Delta Gold*	3	1	2	3	3	3	2	3	2	3	1	3	2+	1	—	—	M	H	12	21	N	Y	Danger-Poison	M III	S II	N
Vendex* – fenbutatin oxide, hexakis	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1+	2+	L	L	48	14	N	Y	Danger-Poison	S II	S II	Y
Vydate* – oxamyl	0	2	—	0	—	2	0	0	2	—	1	3	1	1	2	2+	M-H	H	48	14	N	Y	Danger-Poison	H IV	S II	Y
Asana* , Adjourn* – esfenvalerate	3	2	2	3	3	3	2+	3	2	3	1	3	3	1	—	—	H	H	12	21	N	Y	Warning	M III	M III	N
Guthion* – azinphosmethyl	3	1	3	3	1	1	1	3	1	3	2	1	1	1	—	—	H	L	360x	14x	N	Y	Danger-Poison	H IV	M III	Y
Lannate* – methomyl	2	2	1	3	3	3	2+	2	1	3	2	3	1	1	—	—	M	H	96x	14	N	Y	Danger-Poison	H IV	M III	Y
Thionex* – endosulfan	0	2	—	0	3	3	2	0	2	2	1	1	1	2	—	—	M-H	L	96x	21x	N	Y	Danger-Poison	M III	M III	Y
Supracide 25W* – methidathion	—	—	—	—	—	—	—	—	3	3	3	—	2	—	—	—	H	—	72	PB	N	Y	Warning	H IV	H IV	Y

See Table 7.1.1a. for key to abbreviations.

Other abbreviations in this table: **REI** = Reentry interval in hours. **x** = alternate REI or PHI value may apply depending on application specifics.

PHI = Preharvest interval for use on apples. **PB** = Prebloom.

Org. = Possible allowance for organic certification.

Rest. = Restricted use pesticide. Can only be purchased by licensed applicators.

Signal Word = Hazard word on label. **Oral Tox.** = Oral toxicity category. **L I** = Low, **S II** = Slight, **M III** = Moderate, **H IV** = High. **Derm. Tox.** = Dermal toxicity.

Resp. = Respirator potentially required, in some cases respirator requirement depends on specific application method.

Sorted listed 2: Plum curculio, Not restricted use, Dermal toxicity

Only products with at least a 2 rating for sorted pest(s) included on list.

IRAC	Brand name – active ingredient	Pest Ratings PC	Toxicity to Beneficials					Use Regulations - Check Label!			Safety Categories				
			Bees	Af	Tp	Sp	Aa	REI	PHI - Apple	Org. Cert.	Rest. Use	Signal Word	Oral Tox.	Derm. Tox.	Respirator
1B	Imidan – phosmet	3	H	L	L	L	M	72	7	N	N	Warning	M III	L I	Y
22 A	Avaunt – indoxacarb	3	M	L	L	L	L	12	14	N	N	Caution	S II	L I	N
4A	Actara – thiamethoxam	3	H	L	L	L	L	12	35	N	N	Caution	L I	S II	N
1B	Lorsban, Nufos, Yuma – chlorpyrifos [b]	3	H	M	M	L	—	96	?	N	N	Warning	M III	M III	Y
3A	Baythroid*, Tombstone* – cyfluthrin	3	H	H	H	H	H	12	7	N	Y	Warning	S II	S II	N
4A	Calypso* – thiacloprid	3	M	L	L	M	L	12	30	N	Y	Warning	M III	S II	N
3A	Danitol* – fenpropathrin	3	H	H	H	H	H	24	14	N	Y	Warning	M III	S II	N
3A 4A	Leverage* – cyfluthrin & imidacloprid	3	H	H	H	H	H	12	7	N	Y	Warning	S II	S II	N
3A	cyhalothrin – Lambda-Cy*, Silencer*, Taiga Z*, Warrior*, Proaxis*	3	H	H	H	H	H	24	21	N	Y	Warning	M III	S II	N
3A	deltamethrin – Battalion*, Decis*, Delta Gold*	3	M	H	H	H	M	12	21	N	Y	Danger-Poison	M III	S II	N
3A	permethrin – Ambush*, Pounce*, Perm-Up* [b]	3	H	H	H	H	L	12	PF	N	Y	Warning	S II	S II	N
3A	Asana*, Adjourn* – esfenvalerate	3	H	H	H	H	M	12	21	N	Y	Warning	M III	M III	N
1B	Guthion* – azinphosmethyl	3	H	L	L	L	H	360	14	N	Y	Danger-Poison	H IV	M III	Y
3A 28	Voliam Flexi – chlorantraniliprole & thiamethoxam	2+	H	L	L	M	M	12	60	N	N	Caution	L I	S II	N
5	Delegate – spinetoram	2	L	M	M	L	L	4	7	N	N	Caution	L I	L I	N
—	Surround§ – kaolin	2	L	L	L	L	L	4	0	P	N	Caution	L I	L I	Y
4A	Assail – acetamiprid	2	M	M	L	M	M	12	7	N	N	Caution	S II	S II	N
1B	Dimethoate – [Pears only]	2	H	H	H	M	H	240	—	N	N	Warning	M III	S II	Y
1A	Sevin – carbaryl	2	H	M	L	H	H	12	3	N	N	Caution	S II	S II	?
1B	Diazinon*, AG600* – diazinon	2	H	M	M	M	H	96	PF	N	Y	Caution	M III	S II	Y
3A	bifenthrin [Pears only] – Bifenture*, Brigade*, Discipline*, Fanfare*, Tundra*	2	M-H	—	—	—	—	12	—	N	Y	Warning	M III	S II	N
1A	Lannate* – methomyl	2	M	H	H	M	H	96	14	N	Y	Danger-Poison	H IV	M III	Y

Sorted listed 3: Plum curculio, Internal Leps, Signal Word

IRAC	Brand name – active ingredient	Pest Ratings		Toxicity to Beneficials					Use Regulations - Check Label!			Safety Categories				
		PC	Int	Bees	Af	Tp	Sp	Aa	REI	PHI - Apple	Org. Cert.	Rest. Use	Signal Word	Oral Tox.	Derm. Tox.	Respirator
3A	Asana*, Adjourn* – esfenvalerate	3	3	H	H	H	H	M	12	21	N	Y	Warning	M III	M III	N
3A	Baythroid*, Tombstone* – cyfluthrin	3	3	H	H	H	H	H	12	7	N	y	Warning	S II	S II	N
4A	Calypso* – thiacloprid	3	3	M	L	L	M	L	12	30	N	Y	Warning	M III	S II	N
3A	Danitol* – fenpropathrin	3	3	H	H	H	H	H	24	14	N	Y	Warning	M III	S II	N
3A 4A	Leverage* – cyfluthrin & imidacloprid	3	3	H	H	H	H	H	12	7	N	Y	Warning	S II	S II	N
3A	cyhalothrin – Lambda-Cy*, Silencer*, Taiga Z*, Warrior*, Proaxis*	3	3	H	H	H	H	H	24	21	N	Y	Warning	M III	S II	N
1B	Imidan – phosmet	3	3	H	L	L	L	M	72	7x	N	N	Warning	M III	L I	Y
3A	deltamethrin – Battalion*, Decis*, Delta Gold*	3	3	M	H	H	H	M	12	21	N	Y	Danger-Poison	M III	S II	N
1B	Guthion* – azinphosmethyl	3	3	H	L	L	L	H	360x	14x	N	Y	Danger-Poison	H IV	M III	y
22A	Avaunt – indoxacarb	3	2	M	L	L	L	L	12	14	N	N	Caution	S II	L I	N
1B	Lorsban, Nufos, Yuma – chlorpyrifos [b]	3	2	H	M	M	L	—	96	?	N	N	Warning	M III	M III	Y
4A	Actara – thiamethoxam	3	1	H	L	L	L	L	12	35	N	N	Caution	L I	S II	N
3A	permethrin – Ambush*, Pounce*, Perm-Up* [b]	3	—	H	H	H	H	L	12	PF	N	Y	Warning	S II	S II	N
3A 28	Voliam Flexi – chlorantraniliprole & thiamethoxam	2+	3	H	L	L	M	M	12	60x	N	N	Caution	L I	S II	N
4A	Assail – acetamiprid	2	3	M	M	L	M	M	12	7	N	N	Caution	S II	S II	N
5	Delegate – spinetoram	2	3	L	M	M	L	L	4	7	N	N	Caution	L I	L I	N
1B	Dimethoate – [Pears only]	2	3	H	H	H	M	H	240x	—	N	N	Warning	M III	S II	Y
1A	Lannate* – methomyl	2	3	M	H	H	M	H	96x	14	N	Y	Danger-Poison	H IV	M III	Y
3A	bifenthrin [Pears only] – Bifenture*, Brigade*, Discipline*, Fanfare*, Tundra*	2	2+	M-H	—	—	—	—	12	—	N	Y	Warning	M III	S II	N
1B	Diazinon*, AG600* – diazinon	2	2	H	M	M	M	H	96	PFx	N	Y	Caution	M III	S II	Y
1A	Sevin – carbaryl	2	2	H	M	L	H	H	12	3	N	N	Caution	S II	S II	?
—	Surround§ – kaolin	2	2	L	L	L	L	L	4	0	P	N	Caution	L I	L I	Y

Sorted listed 4: Apple maggot, Internal Leps, Signal Word

IRAC	Brand name – active ingredient	Pest Ratings		Toxicity to Beneficials					Use Regulations - Check Label!			Safety Categories				
		AM	Int	Bees	Af	Tp	Sp	Aa	REI	PHI - Apple	Org. Cert.	Rest. Use	Signal Word	Oral Tox.	Derm. Tox.	Respirator
4A	Assail – acetamiprid	3	3	M	M	L	M	M	12	7	N	N	Caution	S II	S II	N
3A	Asana*, Adjourn* – esfenvalerate	3	3	H	H	H	H	M	12	21	N	Y	Warning	M III	M III	N
3A	Baythroid*, Tombstone* – cyfluthrin	3	3	H	H	H	H	H	12	7	N	y	Warning	S II	S II	N
4A	Calypso* – thiacloprid	3	3	M	L	L	M	L	12	30	N	Y	Warning	M III	S II	N
3A	Danitol* – fenpropathrin	3	3	H	H	H	H	H	24	14	N	Y	Warning	M III	S II	N
3A 4A	Leverage* – cyfluthrin & imidacloprid	3	3	H	H	H	H	H	12	7	N	Y	Warning	S II	S II	N
3A	cyhalothrin – Lambda-Cy*, Silencer*, Taiga Z*, Warrior*, Proaxis*	3	3	H	H	H	H	H	24	21	N	Y	Warning	M III	S II	N
1B	Imidan – phosmet	3	3	H	L	L	L	M	72	7	N	N	Warning	M III	L I	Y
1B	Dimethoate – [Pears only]	3	3	H	H	H	M	H	240	—	N	N	Warning	M III	S II	Y
3A	deltamethrin – Battalion*, Decis*, Delta Gold*	3	3	M	H	H	H	M	12	21	N	Y	Danger-Poison	M III	S II	N
1B	Guthion* – azinphosmethyl	3	3	H	L	L	L	H	360	14	N	Y	Danger-Poison	H IV	M III	y
1B	Diazinon*, AG600* – diazinon	3	2	H	M	M	M	H	96	PF	N	Y	Caution	M III	S II	Y
28	Altacor – chlorantraniliprole	2	3	L	L	L	L	L	4	14	N	N	none	L I	L I	N
5	Delegate – spinetoram	2	3	L	M	M	L	L	4	7	N	N	Caution	L I	L I	N
1A	Lannate* – methomyl	2	3	M	H	H	M	H	96	14	N	Y	Danger-Poison	H IV	M III	Y
5	SpinTor, §Entrust – spinosad	2	2	M	L	L	L	L	4	7	P	N	none	L I	L I	N
22 A	Avaunt – indoxacarb	2	2	M	L	L	L	L	12	14	N	N	Caution	S II	L I	N
1A	Sevin – carbaryl	2	2	H	M	L	H	H	12	3	N	N	Caution	S II	S II	?
—	Surround§ – kaolin	2	2	L	L	L	L	L	4	0	P	N	Caution	L I	L I	Y
5	GF-120§ – spinosad bait	2	—	—	L	L	L	L	4	0	P	N	Caution	L I	L I	N

Sorted listed 5: **Organically certifiable** (depends on product and certifier), **Internal Lep** efficacy, **Plum curculio** efficacy.

Brand name – active ingredient	Insect Pest Ratings														Mites		Tox. to Beneficials		Check Label!		Safety Categories			
	AM	Aph	EAS	Int	GF	LH	OBL	PC	RAA	RBL	SJS	TLM	TPB & SB	WA	ERM	TSM	Bees	Af	REI	PHI Apple	Signal Word	Oral Tox.	Derm Tox.	Resp.
Carpovirusine §, Cyd-X § – granulosis virus [a]	–	–	–	3	–	–	–	–	–	–	–	–	–	–	–	L	L	4	0	Caution	LI	LI	Y	
Surround § – kaolin	2	1	–	2	2	1	1	2	0	1	2	2	0	–	2	–	L	L	4	0	Caution	LI	LI	Y
SpinTor , §Entrust – spinosad	2	0	–	2	3	0	3	0	0	3	–	2	0	–	–	M	L	4	7	none	LI	LI	N	
Bt, Bacillus thuringiensis toxin – Agree §, Biobit §, Deliver §, Dipel §, Javelin §, MVP § etc.	0	0	–	2	3	0	3	0	0	3	–	0	0	–	–	L	L	4	0	Caution	LI	LI	N	
azadirachtin – Aza-Direct §, Azatin §, Neemix §, Trilogy § etc.	–	2	1	2	1	2	1	0	2	1	1	3	1	1	1	M	L	4	0	Caution	LI	S II	N	
oil, summer§ – JMS Stylet , Omni , PureSpray etc.	–	–	–	1	–	–	–	–	–	–	2	1	–	1	3	1	M	L-M	12	0	Caution	LI	LI	N
insecticidal soap – Des-X §, M-Pede §,	0	2+	0	0	0	1	0	0	1	0	1	0	0	–	–	L	L	12	?	Warning	LI?	L I?	N	
GF-120 § – spinosad bait	2	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	L	4	0	Caution	LI	LI	N	
oil, dormant§ – Dormant oil 435 , JMS Stylet oil , Omni , ProNatural , PureSpray etc.	–	2	–	–	–	–	–	–	2	–	3	–	–	–	3	–	M	L-M	12	PB	Caution	LI	LI	N
pyrethrin – Pyganic §, Pyrenone § [c]	?	?	?	?	?	?	?	?	–	?	–	?	–	–	–	M	–	12	0	Caution	LI	LI	N	