

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	Sevin
1B		Organophosphates	acephate	Orthene
			chlorpyrifos	Dursban
			trichlorfon	Dylox
2B	GABA-gated chloride channel antagonists	Fipronil	fipronil	TopChoice, Taurus
3	Sodium channel modulators	Pyrethroids	bifenthrin	Allectus ² , Aloft ² , Onyx, Talstar, Bifen, etc.
			cyfluthrin	Tempo
			cypermethrin	Demon, Triple Crown T&O
			deltamethrin	Deltagard
			lambda-cyhalothrin	Lambda, Battle, Demand, Scimitar, Tandem ²
			permethrin	Astro
4A	Nicotinic acetylcholine receptor agonists/antagonists	Neonicotinoids	clothianidin	Arena, Aloft ²
			dinotefuran	Zylam
			imidacloprid	Allectus ² , Imidacloprid, Merit, Mallet, etc.
			thiamethoxam	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
28	Ryanodine receptor modulator	Diamides	chlorantraniliprole	Acelypryn
			cyantraniliprole	Ference
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 subtsugae</i>	Grandevo PTO
		Nematodes	<i>Steinernema</i> and <i>Heterorhabditis</i> spp.	Millenium, BioVector, NemaShield
		Fungi	<i>Beauveria bassiana</i>	Botanigard, Naturalis
			<i>Metaehizium 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.

²Allectus = imidacloprid + bifenthrin; Aloft = clothianidin + bifenthrin; Tandem = thiamethoxam + lambda-cyhalothrin; Triple Crown T&O = zeta-cypermethrin + bifenthrin + imidacloprid; Amdro Firestrike and Extinguished Plus = s-methoprene + hydramethylnon.

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