

Insecticide and Biological Control Options for Control of Japanese Beetle Larvae (White Grubs) in Lawns

Common Name	Trade Names (Commercial)	Trade Names (Retail)	Insecticide Class	Comments
imidacloprid	Merit, Mallet, Zenith, others	Hi-Yield Grub Free Zone II, Bayer Advanced Complete Insect Killer for Soil & Turf (with beta-cyfluthrin), Bayer Advanced Season-Long Grub Control, Bonide Grub Beater	neonicotinoid	Has moderate-long persistence. <i>Applications are most effective when made in June through early August.</i> Fairly fast (a couple of weeks) in providing control of grubs following application. Moves systemically in plants. Hazardous to bees if applied when flowering plants in lawns are present during application
clothianidan	Arena	None	neonicotinoid	Has long persistence. <i>Can provide control if applied from May into August.</i> Fairly fast (a couple of weeks) in providing control of grubs following application. Moves systemically in plants. Hazardous to bees if applied when flowering plants in lawns are present during application.
chlorantraniliprole	Acelepryn	GrubEx	diamide	Has very long persistence but moves relatively slowly into soil. <i>Best applied in May/June; some control possible with applications made in April or early August.</i> Fairly slow (weeks) in providing control after application. Has some ability to move systemically in plants. Very low hazard to bees. Very low hazard to humans, pets.

trichlorfon	Dylox	Bayer Advanced 24 Hour Grub Killer Plus Granules	organophosphate	Very short persistence but is fast acting. <i>Used to control existing problems with white grubs.</i> Must be watered in immediately after application. Breakdown is very rapid (days), particularly in high pH soils. Fairly low hazard to bees; where flowering weeds are present mowing before application greatly reduces risk to pollinators.
<i>Bacillus thuringiensis var. galleriae</i>	None	grubGONE!	microbial (bacterium)	Short residual activity. <i>Best used after most eggs have hatched and grubs are still in young stages (mid-July through mid-August).</i> Kills larvae through disruption of midgut. A very new product with little data yet available to make efficacy comparisons with other products.
<i>Heterorhabditis bacteriophora</i>	HeteroMask, Grub-Away, BioStrike Hb, GrubStake Hb, others	HeteroMask, Grub-Away, BioStrike Hb, GrubStake Hb, others	insect parasitic nematode (entomopathogenic nematode)	These are living organisms (minute nematodes/roundworms) that are applied to soil as a drench and watered immediately. <i>Treatments should be made when grubs are present and soil temperatures are warm.</i> Control is usually rapid (days after treatment) and infected grubs turn a reddish-brown color.
Milky spore (<i>Paenibacillus popilliae</i>)	None	St. Gabriel Organics Milky Spore	microbial (bacterium)	<i>Not a product that can be expected to provide any noticeable control for years.</i> Milky spore will usually spread on its own over time once applied to a turfgrass site. Experience in areas where this organism has long been present indicates it provides modest effects, killing a small percentage (<5%) of the white grubs. Infected grubs turn a milky color.