

Insecticide Tables

This table includes selected information about the insecticides recommended in this guide. The products are listed alphabetically by **Active Ingredient**, with a selection of **Trade Names**.

° = indicates that small package and ready-to-use formulations are commonly available at hardware stores and garden centers

* = indicates that some formulations may be Restricted Use Pesticides (RUP) and require a certification to purchase and use

† = indicates biorational formulations that may be listed by the Organic Materials Research Institute (OMRI) and may be allowed in organic production – check with your certifier

‡ = indicates additional formulations that do not currently occur elsewhere in this guide as crop protection recommendations because they are not as well understood to be effective options

The **Signal Word** is an indication of the human health hazard of the product.

The **Greenhouse Use** and **Chemigation Use** columns have one of four listings:

yes = the product label explicitly allows the use

some = the product label explicitly allows the use for certain crops (see the label for details), or certain Trade Names allow complete or partial use

no = the product label explicitly prohibits the use

silent = the product label does not mention the use — states decide if such uses are allowed

The **Respirator Use** column has one of the following listings:

no = a respirator is not required PPE

yes = a respirator is required for some part of the process (see label for details)

some = certain Trade Names may require respirators, but others may not

The **Bee Precaution** column uses the following listings:

I = Toxic to honey bees. Do not apply to plants that are flowering, or water puddles.

II = Toxic to honey bees. Do not apply to plants that are flowering, or water puddles, except at dusk

III = No bee precaution, except when required by the pesticide label or regulations

a = Toxic to honey bee brood

b = Toxic to other bee species

Active Ingredients	Trade Names	Signal Word	Greenhouse Use	Chemigation Use	Respirator Use	Bee Precaution
*1,3-dichloropropene	Telone II, Telone EC	warning, danger	no	some	yes	II a
*1,3-dichloropropene, chloropicrin	Telone C-17, Telone C-35	danger	no	no	yes	II a
*abamectin	Agri-Mek SC, Abba Ultra	warning	some	no	no	I b
*abamectin, *zeta-cypermethrin	Gladiator	caution	silent	no	no	I b
acephate	Bracket 97, Orthene 97	caution	no	some	yes	I b
acequioncyl	Kanemite 15SC, Shuttle 15SC	caution	some	no	no	III
acetamiprid	Assail 30SG, Assail 70WP, Tristar 8.5SL	caution	some	some	some	I b
afidopyropen	Sefina Inscalis, Versys Inscalis	caution	no	some	no	-
‡†allyl isothiocyanate	Dominus	danger	yes	some	yes	-
†azadirachtin	Aza-Direct, AzaGuard, AzaSol, Azatin O, Azatrol EC, Ecozin Plus 1.2 ME, Neemix, Molt-X	caution	yes	some	no	II
†azadirachtin, pyrethrins	Azera	caution	yes	some	yes	I b
°† <i>Bacillus thuringiensis</i> sub. <i>Kurstaki</i> strain ABTS-351	Biobit HP, DiPel DF, DiPel ES, LEAP ES	caution	some	some	yes	III
† <i>Bacillus thuringiensis</i> sub. <i>Kurstaki</i> strain EVB-113-19	BT NOW	caution	yes	some	yes	III

Active Ingredients	Trade Names	Signal Word	Greenhouse Use	Chemigation Use	Respirator Use	Bee Precaution
°† <i>Bacillus thuringiensis</i> sub. <i>Kurstaki</i> strain SA-12	Deliver	caution	some	no	yes	III
† <i>Bacillus thuringiensis</i> sub. <i>aizawai</i> strain ABTS-1857	XenTari	caution	some	some	yes	II a b
‡† <i>Beauvaria bassiana</i> strain ANT-03	BioCeres WP	caution	yes	some	yes	II b
‡† <i>Beauvaria bassiana</i> strain GHA	BotaniGard ES, BotaniGard MAXX, Mycotrol ESO, Mycotrol WPO	caution	yes	some	yes	II b
*beta-cyfluthrin	Baythroid XL	warning	silent	some	yes	I
bifenazate	Acramite 50WS, Floramite	caution	some	some	no	II b
*bifenthrin	Bifenture EC, Brigade WSB, Capture LFR, Discipline 2EC, Sniper	caution, warning	some	some	no	I b
*bifenthrin, *abamectin	Athena	caution	silent	no	no	I b
*bifenthrin, <i>Bacillus amyloliquefaciens</i> strain D 747	Ethos XB	warning	silent	no	yes	I b
*bifenthrin, *zeta-cypermethrin	Hero, HERO EW, Steed	caution, warning	silent	some	no	I b
† <i>Burkholderia</i> spp. Strain A396	BioST Nematicide 100, Majestene, Venerate	caution	yes	some	yes	II
°carbaryl	Sevin 4F, Sevin XLR	caution	silent	some	some	I b
‡†capsaicin, garlic oil, canola oil	Captiva	caution	yes	silent	no	II
chlorantraniliprole	Coragen	caution	no	some	no	III
chlorantraniliprole, *lambda-cyhalothrin	Besiege	warning	no	some	no	I b
‡chlorethoxyfos, bifenthrin	Index, SmartChoice HC	warning, danger	silent	no	some	I b
† <i>Chromobacterium subtsugae</i> strain PRAA4-1	Grandevo	caution	yes	some	yes	I
clothianidin	Belay, Poncho	caution	silent	some	no	I b
°‡†cottonseed oil, clove oil, garlic oil	Mite-X	caution	yes	silent	no	II
cyantraniliprole	Exirel, Verimark	caution	some	some	no	-
cyantraniliprole, *abamectin	Minecto Pro	warning	some	no	no	I b
cyclaniliprole	Harvanta	caution	no	some	no	-
cyflumetofen	Nealta	caution	no	no	no	-
*cyfluthrin	Tombstone (2EC)	danger	silent	some	yes	I b
*cypermethrin	Ammo 2.5EC, Holster, Up-Cyde 2.5EC	caution, warning	silent	some	no	I b
cyromazine	Trigard	caution	no	no	no	I b
°‡†diatomaceous earth	Celite 610, Deadzone	caution	silent	silent	yes	-
*diazinon	Diazinon AG500, Diazinon AG600 WBC	caution	no	some	yes	I b
dicofol	Dicofol 4E	caution	silent	no	yes	III
dimethoate	Dimethoate 2.67EC, Dimethoate 400, Dimethoate 4EC	warning	some	some	yes	I b
dinotefuran	Safari 20 SG, Scorpion 35SL, Venom 70SG	caution	some	some	no	I ab
*emamectin benzoate	Proclaim	caution	no	no	yes	I b
*esfenvalerate	Asana XL, S-FenvaloStar	warning	silent	some	no	I b
*ethoprop	Mocap 15G, Mocap EC	danger	silent	some	yes	II b
fenazaquin	Magister SC	warning	silent	no	no	I
*fenpropathrin	Danitol 2.4EC	warning	silent	no	no	I b
*fipronil	Regent 4SC	warning	silent	no	yes	I b
flonicamid	Beleaf	caution	some	some	no	III b
flusulfone	Nimitz	caution	silent	some	no	-
*fluoxastrobin, bifenthrin	Tepera Plus	caution	some	some	no	I b
flupyradifurone	Sivanto 200, Sivanto Prime	caution	silent	some	no	II
† <i>Helicoverpa armigera</i> nucleopolyhedrovirus strain BV-0003	Helicovex	caution	yes	some	yes	-
‡† <i>Helicoverpa zea</i> nucleopolyhedrovirus	Gemstar LC	caution	silent	some	yes	III
hexythiazox	Onager Optek, Hexygon	caution	some	some	no	II b

Insecticide Tables

Active Ingredients	Trade Names	Signal Word	Greenhouse Use	Chemigation Use	Respirator Use	Bee Precaution
°imidacloprid	Admire Pro, Mantra 60WSP, Marathon 60 WP, Nuprid	caution	some	some	no	I ab
indoxacarb	Avaunt	caution	some	some	no	I b
°†iron phosphate	Sluggo 1B	caution	yes	silent	no	-
‡† <i>Isaria fumosorosea</i> Apopka strain 97	Preferal	caution	yes	some	yes	II
‡†kaolin clay	Surround WP	caution	yes	no	yes	III
*°lambda-cyhalothrin	Grizzly Too, Lambda-Cy 1EC, Warrior II	warning	silent	some	no	I b
°malathion	Malathion 5, Malathion 57, Malation 8	caution, warning	some	some	no	I b
metaldehyde	Deadline Bullets, Deadline GT, Deadline M-Ps, Durham 3.5G	caution	silent	silent	no	III
*metam potassium	K-PAM HL, Sectagon K54	danger	no	some	yes	III
*metam sodium	VAPAM HL, Sectagon K42	danger	no	some	yes	III
methomyl	Lannate LV, Lannate SP, Nudrin LV, Nudrin SP	danger	silent	some	yes	I b
methoxyfenozide	Intrepid 2F	caution	some	some	no	II
°‡†mineral oil	Purespray Green, SuffOil-X, Tri-Tek	caution	some	no	no	-
°‡†neem oil	ECOWORKS EC, Rango, TerraNeem EC, Triact 70, Trilogy	caution	some	no	no	II a
*oxamyl	Vydate C-LV, Vydate L	danger	silent	some	yes	I b
‡† <i>Paecilomyces lilacinus</i> strain 251	MeloCon WC	caution	silent	some	yes	-
‡†paraffinic oil	JMS Stylet Oil	caution	yes	no	no	-
*°permethrin	Perm-Up 25DF, Perm-Up 3.2EC, Pounce 25 WP	warning	silent	some	no	I b
*phorate	Thimet 20G	danger	silent	silent	yes	III b
°piperonyl butoxide, pyrethrins	EverGreen Pro, Pyreneone	caution	yes	some	yes	I b
°†potassium salts of fatty acids	Des-X, KOPA, M-Pede	warning	yes	no	no	-
‡†potassium silicate	Carbon Defense, Sil-Matrix	caution	yes	some	no	-
°†pyrethrins	Pyganic	caution	yes	some	no, yes	I b
pymetrozine	Fulfill	caution	silent	some	no	II
pyrifluquinazon	PQZ	caution	silent	no	no	-
pyriproxyfen	Distance, Knack	caution	some	some	no	II ab
‡†rosemary oil, geraniol, peppermint oil	Ecotrol Plus	warning	yes	silent	no	III
spinetoram	Radiant 1SC	caution	no	some	no	II
°†spinosad	Blackhawk, Entrust, Entrust SC, Regard SC	caution	some	some	some	II b
spiromesifen	Oberon 2SC	caution	silent	some	no	II a
spirotramat	Movento, Kontos	caution	some	some	no	II ab
sulfoxaflor	Sequoia, Transform WG	caution, danger	some	some	no	I
tebufenozide	Confirm 2F	caution	silent	some	no	II a
*tebupirimphos, cyfluthrin	Aztec 4.67G, Aztec HC	warning	silent	silent	yes	I b
*tefluthrin	Force CS, Force Evo, Force 3G, Force 10G HL	caution, warning	silent	silent	no	-
*terbufos	Counter 20G	danger	silent	silent	yes	-
thiamethoxam	Actara, Cruiser 5FS, Flagship 25WG, Platinum 2SC	caution	some	some	no	I b
thiamethoxam, chlorantraniliprole	Durivo, Voliam Flexi	caution	no	some	no	I b
thiamethoxam, °lambda-cyhalothrin	Endigo ZCX	warning	no	some	no	I b
tolfenpyrad	Torac	warning	silent	some	no	III b
*°zeta-cypermethrin	Mustang Maxx	warning	silent	some	no	I

Small package hardware and garden center insecticides

This table includes additional pesticides that you may find readily available at hardware stores and garden centers in smaller quantities. The products are listed alphabetically by **Active Ingredient**, with a selection of **Trade Names**. RTU = Ready-To-Use without dilution. RTS = Ready-To-Spray with hose-end container.

† = indicates biorational formulations that may be listed by the Organic Materials Research Institute (OMRI) and may be allowed in organic production

‡ = indicates additional formulations that do not currently occur elsewhere in this guide as crop protection recommendations because they are not as well understood to be effective options

Active Ingredients	Trade Names
†azadirachtin, pyrethrins	Monterey Azera Gardening
† <i>Bacillus thuringiensis</i> subsp. kurstaki strain ABTS-351	Southern Ag Dipel Dust, Southern Ag Thuricide Bt Caterpillar Control
† <i>Bacillus thuringiensis</i> subsp. kurstaki strain SA-12	Bonide Captain Jack's Bt <i>Bacillus thuringiensis</i> RTU, Bonide Thuricide <i>Bacillus thuringiensis</i> (BT), Monterey B.t. RTU, Fertilome Caterpillar Killer Spray with Bt, Garden Safe Bt Worm & Caterpillar Killer
bifenthrin	Bonide Eight Flower & Vegetable Soil Insect Granules, Hi-Yield Vegetable & Ornamental Insect Control Granules, Fertilome Broad Spectrum Insecticide, GardenTech Sevin Insect Killer Dust, Ortho Outdoor Insect Killer, Monterey Vegetable Garden Soil Insecticide, Monterey Mite & Insect Control
carbaryl	Fertilome Carbaryl Garden Spray, GardenTech Sevin 5% RTU dust, GardenTech Sevin RTU liquid
‡†canola oil	Fertilome Natural Guard Horticultural Oil
‡†cottonseed oil, clove oil, garlic oil	Bonide Mite-X RTU
cyfluthrin	BioAdvanced Tomato & Vegetable Insect Killer RTU, BioAdvanced Vegetable & Garden Insect Spray
‡deltamethrin	Ortho Insect Killer Flower & Vegetable Garden Dust
esfenvalerate	Monterey Bug Buster II
‡†diatomaceous earth (silicon dioxide)	Bonide Diatomaceous Earth Crawling Insect Killer
gamma-cyhalothrin	Spectracide Triazicide Insect Killer for Lawns & Landscapes Concentrate
imidacloprid	BioAdvanced Fruit, Citrus & Vegetable Insect Control Concentrate, Monterey Fruit Tree & Vegetable Systemic Soil Drench
†iron phosphate	Bonide Captain Jack's Slug Magic, Garden Safe Slug and Snail Bait, Monterey Sluggo
†iron phosphate, spinosad	Bonide Captain Jack's Bug & Slug Killer, Fertilome Bug Slug and Snail Bait, Monterey Sluggo Plus
lambda-cyhalothrin	Bonide Eight Garden & Home RTU, GardenTech Sevin Insect Killer, Spectracide Triazicide Insect Killer for Lawns & Landscapes RTU
malathion	Hi-Yield 55% Malathion, Southern Ag Malathion 50% EC, Bonide Malathion Insect Control, Spectracide Malathion Insect Spray Concentrate, Max Malathion, Ortho MAX Malathion Insect Spray Concentrate
‡†mineral oil	Bonide All Seasons Horticultural Oil Concentrate RTU and RTS, Southern Ag Parafine Horticultural Oil
‡†neem oil	Fertilome Natural Guard Neem, Bonide Captain Jack's NeemMax 4-In-1 Insecticide Fungicide Miticide Nematicide, Monterey 70% Neem Oil, Bonide Neem Oil Fungicide Miticide Insecticide, Garden Safe Neem Oil Extract Concentrate, Garden Safe Fungicide3, Monterey Neem Oil, Southern Ag Triple Action Neem Oil
permethrin	Bonide Eight Insect Control Garden Dust, Bonide Eight Insect Control Yard & Garden, Bonide Eight Insect Control Vegetable Fruit & Flower Concentrate, Bonide Garden Pet & Livestock Insect Control, Fertilome Indoor/Outdoor Broad Use Insecticide, Southern Ag Permetrol Lawn Insecticide, GardenTech Garden Insect Dust RTU
permethrin, myclobutanil	Spectracide Immunox 3-in-1 Insect and Disease Control Plus Fertilizer for Gardens RTU
‡†potassium salts of fatty acids	Bonide Insecticidal Soap Insect Killer RTU, Fertilome Natural Guard Insecticidal Soap, Safer Brand Insect Killing Soap
‡†potassium salts of fatty acids, spinosad	Bonide Captain Jack's Insecticidal Super Soap RTU, Fertilome Natural Guard Spinosad Soap
‡†potassium salts of fatty acids, sulfur	Bonide Captain Jack's Tomato & Vegetable 3-In-1 Garden Spray
†pyrethrins	Monterey Bug Buster-O
‡†pyrethrins, canola oil	Monterey Take Down Garden Spray, Garden Safe Houseplant & Garden Insect Killer RTU, Garden Safe Rose & Flower Insect Killer RTU, Garden Safe Multi-Purpose Garden Insect Killer RTU
‡†pyrethrins, neem oil	Fertilome Triple Action Concentrate RTU, Monterey Fruit Tree Spray Plus
pyrethrins, piperonyl butoxide	Bonide Pyrethrin Garden Spray Concentrate, Bonide Japanese Beetle Killer RTU, Southern Ag Pyrethrin Concentrate, Garden Sage Multi-Purpose Garden Insect Killer, Spectracide Triazicide Insect Killer for Landscapes and Gardens Outdoor Fogger
‡pyrethrins, piperonyl butoxide, neem oil	Bonide Bon-Neem II RTU, Fertilome Fruit Tree Spray with Neem Py, Fertilome Triple Action Plus, Ortho Tree & Shrub Fruit Tree Spray
‡†sesame oil	AgroBioUSA Bee Safe 3-In-1 Garden Spray, AgroBioUSA Bee Safe Insect Killer
†spinosad	Bonide Captain Jack's Dead Bug Brew Concentrate RTS and RTU, Bonide Captain Jack's DeadBug Brew Flower and Vegetable Garden Dust, Bonide Colorado Potato Beetle Beater, Southern Ag Conserve Naturalyte Insect Control, Fertilome Natural Guard Spinosad, Monterey Garden Insect Spray
†sulfur	Hi-Yield Dusting Wettable Sulfur, GardenTech Sevin Sulfur Dust 2-in-1 Disease and Insect Control, Bonide Sulfur Plant Fungicide Dust, Southern Ag Wettable or Dusting Sulfur, Ortho Bug-Geta Slug and Snail Killer
‡†sulfur, pyrethrins	Ortho Insect Mite & Disease 3-In-1 RTU, Bonide Tomato & Vegetable 3-in-1 RTU and RTS
zeta-cypermethrin	GardenTech Sevin Insect Killer Concentrate RTU
zeta-cypermethrin, bifenthrin	GardenTech Sevin Insect Killer Lawn Granules