

Biology and management information of the above mentioned and other pests of turfgrass are listed in the table.

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

IRAC Group	Mode of Action	Chemical Classes	Active Ingredient	Trade Name ¹
1A	Acetylcholine esterase inhibitors	Carbamates	carbaryl	Sevin
1B			Organophosphates	methiocarb
		acephate		Orthene
		chlorpyrifos		Dursban
2B	GABA-gated chloride channel antagonists	Fipronil	fipronil	Dylox
3	Sodium channel modulators	Pyrethroids	fipronil	Chipco Choice, Chipco TopChoice
			bifenthrin	Allectus ² , Aloft ² , Onyx, Talstar
			cyfluthrin	Tempo
			cypermethrin	Demon
			deltamethrin	Deltagard
			lambda-cyhalothrin	Lambda, Battle, Demand, Scimitar, Tandem ²
4A	Nicotinic acetylcholine receptor agonists/antagonists	Neonicotinoids	permethrin	Astro
			clothianidin	Arena, Aloft ²
			dinotefuran	Zylam
			imidacloprid	Allectus ² , Imidacloprid, Merit, Mallet, etc.
5	Nicotinic acetylcholine allosteric activator	Spinosyns	spinosad	Meridian, Tandem ²
6	Chloride channel activators	Avermectins	abamectin	Conserve, Justice Fire Ant Bait
7A	Juvenile hormone mimics	Junevile hormone analogues	s-methoprene	Affirm, Varsity Fire Ant Bait
7B		Fenoxycarb	fenoxycarb	Firestrike ³ , Extinguish, Extinguish Plus ³
7C		Pyriproxyfen	pyriproxyfen	Award Fire Ant Bait
11B1	Microbial disruptors of insect midgut membranes	<i>Bacillus thuringiensis</i>	<i>B.t. var. aizawai</i>	Distance Fire Ant Bait
11B2			<i>B.t. var. kurstaki</i>	Xentari
18A	Ecdysone agonists.molting disruptors	Diacylhydrazines	halofenozide	Biobit, Crymax, Dipel, Juvelin, Lepinox
20	Mitochondrial complex III electron transport inhibitors (Coupling Site II)	Hydramethylnon	hydramethylnon	Mach 2
22	Voltage-dependent sodium channel blockers	Indoxacarb	indoxacarb	Amdro Firestrike ² , Extinguish Plus ² , SiegePro
			metaflumizone	Advion, Provaunt
28	Ryanodine receptor modulator	Diamides	metaflumizone	Siesta
			chlordaniliprole	Acelypryn
un	Unknown MOA	Dicofol	dicofol	(To be available in 2014)
uc	Unclassified: Pathogens	Bacteria	<i>Bacillus popillae</i>	Kelthane, Dicofol
		Nematodes	<i>Steinernema</i> and <i>Heterorhabditis</i> spp.	Milky spore powder
		Fungi	<i>Beauveria bassiana</i>	Millenium, BioVector, Nemashield
				Botanigard, Naturalis

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; Amdro Firestrike and Extinguish Plus = s-methoprene + hydramethylnon.

Pesticide Application Information – While the label is the law, the following sources may be helpful when seeking information regarding specific pesticide products. -

Department of Pesticide Regulation (DPR) http://www.clemson.edu/public/regulatory/pesticide_regulation/

-Pesticide Information Page <http://kellysolutions.com/clemson/pesticides/pesticideindex.asp>