

Common Turf Insecticides Listed by IRAC Classification, Chemical Classes and MOA

IRAC Group	Mode of Action	Chemical Classes	Active Ingredient	Trade Name ¹	
1A	Acetylcholine esterase inhibitors	Carbamates	carbaryl	Carbaryl, Duocide ² , Sevin, etc.	
				methomyl	Lannate, etc.
1B		Organophosphates		acephate	Acephate, Avatar ² , Orthene, Precise, etc.
				chlorpyrifos	Chlorpyrifos, Dursban, Lorsban, etc.
				malathion	Malathion
			trichlorfon	Dylox	
2B	GABA-gated chloride channel antagonists	Fipronil	fipronil	TopChoice, Taurus Trio ²	
3	Sodium channel modulators	Pyrethroids	bifenthrin	Allectus ² , Aloft ² , Onyx, Talstar, Bifen, etc.	
			cyfluthrin, cyfluthrin	Tempo	
			cypermethrin	Demon, Fendona, Mustang, Triple Crown ²	
			deltamethrin	Deltagard, Suspend	
			lambda-cyhalothrin	Lambda, Battle, Demand, Scimitar, Tandem ²	
4A	Nicotinic acetylcholine receptor agonists/antagonists	Neonicotinoids	permethrin	Astro, Permethrin, Prelude, etc.	
			clothianidin	Arena, Aloft ²	
			dinotefuran	Zylam	
			imidacloprid	Allectus ² , Imidacloprid, Merit, Mallet, etc.	
			thiamethoxam	Cravan G ² , Meridian, Tandem ²	
5	Nicotinic acetylcholine allosteric activator	Spinosyns	spinosad	Conserve	
6	Chloride channel activators	Avermectins	abamectin	Avid, Award II fire ant bait	
7A	Juvenile hormone mimics	Junevile hormone analogues	s-methoprene	Firestrike ² , Extinguish, Extinguish Plus ²	
7C		Pyriproxyfen	pyriproxyfen	Distance Fire Ant Bait	
11A	Microbial disruptors of insect midgut membranes	<i>Bacillus thuringiensis</i>	<i>B.t. subsp. aizawai</i>	Xentari	
			<i>B.t. subsp. galleriae</i>	grubGONE! G	
			<i>B.t. subsp. kurstaki</i>	Biobit, Crymax, Dipel, Juvelin, Lepinox	
18A	Ecdysone agonists.molting disruptors	Diacylhydrazines	halofenozide	Mach 2	
20	Mitochondrial complex III electron transport inhibitors	Hydramethylnon	hydramethylnon	Amdro Firestrike ² , Extinguish Plus ² , SiegePro	
22	Voltage-dependent sodium channel blockers	Indoxacarb	indoxacarb	Advion fire ant bait, Provaunt	
		Metaflumizone	metaflumizone	Siesta fire ant bait	
23	Inhibitors of acetyl CoA carboxylase	Tetronic and tetramic acid derivatives	spiromesifen	Forbid	
28	Ryanodine receptor modulator	Diamides	chlorantraniliprole	Acelypryn	
					cyantraniliprole
un	Unknown MOA	Azadirachtin	azadirachtin	Azatin O, Azatrol, Molt-X, Ornazin	
		Dicofol	dicofol	Dicofol 4E	
uc	Unclassified: Pathogens	Bacteria	<i>Bacillus popillae</i>	Milky spore powder	
			<i>Chromobacterium subsugae</i>	Grandevo PTO	
		Nematodes	<i>Steinernema</i> and <i>Heterorhabditis</i> spp.	Millenium, BioVector, NemaShield	
		Fungi	<i>Beauveria bassiana</i>	Botanigard, Naturalis	
			<i>Metarhizium anisopliae</i>	Met52, Tick-Ex	

¹Trade names are provided as examples only. No endorsement of products is intended, nor is criticism of unnamed products implied.

²These are combination products with two or more active ingredients.

Read pesticide labels and follow label instructions and precautions when handling, mixing, applying and storing pesticides.