

ALTERNATIVES TO NEONICOTINOIDS INSECTICIDES FOR USE ON LANDSCAPE ORNAMENTALS

The following list of insecticides was compiled in order to provide licensed applicators with options for the control of aphids in ornamental trees. This list does not contain nitroguanidine-containing neonicotinoids, and is not exhaustive. The information is subject to change based on existing, and future regulatory changes, as well as scientific data. Contact the Oregon Department of Agriculture for additional information at (503)986-4635. Yellow Highlight denotes Restricted Use Pesticide. This list is designed for licensed pesticide applicators ONLY, who will be applying products in landscape settings, including residential situations. Always refer to the label!

March 1, 2015

Active Ingredient	PRODUCT NAME	EPA #	REGISTRANT NAME	RESISTANCE Mode of Action	RESISTANCE CODE	Chemical Class	Toxicity to Bees (Label Statement)	Residual Toxicity (RT), and Extended Residual Toxicity (ERT) RT= The length of time the residues of the product remain toxic to bees after application. ERT= Residues are expected to cause at least 25 percent mortality for longer than 8 hours after application
ABAMECTIN	ABACIDE 2Hp (Professional Use Only)	7946-30	JJ MAUGET COMPANY	Chloride channel activators	6	acyclic lactone	Due to toxicity to bees, use for tree micro-injection only as a post-bloom application. Do not inject trees that are less than two inches in diameter. This product is NOT to be used on trees which will produce food within the year following treatment.	Highly Toxic to Bees 0.025 lb ai/acre, 1-3 days ERT, ≤ 0.025 lb ai/acre 8 hours RT [1]
	MINX MITICIDE/INSECTICIDE	228-657	NUFARM AMERICAS INC	Chloride channel activators	6	acyclic lactone	This product is highly toxic to bees exposed to direct treatment or residues on blooming crops or weeds. Do not apply this product or allow it to drift to blooming crops or weeds if bees are visiting the treatment area.	Highly Toxic to Bees 0.025 lb ai/acre, 1-3 days ERT, ≤ 0.025 lb ai/acre 8 hours RT [1]
	NuFARM ABAMECTIN SPC 0.15 EC INSECTICIDE	228-657	NUFARM AMERICAS INC	Chloride channel activators	6	acyclic lactone	This product is highly toxic to bees exposed to direct treatment or residues on blooming crops/weeds. Do not apply this product or allow it to drift to blooming crops or weeds if bees are visiting the treatment area.	Highly Toxic to Bees 0.025 lb ai/acre, 1-3 days ERT, ≤ 0.025 lb ai/acre 8 hours RT [1]
	QUALI-PRO ABAMECTIN 0.15 EC MITICIDE/INSECTICIDE	66222-210	MAKHTESHIM-AGAN OF NORTH AMERICAN INC.	Chloride channel activators	6	acyclic lactone	This product is highly toxic to bees exposed to direct treatment or residues on blooming crops/weeds. Do not apply this product or allow it to drift to blooming crops or weeds if bees are visiting the treatment area.	Highly Toxic to Bees 0.025 lb ai/acre, 1-3 days ERT, ≤ 0.025 lb ai/acre 8 hours RT [1]
	SIROCCO MITICIDE/INSECTICIDE	400-582	OHP INC.	Chloride channel activators	6	acyclic lactone	This product is highly toxic to bees exposed to direct treatment or residues on blooming crops/weeds. Do not apply this product or allow it to drift to blooming crops or weeds if bees are visiting the treatment area.	Highly Toxic to Bees 0.025 lb ai/acre, 1-3 days ERT, ≤ 0.025 lb ai/acre 8 hours RT [1]
	VIVID II	64014-10	FLORIDA SILVLICS INC	Chloride channel activators	6	acyclic lactone	This product is highly toxic to bees exposed to direct treatment or residues on blooming crops/weeds. Do not apply this product or allow it to drift to blooming crops or weeds if bees are visiting the treatment area.	Highly Toxic to Bees 0.025 lb ai/acre, 1-3 days ERT, ≤ 0.025 lb ai/acre 8 hours RT [1]
Acephate	ACECAP SYSTEMIC INSECTICIDE TREE IMPLANTS	37979-1	CREATIVE SALES INC	Acetylcholinesterase inhibitors	1	organophosphate	No Bee Toxicity Statement on Label	Highly Toxic to Bees >3 days ERT <i>can vary with formulation and application rate</i> [1]
	AMVAC ORTHENE TURF TREE & ORNAMENTAL 97 SPRAY	5481-8978	AMVAC CHEMICAL CORP.	Acetylcholinesterase inhibitors	1	organophosphate	This product is highly toxic to bees exposed to direct treatment on blooming crops or weeds. Do not apply this product or allow it to drift to blooming crops or weeds while bees are actively visiting the treatment area. Ensure that planting equipment is functioning properly in accordance with manufacturer specifications to minimize seed coat abrasion during planting to reduce dust which can drift to blooming crops or weeds.	Highly Toxic to Bees >3 days ERT <i>can vary with formulation and application rate</i> [1]
	AMVAC ORTHENE TURF TREE & ORNAMENTAL WSP	5481-8971	AMVAC CHEMICAL CORP.	Acetylcholinesterase inhibitors	1	organophosphate	This product is highly toxic to bees exposed to direct treatment on blooming crops or weeds. Do not apply this product or allow it to drift to blooming crops or weeds while bees are actively visiting the treatment area. Ensure that planting equipment is functioning properly in accordance with manufacturer specifications to minimize seed coat abrasion during planting to reduce dust which can drift to blooming crops or weeds.	Highly Toxic to Bees >3 days ERT <i>can vary with formulation and application rate</i> [1]

Active Ingredient	PRODUCT NAME	EPA #	REGISTRANT NAME	RESISTANCE Mode of Action	RESISTANCE CODE	Chemical Class	Toxicity to Bees (Label Statement)	Residual Toxicity (RT), and Extended Residual Toxicity (ERT) RT= The length of time the residues of the product remain toxic to bees after application. ERT= Residues are expected to cause at least 25 percent mortality for longer than 8 hours after application
	BRACKET 97 INSECTICIDE	70506-8	WINFIELD SOLUTIONS LLC	Acetylcholinesterase inhibitors	1	organophosphate	This product is highly toxic to bees exposed to direct treatment on blooming crops or weeds. Do not apply this product or allow it to drift to blooming crops or weeds while bees are actively visiting the treatment area. Ensure that planting equipment is functioning properly in accordance with manufacturer specifications to minimize seed coat abrasion during planting to reduce dust which can drift to blooming crops or weeds.	Highly Toxic to Bees >3 days ERT <i>can vary with formulation and application rate</i> [1]
Acetamiprid	Tristar 30 SG Insecticide	8033-94	Cleary Chemical	Nicotinic acetylcholine receptor antagonist	4	Neonicotinoid	This product is toxic to bees exposed to direct treatment. Do not apply while bees are actively visiting the area.	Residual toxicity to honey bees is unknown. 2 day ERT to bumble bees [1]
	Tristar 8.5 SL Insecticide	8033-106	Cleary Chemical	Nicotinic acetylcholine receptor antagonist	4	Neonicotinoid	This product is very toxic to bees. Do not apply this product while bees are visiting the treated area.	Residual toxicity to honey bees is unknown. 2 day ERT to bumble bees [1]
ALLYL ISOTHIOCYANATE	NEMITOL CONC.	61966-4	ENGAGE AGRO USA			Botanical	Bee Precaution: Do not apply prior to or during pollination as Nemitol Concentrate kills and repels bees and therefore, adversely affects pollination.	
AZADIRACTIN	AMAZIN 1.2% ME PLUS -OMRI-	5481-559	AMVAC CHEMICAL CORP.	Compounds of unknown or uncertain MOA		Botanical: IGR	Relatively Non-toxic to bees	Cyano group neonicotinoids exhibit lower toxicity to bees than nitro group neonicotino Toxic to Bees <2 hours RT <i>can vary with formulation and application rate</i> [1] Toxic to Bees <2 hours RT <i>can vary with formulation and application rate</i> [1] Toxic to Bees <2 hours RT <i>can vary with formulation and application rate</i> [1] Toxic to Bees <2 hours RT <i>can vary with formulation and application rate</i> [1] Toxic to Bees <2 hours RT <i>can vary with formulation and application rate</i> [1] Toxic to Bees <2 hours RT <i>can vary with formulation and application rate</i> [1] Toxic to Bees <2 hours RT <i>can vary with formulation and application rate</i> [1] Toxic to Bees <2 hours RT <i>can vary with formulation and application rate</i> [1]
	AZAGUARD BOTANICAL INSECTICIDE/NEMATOCIDE	70299-17	BIOSAFE SYSTEMS	Compounds of unknown or uncertain MOA		Botanical: IGR	Relatively Non-toxic to bees	
	AZAMAX AG 0.6	71908-5	PARRY AMERICA	Compounds of unknown or uncertain MOA		Botanical: IGR	Relatively Non-toxic to bees	
	AZASOL	81899-4	SOLUNEEM INC	Compounds of unknown or uncertain MOA		Botanical: IGR	Relatively Non-toxic to bees	
	AZATIN XL BIOLOGICAL INSECTICIDE	70051-27	OHP INC.	Compounds of unknown or uncertain MOA		Botanical: IGR	Relatively Non-toxic to bees	
	GORDONS PRO T&O AZATROL EC INSECTICIDE	2217-836	PBI/GORDON CORPORATION	Compounds of unknown or uncertain MOA		Botanical: IGR	Relatively Non-toxic to bees	
	MOLT-X	68539-11	BIOWORKS INC	Compounds of unknown or uncertain MOA		Botanical: IGR	Relatively Non-toxic to bees	
	ORNAZIN 3% EC BOTANICAL INSECTICIDE	5481-476	SEPRO CORPORATION	Compounds of unknown or uncertain MOA		Botanical: IGR	Relatively Non-toxic to bees	
BEAUVERIA BASSIANA GHA	BOTANIGARD 22WP	82074-2	LAVERLAM INTERNATIONAL CORPORATION			Microbial	Potentially Pathogenic to Bees	Toxic to Bees Potentially pathogenic to honey bees (per Mycotrol label), and laboratory studies suggest effects on bumble bees [1]
	BOTANIGARD ES	82074-1	LAVERLAM INTERNATIONAL CORPORATION			Microbial	Potentially Pathogenic to Bees	Toxic to Bees Potentially pathogenic to honey bees (per Mycotrol label), and laboratory studies suggest effects on bumble bees [1]
	MYCOTROL O	82074-3	LAVERLAM INTERNATIONAL CORPORATION			Microbial	Potentially Pathogenic to Bees	Toxic to Bees Potentially pathogenic to honey bees (per Mycotrol label), and laboratory studies suggest effects on bumble bees [1]
BETA-CYFLUTHRIN	TEMPO SC ULTRA INSECTICIDE	432-1363	BAYER ENVIRONMENTAL SCIENCE	Sodium channel modulators	3	Pyrethroid	This product is highly toxic to bees exposed to direct treatment on blooming crops or weeds. Do not apply this product or allow it to drift to blooming crops or weeds while bees are actively visiting the treatment area.	Highly Toxic to Bees >1 day ERT <i>can vary with formulation and application rate</i> [1]

Active Ingredient	PRODUCT NAME	EPA #	REGISTRANT NAME	RESISTANCE Mode of Action	RESISTANCE CODE	Chemical Class	Toxicity to Bees (Label Statement)	Residual Toxicity (RT), and Extended Residual Toxicity (ERT) RT= The length of time the residues of the product remain toxic to bees after application. ERT= Residues are expected to cause at least 25 percent mortality for longer than 8 hours after application
	TEMPO ULTRA GC INSECTICIDE	432-1452	BAYER ENVIRONMENTAL SCIENCE	Sodium channel modulators	3	Pyrethroid	This product is highly toxic to bees exposed to direct treatment on blooming crops or weeds. Do not apply this product or allow it to drift to blooming crops or weeds while bees are actively visiting the treatment area.	Highly Toxic to Bees >1 day ERT can vary with formulation and application rate [1]
	TEMPO ULTRA WP INSECTICIDE (ES)	432-1304	BAYER ENVIRONMENTAL SCIENCE	Sodium channel modulators	3	Pyrethroid	This product is highly toxic to bees exposed to direct treatment on blooming crops or weeds. Do not apply this product or allow it to drift to blooming crops or weeds while bees are actively visiting the treatment area.	Highly Toxic to Bees >1 day ERT can vary with formulation and application rate [1]
	TEMPO ULTRA WSP INSECTICIDE	432-1377	BAYER ENVIRONMENTAL SCIENCE	Sodium channel modulators	3	Pyrethroid	This product is highly toxic to bees exposed to direct treatment on blooming crops or weeds. Do not apply this product or allow it to drift to blooming crops or weeds while bees are actively visiting the treatment area.	Highly Toxic to Bees >1 day ERT can vary with formulation and application rate [1]
BIFENAZATE	SIROCCO MITICIDE/INSECTICIDE	400-582	OHP INC.	Compounds of unknown or uncertain MOA	un	Carbamate	This product is highly toxic to bees exposed to direct treatment on blooming crops or weeds. Do not apply this product or allow it to drift to blooming crops or weeds while bees are actively visiting the treatment area.	Residual Bee Toxicity not Readily Available
BIFENTHRIN	BASELINE INSECTICIDE	279-3177	FMC CORP - AG PRODUCTS GROUP	Sodium channel modulators	3	Pyrethroid	This product is highly toxic to bees. Do not apply this product or allow it to drift to crops or weeds on which Bees are actively foraging.	Highly Toxic to Bees >0.06 lb ai/acre, >1 day ERT ≤0.04 lb ai/acre 4-6 hours RT [1]
	BIFEN 25% EC INSECTICIDE / MITICIDE	83520-4	TACOMA AG. LLC	Sodium channel modulators	3	Pyrethroid	This product is highly toxic to bees. Do not apply this product or allow it to drift to crops or weeds on which Bees are actively foraging.	Highly Toxic to Bees >0.06 lb ai/acre, >1 day ERT ≤0.04 lb ai/acre 4-6 hours RT [1]
	BIFEN I/T INSECTICIDE/TERMITICIDE	53883-118	CONTROL SOLUTIONS INC	Sodium channel modulators	3	Pyrethroid	This product is highly toxic to bees. Do not apply this product or allow it to drift to crops or weeds on which Bees are actively foraging.	Highly Toxic to Bees >0.06 lb ai/acre, >1 day ERT ≤0.04 lb ai/acre 4-6 hours RT [1]
	BIFEN XTS INSECTICIDE/TERMITICIDE	53883-189	CONTROL SOLUTIONS INC	Sodium channel modulators	3	Pyrethroid	This product is highly toxic to bees. Do not apply this product or allow it to drift to crops or weeds on which Bees are actively foraging.	Highly Toxic to Bees >0.06 lb ai/acre, >1 day ERT ≤0.04 lb ai/acre 4-6 hours RT [1]
	BISECT L	34704-955	LOVELAND PROD./CROP PROTECTION SVCS	Sodium channel modulators	3	Pyrethroid	This Product is highly toxic to bees. Do not apply this product or allow it to drift to crops or weeds on which Bees are actively foraging.	Highly Toxic to Bees >0.06 lb ai/acre, >1 day ERT ≤0.04 lb ai/acre 4-6 hours RT [1]
	COMPARE-N-SAVE CONC IN/OUTDOOR INSECT CONTROL	228-451	RAGAN & MASSEY INC.	Sodium channel modulators	3	Pyrethroid	This product is highly toxic to bees. Do not apply this product or allow it to drift to crops or weeds on which Bees are actively foraging.	Highly Toxic to Bees >0.06 lb ai/acre, >1 day ERT ≤0.04 lb ai/acre 4-6 hours RT [1]
	LESCO CROSS X CHECK PLUS MULTI-INSECTICIDE	279-3206	LESCO INC	Sodium channel modulators	3	Pyrethroid	This product is highly toxic to bees. Do not apply this product or allow it to drift to crops or weeds on which Bees are actively foraging.	Highly Toxic to Bees >0.06 lb ai/acre, >1 day ERT ≤0.04 lb ai/acre 4-6 hours RT [1]
	MASTERLINE BY UNIVAR BIFENTHRIN 7.9 TERMITICIDE/INSECTICIDE	73748-7	UNIVAR ENVIRONMENTAL SCIENCES	Sodium channel modulators	3	Pyrethroid	This product is highly toxic to bees. Do not apply this product or allow it to drift to crops or weeds on which Bees are actively foraging.	Highly Toxic to Bees >0.06 lb ai/acre, >1 day ERT ≤0.04 lb ai/acre 4-6 hours RT [1]
	MENACE 7.9% FLOWABLE	228-451	NUFARM AMERICAS INC	Sodium channel modulators	3	Pyrethroid	This product is highly toxic to bees. Do not apply this product or allow it to drift to crops or weeds on which Bees are actively foraging.	Highly Toxic to Bees >0.06 lb ai/acre, >1 day ERT ≤0.04 lb ai/acre 4-6 hours RT [1]
	ONYX INSECTICIDE	279-3177	FMC CORP - AG PRODUCTS GROUP	Sodium channel modulators	3	Pyrethroid	This product is highly toxic to bees. Do not apply this product or allow it to drift to crops or weeds on which Bees are actively foraging.	Highly Toxic to Bees >0.06 lb ai/acre, >1 day ERT ≤0.04 lb ai/acre 4-6 hours RT [1]
	ONYXPRO INSECTICIDE	279-4269	FMC CORP - AG PRODUCTS GROUP	Sodium channel modulators	3	Pyrethroid	This product is highly toxic to bees. Do not apply this product or allow it to drift to crops or weeds on which Bees are actively foraging.	Highly Toxic to Bees >0.06 lb ai/acre, >1 day ERT ≤0.04 lb ai/acre 4-6 hours RT [1]
	PRO-MATE BIFENTHRIN TERMITICIDE/INSECTICIDE	279-3206	HELENA CHEMICAL COMPANY	Sodium channel modulators	3	Pyrethroid	This product is highly toxic to bees. Do not apply this product or allow it to drift to crops or weeds on which Bees are actively foraging.	Highly Toxic to Bees >0.06 lb ai/acre, >1 day ERT ≤0.04 lb ai/acre 4-6 hours RT [1]
	SPECKOZ BIFENTHRIN TERMITICIDE/INSECTICIDE	279-3206	SPECKOZ INC	Sodium channel modulators	3	Pyrethroid	This product is highly toxic to bees. Do not apply this product or allow it to drift to crops or weeds on which Bees are actively foraging.	Highly Toxic to Bees >0.06 lb ai/acre, >1 day ERT ≤0.04 lb ai/acre 4-6 hours RT [1]

Active Ingredient	PRODUCT NAME	EPA #	REGISTRANT NAME	RESISTANCE Mode of Action	RESISTANCE CODE	Chemical Class	Toxicity to Bees (Label Statement)	Residual Toxicity (RT), and Extended Residual Toxicity (ERT) RT= The length of time the residues of the product remain toxic to bees after application. ERT= Residues are expected to cause at least 25 percent mortality for longer than 8 hours after application
	UP-STAR GOLD INSECTICIDE	70506-24	UNITED PHOSPHORUS INC	Sodium channel modulators	3	Pyrethroid	This product is highly toxic to bees. Do not apply this product or allow it to drift to crops or weeds on which Bees are actively foraging.	Highly Toxic to Bees >0.06 lb ai/acre, >1 day ERT ≤0.04 lb ai/acre 4-6 hours RT [1]
	WISDOM FLOWABLE	5481-519	AMVAC CHEMICAL CORP.	Sodium channel modulators	3	Pyrethroid	This product is highly toxic to bees. Do not apply this product or allow it to drift to crops or weeds on which Bees are actively foraging.	Highly Toxic to Bees >0.06 lb ai/acre, >1 day ERT ≤0.04 lb ai/acre 4-6 hours RT [1]
	WISDOM TC FLOWABLE	5481-520	AMVAC CHEMICAL CORP.	Sodium channel modulators	3	Pyrethroid	This product is highly toxic to bees. Do not apply this product or allow it to drift to crops or weeds on which Bees are actively foraging.	Highly Toxic to Bees >0.06 lb ai/acre, >1 day ERT ≤0.04 lb ai/acre 4-6 hours RT [1]
CAPSAICIN	NEMITOL CONC.	61966-4	ENGAGE AGRO USA			Botanical	Bee Precaution: Do not apply prior to or during pollination as Nemitol Concentrate kills and repels bees and therefore, adversely affects pollination.	Toxic to Bees, no RT information available. Consult label for further information.
CHLORANTRANILIPROLE	ACELEPRYN INSECTICIDE	100-1489	SYNGENTA CROP PROTECTION INC.	Ryanodine receptor modulators	28	Anthranilic Diamide	No Bee Toxicity Statement on Label	Residual Bee Toxicity not Readily Available
Cinnamaldehyde	CINNACURE RTU	58866-13	PROGUARD INC			Botanical	No Bee Toxicity Statement on Label	
CLARIFIED HYDROPHOBIC EXTRACT OF NEEM OIL	GREEN LIGHT NEEM CONC.	70051-2	GREEN LIGHT A VALENT USA COMPANY			Botanical	This product is toxic to bees exposed to direct treatment Do not apply this product while bees are actively visiting the treatment area	Relatively non-toxic to bees. Must be ingested to be toxic
	TRIACT 70 FUNG/INSECT/MITICIDE	70051-2	OHP INC.			Botanical	This product is toxic to bees exposed to direct treatment Do not apply this product while bees are actively visiting the treatment area	Relatively non-toxic to bees. Must be ingested to be toxic
Cyfluthrin	TEMPO 20WP GOLF COURSE INSECTICIDE IN WSP	432-1338	BAYER ENVIRONMENTAL SCIENCE	Sodium channel modulators	3	Pyrethroid	This pesticide is highly toxic to bees exposed to direct treatment or residues on crops or weeds. Do not apply to or allow drift onto crops or weeds on which bees are actively foraging.	>1 day ERT, Can vary with formulation and application rate. Incompatible with bumble bees [1]
CYHALOTHRIN GAMMA	OPTIMATE CS CONTROLLED RELEASE INSECTICIDE	67760-104	CONTROL SOLUTIONS INC	Sodium channel modulators	3	Pyrethroid	This pesticide is highly toxic to bees exposed to direct treatment or residues on crops or weeds. Do not apply or allow it to drift onto crops or weeds on which bees are actively foraging.	No RT or ERT data available
DELTAMETHRIN	SUSPEND SC INSECTICIDE	432-763	BAYER ENVIRONMENTAL SCIENCE	Sodium channel modulators	3	Pyrethroid	This pesticide is highly toxic to bees exposed to direct treatment or residues on crops or weeds. Do not apply to or allow drift onto crops or weeds on which bees are actively foraging.	<4 hours RT, can vary with formulation and application rate. 2 days ERT for bumble bees [1]
DIATOMACEOUS EARTH	PERM GUARD GARDEN AND PLANT INSECTICIDE D-21	67197-3	PERMA-GUARD INC			Inorganic	No Bee Toxicity Statement on Label	Toxic to Bees <2 hours RT can vary with formulation and application rate [1]
DICROTOPHOS	INJECT-A-CIDE B	7946-11	JJ MAUGET COMPANY	Acetylcholinesterase inhibitors	1	Organophosphate	No bee toxicity statement on label	<48 hour RT for honey bees at 0.5 lbs/A [2]
ESFENVALERATE	EVERCIDE MC	1021-1794	MCLAUGHLIN GORMLEY KING	Sodium channel modulators	3	Pyrethroid	No Bee Toxicity Statement on Label	Up to 1 day ERT, can vary with formulation and application rate. Incompatible with bumble bees [1]
	ONSLAUGHT FAST CAP SPIDER & SCORPION INSECTICIDE	1021-2574	MCLAUGHLIN GORMLEY KING	Sodium channel modulators	3	Pyrethroid	No Bee Toxicity Statement on Label	Up to 1 day ERT, can vary with formulation and application rate. Incompatible with bumble bees [1]
FENVALERATE	ONSLAUGHT MICROENCAPSULATED INSECTICIDE	1021-1815	MCLAUGHLIN GORMLEY KING	Sodium channel modulators	3	Pyrethroid	No Bee Toxicity Statement on Label	RT ₂₅ of 7-8 hours using Pydrin® at 2.4 lb/gal EC [2]
GERANIOL	ESSENTRIA IC3 INSECTICIDE CONC	87276-13001	ENVINCIO LLC			Botanical	No Bee Toxicity Statement on Label	Residual Bee Toxicity Not Readily Available
Lambda-Cyhalothrin	CYMIC CS CONTROLLED RELEASE INSECTICIDE	53883-261	CONTROL SOLUTIONS INC	Sodium channel modulators	3	Pyrethroid	This pesticide is highly toxic to bees exposed to direct treatment or residues on crops or weeds. Do not allow it to drift onto crops or weeds on which bees are actively foraging.	ERT varies with formulation and application rate. May be more toxic to bees when mixed with propiconazole, incompatible with bumble bees [1]
	DEMAND EZ INSECTICIDE	100-1232	SYNGENTA CROP PROTECTION INC.	Sodium channel modulators	3	Pyrethroid	This pesticide is highly toxic to bees exposed to direct treatment or residues on crops or weeds. Do not allow it to drift onto crops or weeds on which bees are actively foraging.	ERT varies with formulation and application rate. May be more toxic to bees when mixed with propiconazole, incompatible with bumble bees [1]

Active Ingredient	PRODUCT NAME	EPA #	REGISTRANT NAME	RESISTANCE Mode of Action	RESISTANCE CODE	Chemical Class	Toxicity to Bees (Label Statement)	Residual Toxicity (RT), and Extended Residual Toxicity (ERT) RT= The length of time the residues of the product remain toxic to bees after application. ERT= Residues are expected to cause at least 25 percent mortality for longer than 8 hours after application
	EQUIL LAMBDA 9.7 CS INSECTICIDE	87276-1	ENVINCIO LLC	Sodium channel modulators	3	Pyrethroid	This pesticide is highly toxic to bees exposed to direct treatment or residues on crops or weeds. Do not allow it to drift onto crops or weeds on which bees are actively foraging.	ERT varies with formulation and application rate. May be more toxic to bees when mixed with propiconazole, incompatible with bumble bees [1]
	KENDO 9.7 SC	74530-53	HELM AGRO US INC.	Sodium channel modulators	3	Pyrethroid	This pesticide is highly toxic to bees exposed to direct treatment or residues on crops or weeds. Do not allow it to drift onto crops or weeds on which bees are actively foraging.	ERT varies with formulation and application rate. May be more toxic to bees when mixed with propiconazole, incompatible with bumble bees [1]
	KENDO INSECTICIDE	74530-38	HELM AGRO US INC.	Sodium channel modulators	3	Pyrethroid	This pesticide is highly toxic to bees exposed to direct treatment or residues on crops or weeds. Do not allow it to drift onto crops or weeds on which bees are actively foraging.	ERT varies with formulation and application rate. May be more toxic to bees when mixed with propiconazole, incompatible with bumble bees [1]
	LAMBDA SELECT	86869-5	SELECT SOURCE	Sodium channel modulators	3	Pyrethroid	This pesticide is highly toxic to bees exposed to direct treatment or residues on crops or weeds. Do not allow it to drift onto crops or weeds on which bees are actively foraging.	ERT varies with formulation and application rate. May be more toxic to bees when mixed with propiconazole, incompatible with bumble bees [1]
	LAMBDA-CY EC INSECTICIDE	70506-120	UNITED PHOSPHORUS INC	Sodium channel modulators	3	Pyrethroid	This pesticide is highly toxic to bees exposed to direct treatment or residues on crops or weeds. Do not allow it to drift onto crops or weeds on which bees are actively foraging.	ERT varies with formulation and application rate. May be more toxic to bees when mixed with propiconazole, incompatible with bumble bees [1]
	LAMBDA-CY EC INSECTICIDE-RUP	70506-121	UNITED PHOSPHORUS INC	Sodium channel modulators	3	Pyrethroid	This pesticide is highly toxic to bees exposed to direct treatment or residues on crops or weeds. Do not allow it to drift onto crops or weeds on which bees are actively foraging.	ERT varies with formulation and application rate. May be more toxic to bees when mixed with propiconazole, incompatible with bumble bees [1]
	LAMBDASTAR 9.7% CS INSECTICIDE	71532-23	LG INTERNATIONAL - AMERICA- INC	Sodium channel modulators	3	Pyrethroid	This pesticide is highly toxic to bees exposed to direct treatment or residues on crops or weeds. Do not allow it to drift onto crops or weeds on which bees are actively foraging.	ERT varies with formulation and application rate. May be more toxic to bees when mixed with propiconazole, incompatible with bumble bees [1]
	NuFARM LAMBDA-CYHALOTHRIN 1 EC INSECTICIDE	228-708	NUFARM AMERICAS INC	Sodium channel modulators	3	Pyrethroid	This pesticide is highly toxic to bees exposed to direct treatment or residues on crops or weeds. Do not allow it to drift onto crops or weeds on which bees are actively foraging.	ERT varies with formulation and application rate. May be more toxic to bees when mixed with propiconazole, incompatible with bumble bees [1]
	PATROL INSECTICIDE	100-1066	SYNGENTA CROP PROTECTION INC.	Sodium channel modulators	3	Pyrethroid	This pesticide is highly toxic to bees exposed to direct treatment or residues on crops or weeds. Do not allow it to drift onto crops or weeds on which bees are actively foraging.	ERT varies with formulation and application rate. May be more toxic to bees when mixed with propiconazole, incompatible with bumble bees [1]
	QUALI-PRO LAMBDA GC-O INSECTICIDE	53883-244	MAKHTESHIM-AGAN OF NORTH AMERICAN INC.	Sodium channel modulators	3	Pyrethroid	This pesticide is highly toxic to bees exposed to direct treatment or residues on crops or weeds. Do not allow it to drift onto crops or weeds on which bees are actively foraging.	ERT varies with formulation and application rate. May be more toxic to bees when mixed with propiconazole, incompatible with bumble bees [1]
	SCIMITAR CS INSECTICIDE	100-1078	SYNGENTA CROP PROTECTION INC.	Sodium channel modulators	3	Pyrethroid	This pesticide is highly toxic to bees exposed to direct treatment or residues on crops or weeds. Do not allow it to drift onto crops or weeds on which bees are actively foraging.	ERT varies with formulation and application rate. May be more toxic to bees when mixed with propiconazole, incompatible with bumble bees [1]
	SCIMITAR GC INSECTICIDE	100-1088	SYNGENTA CROP PROTECTION INC.	Sodium channel modulators	3	Pyrethroid	This pesticide is highly toxic to bees exposed to direct treatment or residues on crops or weeds. Do not allow it to drift onto crops or weeds on which bees are actively foraging.	ERT varies with formulation and application rate. May be more toxic to bees when mixed with propiconazole, incompatible with bumble bees [1]
	SPECKOZ BORDER INSECTICIDE	100-1066	SPECKOZ INC	Sodium channel modulators	3	Pyrethroid	This pesticide is highly toxic to bees exposed to direct treatment or residues on crops or weeds. Do not allow it to drift onto crops or weeds on which bees are actively foraging.	ERT varies with formulation and application rate. May be more toxic to bees when mixed with propiconazole, incompatible with bumble bees [1]
	SURRENDER PESTABS INSECTICIDE	53883-70	CONTROL SOLUTIONS INC	Sodium channel modulators	3	Pyrethroid	This pesticide is highly toxic to bees exposed to direct treatment or residues on crops or weeds. Do not allow it to drift onto crops or weeds on which bees are actively foraging.	ERT varies with formulation and application rate. May be more toxic to bees when mixed with propiconazole, incompatible with bumble bees [1]

Active Ingredient	PRODUCT NAME	EPA #	REGISTRANT NAME	RESISTANCE Mode of Action	RESISTANCE CODE	Chemical Class	Toxicity to Bees (Label Statement)	Residual Toxicity (RT), and Extended Residual Toxicity (ERT) RT= The length of time the residues of the product remain toxic to bees after application. ERT= Residues are expected to cause at least 25 percent mortality for longer than 8 hours after application
LEMONGRASS OIL	PURE 3-WAY	99822-13002	PURE NUTRIENTS INC			Botanical	No Bee Toxicity Statement on Label	Information unavailable
	PURE GREEN THUMB	99822-13003	PURE NUTRIENTS INC			Botanical	No Bee Toxicity Statement on Label	Information unavailable
Malathion	MALATHION SEC	66330-220	ARYSTA LIFESCIENCE NORTH AMERICA	Acetylcholinesterase inhibitors	1	Organophosphate	This pesticide is highly toxic to bees exposed to direct treatment or residues on crops or weeds. Do not allow it to drift onto crops or weeds on which bees are actively foraging.	Malathion ULV, ≥8 fl oz ai/acre 5.5 days ERT, ≤ fl oz ai/acre 3 hours RT, Malathion WP 2 days ERT, Malathion EC 2-6 hours RT, varies with formulation and application rate. Incompatible with bumble bees[1]
	MALATHION 8 AQUAMUL	34704-474	LOVELAND PROD./CROP PROTECTION SVCS	Acetylcholinesterase inhibitors	1	Organophosphate	This pesticide is highly toxic to bees exposed to direct treatment or residues on crops or weeds. Do not allow it to drift onto crops or weeds on which bees are actively foraging.	Malathion ULV, ≥8 fl oz ai/acre 5.5 days ERT, ≤ fl oz ai/acre 3 hours RT, Malathion WP 2 days ERT, Malathion EC 2-6 hours RT, varies with formulation and application rate. Incompatible with bumble bees[1]
	MARTINS MALATHION 57% ORGANOPHOSPHATE	67760-40	CONTROL SOLUTIONS INC	Acetylcholinesterase inhibitors	1	Organophosphate	This pesticide is highly toxic to bees exposed to direct treatment or residues on crops or weeds. Do not allow it to drift onto crops or weeds on which bees are actively foraging.	Malathion ULV, ≥8 fl oz ai/acre 5.5 days ERT, ≤ fl oz ai/acre 3 hours RT, Malathion WP 2 days ERT, Malathion EC 2-6 hours RT, varies with formulation and application rate. Incompatible with bumble bees[1]
Horticulture Oil	FIRST CHOICE NARROW RANGE 415 SPRAY OIL	34704-1025	LOVELAND PROD./CROP PROTECTION SVCS	Resistance not known	NC	Petroleum Hydrocarbon	No Bee Toxicity Statement on Label	<3 hours RT25 (can vary with formulation and application rate) [1]
	PRES TRMT ULTRA-PURE OIL	69526-5	WHITMIRE MICRO-GEN RESEARCH LABS	Resistance not known	NC	Petroleum Hydrocarbon	No Bee Toxicity Statement on Label	<3 hours RT25 (can vary with formulation and application rate) [1]
	PURESPRAY FOLIAR 15E	69526-8	PETRO-CANADA	Resistance not known	NC	Petroleum Hydrocarbon	No Bee Toxicity Statement on Label	<3 hours RT25 (can vary with formulation and application rate) [1]
	PURESPRAY FOLIAR 22E	69526-7	PETRO-CANADA	Resistance not known	NC	Petroleum Hydrocarbon	No Bee Toxicity Statement on Label	<3 hours RT25 (can vary with formulation and application rate) [1]
	PURESPRAY SPRAY OIL 10E	69526-5	PETRO-CANADA	Resistance not known	NC	Petroleum Hydrocarbon	No Bee Toxicity Statement on Label	<3 hours RT25 (can vary with formulation and application rate) [1]
	SUNSPRAY ULTRA-FINE SPRAY OIL	86330-11	HOLLY FRONTIER REFINING & MARKETING LLC	Resistance not known	NC	Petroleum Hydrocarbon	No Bee Toxicity Statement on Label	<3 hours RT25 (can vary with formulation and application rate) [1]
	DAMOIL DORMANT & SUMMER SPRAY OIL	19713-123	DREXEL CHEMICAL COMPANY	Resistance not known	NC	Petroleum Hydrocarbon	No Bee Toxicity Statement on Label	<3 hours RT25 (can vary with formulation and application rate) [1]
	IAP 440 SPRAY OIL /ORGANIC PRODUCTION	71058-6	IAP - INDEPENDENT AGRIBUSINESS PROFESSIONALS	Resistance not known	NC	Petroleum Hydrocarbon	No Bee Toxicity Statement on Label	<3 hours RT25 (can vary with formulation and application rate) [1]
	IAP SUMMER 415 SPRAY OIL /ORGANIC PRODUCTION	71058-5	IAP - INDEPENDENT AGRIBUSINESS PROFESSIONALS	Resistance not known	NC	Petroleum Hydrocarbon	No Bee Toxicity Statement on Label	<3 hours RT25 (can vary with formulation and application rate) [1]
	BIOCOVER SS	34704-809	LOVELAND PROD./CROP PROTECTION SVCS	Resistance not known	NC	Petroleum Hydrocarbon	No Bee Toxicity Statement on Label	<3 hours RT25 (can vary with formulation and application rate) [1]
	BIOCOVER UL	34704-806	LOVELAND PROD./CROP PROTECTION SVCS	Resistance not known	NC	Petroleum Hydrocarbon	No Bee Toxicity Statement on Label	<3 hours RT25 (can vary with formulation and application rate) [1]
	FERTI-LOME HORTICULTURAL OIL SPRAY	48813-1	VOLUNTARY PURCHASING GROUPS	Resistance not known	NC	Petroleum Hydrocarbon	No Bee Toxicity Statement on Label	<3 hours RT25 (can vary with formulation and application rate) [1]
	GLACIAL SPRAY FLUID	34704-849	LOVELAND PROD./CROP PROTECTION SVCS	Resistance not known	NC	Petroleum Hydrocarbon	No Bee Toxicity Statement on Label	<3 hours RT25 (can vary with formulation and application rate) [1]
	IAP HI SUPREME SPRAY OIL-NW	71058-2	IAP - INDEPENDENT AGRIBUSINESS PROFESSIONALS	Resistance not known	NC	Petroleum Hydrocarbon	No Bee Toxicity Statement on Label	<3 hours RT25 (can vary with formulation and application rate) [1]
	LESCO HORTICULTURAL OIL INSECTICIDE	10404-66	LESCO INC	Resistance not known	NC	Petroleum Hydrocarbon	No Bee Toxicity Statement on Label	<3 hours RT25 (can vary with formulation and application rate) [1]
	MITE-E-OIL INSECTICIDE-MITICIDE/SPRAY	5905-302	HELENA CHEMICAL COMPANY	Resistance not known	NC	Petroleum Hydrocarbon	No Bee Toxicity Statement on Label	<3 hours RT25 (can vary with formulation and application rate) [1]
OMNI SUPREME SPRAY	5905-368	HELENA CHEMICAL COMPANY	Resistance not known	NC	Petroleum Hydrocarbon	No Bee Toxicity Statement on Label	<3 hours RT25 (can vary with formulation and application rate) [1]	
PURESPRAY GREEN	69526-9	PETRO-CANADA	Resistance not known	NC	Petroleum Hydrocarbon	No Bee Toxicity Statement on Label	<3 hours RT25 (can vary with formulation and application rate) [1]	

Active Ingredient	PRODUCT NAME	EPA #	REGISTRANT NAME	RESISTANCE Mode of Action	RESISTANCE CODE	Chemical Class	Toxicity to Bees (Label Statement)	Residual Toxicity (RT), and Extended Residual Toxicity (ERT) RT= The length of time the residues of the product remain toxic to bees after application. ERT= Residues are expected to cause at least 25 percent mortality for longer than 8 hours after application
	SAF-T-SIDE SPRAY OIL EMULSION FUNG INSECT & MITICIDE	48813-1	BRANDT CONSOLIDATED	Resistance not known	NC	Petroleum Hydrocarbon	No Bee Toxicity Statement on Label	<3 hours RT25 (can vary with formulation and application rate) [1]
	SPRAY OIL 415	34704-727	LOVELAND PROD./CROP PROTECTION SVCS	Resistance not known	NC	Petroleum Hydrocarbon	No Bee Toxicity Statement on Label	<3 hours RT25 (can vary with formulation and application rate) [1]
	SUFFOIL-X	48813-1	BIOWORKS INC	Resistance not known	NC	Petroleum Hydrocarbon	No Bee Toxicity Statement on Label	<3 hours RT25 (can vary with formulation and application rate) [1]
	SUNSPRAY 6E	86330-6	HOLLY FRONTIER REFINING & MARKETING LLC	Resistance not known	NC	Petroleum Hydrocarbon	No Bee Toxicity Statement on Label	<3 hours RT25 (can vary with formulation and application rate) [1]
	SUPERIOR 70 OIL	34704-353	LOVELAND PROD./CROP PROTECTION SVCS	Resistance not known	NC	Petroleum Hydrocarbon	No Bee Toxicity Statement on Label	<3 hours RT25 (can vary with formulation and application rate) [1]
	SUPREME OIL INSECTICIDE	34704-352	LOVELAND PROD./CROP PROTECTION SVCS	Resistance not known	NC	Petroleum Hydrocarbon	No Bee Toxicity Statement on Label	<3 hours RT25 (can vary with formulation and application rate) [1]
	TRITECK	48813-1	BRANDT CONSOLIDATED	Resistance not known	NC	Petroleum Hydrocarbon	No Bee Toxicity Statement on Label	<3 hours RT25 (can vary with formulation and application rate) [1]
PEPPERMINT	ECOEXEMPT IC2 INSECTICIDE CONC	655-10004	PRENTISS INCORPORATED			Botanical	No Bee Toxicity Statement on Label	Residual Bee Toxicity not Readily Available
	ECOSMART ORGANIC INSECTICIDE GARDEN INSECT KILLER	67425-10004	ECOSMART TECHNOLOGIES INC.			Botanical	No Bee Toxicity Statement on Label	Residual Bee Toxicity not Readily Available
	ECOTEC BROAD SPECTRUM INSECTICIDE & MITICIDE	48813-09001	BRANDT CONSOLIDATED			Botanical	This product may be toxic to bees so avoid application when bees are actively foraging.	Residual Bee Toxicity not Readily Available
	ESSENTRIA ALL PURPOSE INSECT CONC.	87276-13003	ENVINCIO LLC			Botanical	No Bee Toxicity Statement on Label	Residual Bee Toxicity not Readily Available
	ESSENTRIA IC3 INSECTICIDE CONC	87276-13001	ENVINCIO LLC			Botanical	No Bee Toxicity Statement on Label	Residual Bee Toxicity not Readily Available
PERMETHRIN	ASTRO INSECTICIDE	279-3141	FMC CORP - AG PRODUCTS GROUP	Sodium channel modulators	3	Pyrethroid	This pesticide is highly toxic to bees exposed to direct treatment or residues on crops or weeds. Do not allow it to drift onto crops or weeds on which bees are actively foraging.	0.5 to 2 days ERT. >5 days ERT Can vary with formulation and application rate. Incompatible with bumble bees [1]
	HI-YIELD LAWN GARDEN PET & LIVESTOCK INSECT CONTROL	7401-456	VOLUNTARY PURCHASING GROUPS	Sodium channel modulators	3	Pyrethroid	No Bee Toxicity Statement on Label	0.5 to 2 days ERT. >5 days ERT Can vary with formulation and application rate. Incompatible with bumble bees [1]
	MARTINS PERMETHRIN SFR TERMITICIDE/INSECTICIDE	70506-6	CONTROL SOLUTIONS INC	Sodium channel modulators	3	Pyrethroid	This pesticide is highly toxic to bees exposed to direct treatment or residues on crops or weeds. Do not allow it to drift onto crops or weeds on which bees are actively foraging.	0.5 to 2 days ERT. >5 days ERT Can vary with formulation and application rate. Incompatible with bumble bees [1]
	PERM-UP 3.2EC INSECTICIDE	70506-9	UNITED PHOSPHORUS INC	Sodium channel modulators	3	Pyrethroid	This pesticide is highly toxic to bees exposed to direct treatment or residues on crops or weeds. Do not allow it to drift onto crops or weeds on which bees are actively foraging.	0.5 to 2 days ERT. >5 days ERT Can vary with formulation and application rate. Incompatible with bumble bees [1]
	PERMETHRIN 3.2EC INSECTICIDE	70506-9	HELENA CHEMICAL COMPANY	Sodium channel modulators	3	Pyrethroid	This pesticide is highly toxic to bees exposed to direct treatment or residues on crops or weeds. Do not allow it to drift onto crops or weeds on which bees are actively foraging.	0.5 to 2 days ERT. >5 days ERT Can vary with formulation and application rate. Incompatible with bumble bees [1]
	PERMETHRIN E-PRO TERM/INSECTICIDE	100-1489	ENVINCIO LLC	Sodium channel modulators	3	Pyrethroid	This pesticide is highly toxic to bees exposed to direct treatment or residues on crops or weeds. Do not allow it to drift onto crops or weeds on which bees are actively foraging.	0.5 to 2 days ERT. >5 days ERT Can vary with formulation and application rate. Incompatible with bumble bees [1]
	PERMETHRIN	34704-873	LOVELAND PROD./CROP PROTECTION SVCS	Sodium channel modulators	3	Pyrethroid	This pesticide is highly toxic to bees exposed to direct treatment or residues on crops or weeds. Do not allow it to drift onto crops or weeds on which bees are actively foraging.	0.5 to 2 days ERT. >5 days ERT Can vary with formulation and application rate. Incompatible with bumble bees [1]

Active Ingredient	PRODUCT NAME	EPA #	REGISTRANT NAME	RESISTANCE Mode of Action	RESISTANCE CODE	Chemical Class	Toxicity to Bees (Label Statement)	Residual Toxicity (RT), and Extended Residual Toxicity (ERT) RT= The length of time the residues of the product remain toxic to bees after application. ERT= Residues are expected to cause at least 25 percent mortality for longer than 8 hours after application
	PRELUDE TERMITICIDE/INSECTICIDE	5481-550	AMVAC CHEMICAL CORP.	Sodium channel modulators	3	Pyrethroid	This pesticide is highly toxic to bees exposed to direct treatment or residues on crops or weeds. Do not allow it to drift onto crops or weeds on which bees are actively foraging.	0.5 to 2 days ERT. >5 days ERT Can vary with formulation and application rate. Incompatible with bumble bees [1]
	PROZAP INSECTIN X CONC.	47000-103	CHEM-TECH LTD.	Sodium channel modulators	3	Pyrethroid	This pesticide is highly toxic to bees exposed to direct treatment or residues on crops or weeds. Do not allow it to drift onto crops or weeds on which bees are actively foraging.	0.5 to 2 days ERT. >5 days ERT Can vary with formulation and application rate. Incompatible with bumble bees [1]
	TENGARD SFR [29]	47000-103	UNITED PHOSPHORUS INC	Sodium channel modulators	3	Pyrethroid	This pesticide is highly toxic to bees exposed to direct treatment or residues on crops or weeds. Do not allow it to drift onto crops or weeds on which bees are actively foraging.	0.5 to 2 days ERT. >5 days ERT Can vary with formulation and application rate. Incompatible with bumble bees [1]
	TENKOZ PERMETHRIN 3.2EC INSECTICIDE	47000-103	TENKOZ INC	Sodium channel modulators	3	Pyrethroid	This pesticide is highly toxic to bees exposed to direct treatment or residues on crops or weeds. Do not allow it to drift onto crops or weeds on which bees are actively foraging.	0.5 to 2 days ERT. >5 days ERT Can vary with formulation and application rate. Incompatible with bumble bees [1]
PHENYLETHYL PROPIONATE	ECOPCO WP-X WETTABLE POWDER INSECTICIDE -FRESH SCENT	67425-25	PRENTISS INCORPORATED			Botanical		Residual Bee Toxicity not Readily Available
POTASSIUM LAURATE	BONIDE INSECTICIDAL MULTI-PURPOSE INSECT CONTROL SOAP CONC	67702-11-4	BONIDE PRODUCTS INC			Potassium Salts of Fatty Acids	No bee toxicity statements on label	Residual Bee Toxicity not Readily Available
	DES-X INSECTICIDAL SOAP CONC /ORGANIC PRODUCTION	67702-22	CERTIS USA LLC			Potassium Salts of Fatty Acids	No bee toxicity statements on label	Residual Bee Toxicity not Readily Available
	M-PEDE INSECTICIDE/FUNGICIDE -OMRI-	62719-515	DOW AGROSCIENCES LLC			Potassium Salts of Fatty Acids	No bee toxicity statements on label	Residual Bee Toxicity not Readily Available
	M-PEDE	67425-25	GOWAN CO.			Potassium Salts of Fatty Acids	No bee toxicity statements on label	Residual Bee Toxicity not Readily Available
	NATURAL GUARD INSECTICIDAL SOAP	67702-22	VOLUNTARY PURCHASING GROUPS			Potassium Salts of Fatty Acids	No bee toxicity statements on label	Residual Bee Toxicity not Readily Available
POTASSIUM SILICATE	CARBON DEFENSE	84846-1	FBSCIENCES INC			Inorganic	No bee toxicity statements on label	Residual Bee Toxicity not Readily Available
PYMETROZINE	ENDEAVOR INSECTICIDE	100-913	SYNGENTA CROP PROTECTION INC.	Selective homopteran feeding blockers	9	Pyridine Azomethines	Endeavor is suitable for Integrated Pest Management (IPM) programs as it has a low toxicity to beneficial insect (including honeybees and bumblebees) and mite populations.	<2 hours RT, can vary with formulation and application rate [1]
PYRETHRINS	ECOPCO WP-X WETTABLE POWDER INSECTICIDE -FRESH SCENT	67425-25	PRENTISS INCORPORATED	Sodium channel modulators	3	Pyrethroid	This pesticide is highly toxic to bees exposed to direct treatment or residues on crops or weeds. Do not allow it to drift onto crops or weeds on which bees are actively foraging.	<2 hours RT, can vary with formulation and application rate [1]
	EVERGREEN CROP PROTECTION EC 60-6	1021-1770	MCLAUGHLIN GORMLEY KING	Sodium channel modulators	3	Pyrethroid	This pesticide is highly toxic to bees exposed to direct treatment or residues on crops or weeds. Do not allow it to drift onto crops or weeds on which bees are actively foraging.	<2 hours RT, can vary with formulation and application rate [1]
	EVERGREEN PYRETHRUM DUST	1021-1871	MCLAUGHLIN GORMLEY KING	Sodium channel modulators	3	Pyrethroid	This pesticide is highly toxic to bees exposed to direct treatment or residues on crops or weeds. Do not allow it to drift onto crops or weeds on which bees are actively foraging.	<2 hours RT, can vary with formulation and application rate [1]
	PERM GUARD GARDEN AND PLANT INSECTICIDE D-21	67197-3	PERMA-GUARD INC	Sodium channel modulators	3	Pyrethroid	No bee toxicity statements on label	<2 hours RT, can vary with formulation and application rate [1]
	PRENTOX EMULSIFIABLE SPRAY CONC NO.96	655-587	PRENTISS INCORPORATED	Sodium channel modulators	3	Pyrethroid	This pesticide is highly toxic to bees exposed to direct treatment or residues on crops or weeds. Do not allow it to drift onto crops or weeds on which bees are actively foraging.	<2 hours RT, can vary with formulation and application rate [1]

Active Ingredient	PRODUCT NAME	EPA #	REGISTRANT NAME	RESISTANCE Mode of Action	RESISTANCE CODE	Chemical Class	Toxicity to Bees (Label Statement)	Residual Toxicity (RT), and Extended Residual Toxicity (ERT) RT= The length of time the residues of the product remain toxic to bees after application. ERT= Residues are expected to cause at least 25 percent mortality for longer than 8 hours after application
	PRETOX PYRONYL 303 EMULSIFIABLE CONC.	655-797	PRENTISS INCORPORATED	Sodium channel modulators	3	Pyrethroid	This pesticide is highly toxic to bees exposed to direct treatment or residues on crops or weeds. Do not allow it to drift onto crops or weeds on which bees are actively foraging.	<2 hours RT, can vary with formulation and application rate [1]
	PRETOX PYRONYL CROP SPRAY	655-489	PRENTISS INCORPORATED	Sodium channel modulators	3	Pyrethroid	No bee toxicity statements on label	<2 hours RT, can vary with formulation and application rate [1]
	PRES TRMT 1600 X-CLUDE TIMED RELEASE PYRETHRUM	499-239	WHITMIRE MICRO-GEN RESEARCH LABS	Sodium channel modulators	3	Pyrethroid	No bee toxicity statements on label	<2 hours RT, can vary with formulation and application rate [1]
	PRES TRMT PYRETH-IT FORM2	499-475	WHITMIRE MICRO-GEN RESEARCH LABS	Sodium channel modulators	3	Pyrethroid	This product is highly toxic to bees. Observe the most restrictive of the labeling limitations and precautions of all products used in mixtures. Do not apply to blooming crops or weeds when bees are visiting the treatment area, except when applications are made to prevent or reduce a threat to public and/or animal health..	<2 hours RT, can vary with formulation and application rate [1]
	PYGANIC CROP PROTECTION EC 5.0 II	1021-1772	MCLAUGHLIN GORMLEY KING	Sodium channel modulators	3	Pyrethroid	This product is highly toxic to bees exposed to direct treatment on blooming crops or weeds. Do not apply this product or allow it to drift to blooming crops or weeds while bees are actively visiting the treatment area	<2 hours RT, can vary with formulation and application rate [1]
	PYGANIC DUST	1021-1871	MCLAUGHLIN GORMLEY KING	Sodium channel modulators	3	Pyrethroid	This product is highly toxic to bees exposed to direct treatment on blooming crops or weeds. Do not apply this product or allow it to drift to blooming crops or weeds while bees are actively visiting the treatment area	<2 hours RT, can vary with formulation and application rate [1]
	PYGANIC PRO	1021-1772	MCLAUGHLIN GORMLEY KING	Sodium channel modulators	3	Pyrethroid	This product is highly toxic to bees exposed to direct treatment on blooming crops or weeds. Do not apply this product or allow it to drift to blooming crops or weeds while bees are actively visiting the treatment area	<2 hours RT, can vary with formulation and application rate [1]
	PYRENONE CROP SPRAY	432-1033	BAYER ENVIRONMENTAL SCIENCE	Sodium channel modulators	3	Pyrethroid	This product is highly toxic to bees exposed to direct treatment on blooming crops or weeds. Do not apply this product or allow it to drift to blooming crops or weeds while bees are actively visiting the treatment area	<2 hours RT, can vary with formulation and application rate [1]
	RIPTIDE WATERBASED PYRETHRIN ULV	1021-1785	MCLAUGHLIN GORMLEY KING	Sodium channel modulators	3	Pyrethroid	This product is highly toxic to bees exposed to direct treatment on blooming crops or weeds. Do not apply this product or allow it to drift to blooming crops or weeds while bees are actively visiting the treatment area	<2 hours RT, can vary with formulation and application rate [1]
PYRIPROXYFEN (NYLAR)	VALENT DISTANCE IGR	59639-96	VALENT USA CORPORATION	Juvenile hormone mimics	7	Pyridine	No bee toxicity statements on label	May be toxic to bumble bee larvae. Avoid direct application or spray drift to honey bee hives [1]
ROSEMARY OIL	ECOEXEMPT IC2 INSECTICIDE CONC	655-10004	PRENTISS INCORPORATED			Botanical	No bee toxicity statements on label	Residual Bee Toxicity not Readily Available
	ECOSMART ORGANIC INSECTICIDE GARDEN INSECT KILLER	67425-10004	ECOSMART TECHNOLOGIES INC.			Botanical	No bee toxicity statements on label	Residual Bee Toxicity not Readily Available
	ECOTEC BROAD SPECTRUM INSECTICIDE & MITICIDE	48813-09001	BRANDT CONSOLIDATED			Botanical	This product may be toxic to bees so avoid application when bees are actively foraging	Residual Bee Toxicity not Readily Available
	ESSENTRIA ALL PURPOSE INSECT CONC.	87276-13003	ENVINCIO LLC			Botanical	No bee toxicity statements on label	Residual Bee Toxicity not Readily Available
	ESSENTRIA IC3 INSECTICIDE CONC	87276-13001	ENVINCIO LLC			Botanical	No bee toxicity statements on label	Residual Bee Toxicity not Readily Available
	RID-BUGS AN ORGANIC INSECTICIDE	99892-08001	AZ ENTERPRISES INC.			Botanical	No bee toxicity statements on label	Residual Bee Toxicity not Readily Available
SESAME OIL	RID-BUGS AN ORGANIC INSECTICIDE	99892-08001	AZ ENTERPRISES INC.			Botanical	No bee toxicity statements on label	Residual Bee Toxicity not Readily Available
SOYBEAN OIL	GOLDEN PEST SPRAY OIL	57538-11	STOLLER ENTERPRISES INC.			Botanical	No bee toxicity statements on label	Residual Bee Toxicity not Readily Available

Active Ingredient	PRODUCT NAME	EPA #	REGISTRANT NAME	RESISTANCE Mode of Action	RESISTANCE CODE	Chemical Class	Toxicity to Bees (Label Statement)	Residual Toxicity (RT), and Extended Residual Toxicity (ERT) RT= The length of time the residues of the product remain toxic to bees after application. ERT= Residues are expected to cause at least 25 percent mortality for longer than 8 hours after application
Spinetoram (This product is labeled for ornamentals growing in non-residential landscape ONLY)	Xxpire WG	62719-676	DOW AGROSCIENCES LLC	Nicotinic acetylcholine receptor allosteric activators	5		This product is highly toxic to bees exposed through contact during spraying and while spray droplets are still wet. Toxicity is reduced when spray droplets are dry. This product is toxic to bees exposed to treated foliage for up to 3 hours following application. Do not apply this pesticide to blooming, pollen-shedding, or nectar producing parts of plants if bees may forage on the plants during this time period.	3 hours RT (Can vary with formulation and application rate) ¹
TAU-FLUVALINATE	MAVRIK AQUAFLOW INSECTICIDE/MITICIDE	2724-478	WELLMARK INTERNATIONAL			Pyrethroid	This product is toxic to honey bees if bees are exposed to direct application. However, dried residues of this product are non-toxic to honey bees. Treat during non-foraging periods to minimize adverse effects.	Residual Bee Toxicity not Readily Available
	MAVRIK PERIMETER	2724-478	WELLMARK INTERNATIONAL			Pyrethroid	This product is toxic to honey bees if bees are exposed to direct application. However, dried residues of this product are non-toxic to honey bees. Treat during non-foraging periods to minimize adverse effects.	Residual Bee Toxicity not Readily Available
THYME OIL	ECOPCO WP-X WETTABLE POWDER INSECTICIDE -FRESH SCENT	67425-25	PRENTISS INCORPORATED			Botancial	This product is highly toxic to bees exposed to direct treatment on blooming crops or weeds Do not apply this product or allow it to drift to blooming crops or weeds while bees are actively visiting the treatment area	Residual Bee Toxicity not Readily Available
	ECOSMART ORGANIC INSECTICIDE GARDEN INSECT KILLER	67425-10004	ECOSMART TECHNOLOGIES INC.			Botanical	No bee toxicity statements on label	Residual Bee Toxicity not Readily Available
ZETA-CYPERMETHRIN	CYNOFF INSECTICIDE	279-3259	FMC CORP - AG PRODUCTS GROUP			Pyrethroid	No bee toxicity statements on label	Residual Bee Toxicity not Readily Available