COMMERCIAL TURF AND GOLF COURSE INSECT CONTROL

The following table provides commercial turf and golf course insect control recommendations with pesticides for use by professional applicators.

All chemical information provided below is given with the understanding that no endorsement of named products is intended nor is criticism implied of similar products that are not mentioned. Individuals who use pesticides are responsible for ensuring that the intended use complies with current regulations and conforms to the product label. Before purchasing or using any pesticide, always read and carefully follow the label directions.

Insecticides listed below are identified by common chemical name. A trade name in parentheses may also be listed as a convenience for the reader. Pesticide labels for commercial and homeowner products that are currently registered for use in Arkansas may be found through the Arkansas Department of Agriculture/State Plant Board website by clicking on the following link: https://agriculture.arkansas.gov/crops-industry/pesticides/pesticide-registration/registration/

Pest	Insecticide and Formulation	Amount Per 1,000 Square Feet	Comments/Precautions
Ant	bifenthrin* (Menace, Talstar, others) F, GC and G formulations also available	0.5-1 fl oz	Use GC formulation for golf courses.
	bifenthrin 0.058% + carbaryl 2.3% (Duocide)	4-8 lb	**Not for use on golf courses and sod farms.** Product must be watered in immediately after application to lawns. DO NOT apply more than 4 times per year to lawns. The minimum reapplication interval to lawns is 7 days. Will only kill pests present at the time of application. Pest must be directly contacted to be effective.
	carbaryl* (Sevin 80 WSP)	See label.	
	chlorpyrifos* (Nufarm Chlorpyrifos)	See label.	See label. For use on golf course turf, turf and ornamentals around industrial buildings and turf and ornamentals in road medians. **Restricted Use Pesticide**.
	clothianidin + bifenthrin (Aloft) GC SC LC SC GC G LC G	See label. 0.27-0.44 fl oz 0.27-0.54 fl oz 1.8-3.6 lb 1.8-3.6 lb	
	cyfluthrin (Tempo 2)	0.143 fl oz	Home lawns only.
	cypermethrin* (Demon) TC	See label.	
	deltamethrin (DeltaGard) G	2-3 lb	
	fipronil 0.0143 G (Taurus G, Top Choice)	2 lb	
	fipronil 0.0143% + bifenthrin 0.23% + lambda-cyhalothrin 0.059% (Taurus Trio G)	2 lb	
	hydramethylnon* (Maxforce G, Amdro)	See label.	
	lambda-cyhalothrin* (Scimitar, Cyonara)	See label.	DO NOT make applications within 20 ft of any body of water. No reentry until spray has dried.
	zeta-cypermethrin + bifenthrin + imidacloprid (Triple Crown T&O, Triple Crown Golf)	0.46-0.80 fl oz	Triple Crown Golf is a **Restricted Use Pesticide**.
Ant, Red Imported Fire	Treatment is required to ship grass sod from quarantined to non-quarantined areas. Consult the Arkansas State Plant Board and USDA APHIS 81-25-001, "Imported Fire Ant: Quarantine Treatments for Nursery Stock, Grass Sod, and Related Materials," updated January 2015, for all rules and regulations pertaining to the Federal Imported Fire Ant quarantine and treatment requirements. **The following insecticides are authorized by USDA for the treatment of regulated grass sod under the Imported Fire Ant (IFA) quarantine: bifenthrin (liquid), chlorpyrifos (liquid), fipronil (granular).**		
	Apply all bait products when ants are active and soil temperature is above 60 degrees F. DO NOT treat if rain is anticipated within 6 hours.		
	abamectin* (Award II)	1 lb/acre broadcast; no more than 4 lb/acre per year or 5-7 Tbsp per mound; no more than 12 mounds/acre	Changes in product labels and new products for insect control include acquisition of DuPont turf insecticides by Syngenta, including Acelepryn, Provaunt, Advion Fire Ant Bait, and Advion Insect Granules. Syngenta has a new fire ant active ingredient with the new product Award II Fire Ant Bait containing abamectin as the active ingredient. It is NOT labeled for use on horse farms as was the older Award product. Advion Insect Granules are still useful for insect control, including mole crickets, but this is a bait and should NOT be watered in after application. BASF released a new fire ant bait called Siesta with a new active ingredient metaflumizone.

*Several trade names available. Check label for active ingredient. Always follow label instructions.

Pest	Insecticide and Formulation	Amount Per 1,000 Square Feet	Comments/Precautions
Ant, Red Imported Fire (cont.)	Treatment is required to ship grass sod from quarantined to non-quarantined areas. Consult the Arkansas State Plant Board and USDA APHIS 81-25-001, "Imported Fire Ant: Quarantine Treatments for Nursery Stock, Grass Sod, and Related Materials," updated January 2015, for all rules and regulations pertaining to the Federal Imported Fire Ant quarantine and treatment requirements. **The following insecticides are authorized by USDA for the treatment of regulated grass sod under the Imported Fire Ant (IFA) quarantine: bifenthrin (liquid), chlorpyrifos (liquid), fipronil (granular).**		
	Apply all bait products when ants are active and soil temperature is above 60 degrees F. DO NOT treat if rain is anticipated within 6 hours.		
	acephate*		
	(Lesco-Fate)	See label.	
	(Orthene T, T&O) 75 S	1-2 tsp/mound	Distribute uniformly over mound. For best results, apply early in morning or late afternoon.
	(Ortho Orthene Fire Ant Killer1) 50 S	1 Tbsp/mound	
	(Precise 4G)	See label.	
	avermectin/B1 (Affirm) 0.011% bait	5-7 Tbsp/mound	Distribute uniformly 5 to 7 level tablespoons of bait 3 to 4 feet around base of each mound.
	bifenthrin 0.058% + carbaryl 2.3% (Duocide)	4-8 lb	**Not for use on golf courses and sod farms.** Product must be watered in immediately after application to lawns. DO NOT apply more than 4 times per year to lawns. The minimum reapplication interval to lawns is seven days. Will only kill pests present at the time of application. Pest must be directly contacted to be effective.
	chlorpyrifos* (Nufarm Chlorpyrifos)	See label.	See label. For use on golf course turf, turf and ornamentals around industrial buildings; turf and ornamentals in road medians. **Restricted Use Pesticide**.
	chlorpyrifos (Dursban Pro)	See label.	Single mound treatment ONLY.
	clothianidin + bifenthrin (Aloft)	See label.	
	GC SC	0.27-0.44 fl oz	
	LC SC	0.27-0.54 fl oz	
	GC G	1.8-3.6 lb	
	LC G	1.8-3.6 lb	
	fipronil		
	(Maxforce FC) 0.00045%	See label.	Apply as a broadcast. May treat up to 4 times per year.
	(Taurus G, Top Choice) 0.0143G	87 lb/acre	Broadcast only.
	(Chipco Choice) 0.1% granular contact insecticide	12.5 lb/acre	Broadcast only.
			The fipronil products have the same active ingredient but are different formulations; read and follow the label.
	fipronil 0.0143% + bifenthrin 0.23% + lambda-cyhalothrin 0.059% (Taurus Trio G)	87lbs/acre	
	imidacloprid + bifenthrin (Allectus)	See label.	Rate varies with pest. Different formulations for different sites.
	hydramethylnon (Amdro, Amdro Pro, MaxForce Fire Ant Granular Bait)	2-5 Tbsp/mound 2 lb/acre	Single mound treatment rate. Broadcast rate.
	indoxacarb (Advion) fire ant bait 0.045%	4 Tbsp/mound 1.5 lb/acre	DO NOT apply to top of mound. Distribute uniformly 3 to 4 feet around mound. Broadcast rate.
	metaflumizone (Siesta Fire Ant Bait) 0.063%	1.0-1.5 lb/acre 2-4 Tbsp/mound	Broadcast rate. Single mound treatment rate. DO NOT exceed 6.0 lb/acre total or 4 applications in a one-year period.
	pyrethroids (various brands) bifenthrin (Menace, Talstar, others) F and G formulations also available cyfluthrin (Tempo) deltamethrin (DeltaGard) G lambda-cyhalothrin (Scimitar, Cyonara)	See label.	

Pest	Insecticide and Formulation	Amount Per 1,000 Square Feet	Comments/Precautions
Ant, Red Imported Fire (cont.)	pyriproxyfen (Distance)	1-4 Tbsp/mound 1.0-1.5 lb/acre	Single mound treatment rate Broadcast rate This is an IGR.
	S-methoprene (Extinguish)	3-5 Tbsp/mound 1.0-1.5 lb/acre	Single mound treatment rate Broadcast rate This is an IGR.
	S-methoprene + hydramethylnon (Extinguish Plus)	3-5 Tbsp/mound 1.0-1.5 lb/acre	Single mound treatment rate. Broadcast rate. This is an IGR plus a toxicant.
	spinosad 0.015% (Conserve Fire Ant Bait)	2.5-5.0 lb/acre	
	spinosad (Conserve SC)	0.1 fl oz/gal/mound	Dilute 0.1 fluid ounce in 1 gallon water. Use 1-2 gallons per mound.
	zeta-cypermethrin + bifenthrin + imidacloprid (Triple Crown T&O, Triple Crown Golf)	0.46-0.80 fl oz	Triple Crown Golf is a **Restricted Use Pesticide**.
Bee and Wasp (burrowing)	carbaryl* (Sevin 80 WSP)	See label.	
	acephate* (Orthene 75WP, Surrender, & others)	1-2 tsp/hole (do not exceed this amount in 1 sq ft)	Apply in late afternoon or early evening at insect entrance/exit holes.
	chlorpyrifos* (Nufarm Chlorpyrifos)	See label.	See label. For use on golf course turf, turf and ornamentals around industrial buildings and turf and ornamentals in road medians. **Restricted Use Pesticide**.
	pyrethroids (Advanced Garden, DeltaGard, Menace, Scimitar, Talstar, Tempo)	See label.	
Billbug	bifenthrin* (Menace, Talstar, others) F, GC and G formulations also available	0.25-0.5 fl oz	Use GC formulation for golf courses.
	carbaryl (Sevin SL)	6 oz/1000 sq ft	Bluegrass billbug larvae ONLY.
	chlorantraniliprole (Acelepryn)	0.184 to 0.46 fl oz	
	chlorpyrifos* (Nufarm Chlorpyrifos)	See label.	See label. For use on golf course turf, turf and ornamentals around industrial buildings and turf and ornamentals in road medians. **Restricted Use Pesticide**.
	clothianidin (Arena) 0.5 G 50 WDG	 14-22 oz 0.15-0.22 oz	
	clothianidin + bifenthrin (Aloft) GC SC LC SC GC G LC G	See label. 0.27-0.44 fl oz 0.27-0.54 fl oz 1.8-3.6 lb 1.8-3.6 lb	
	cyantraniliprole (Ference)	0.28 fl oz	Monitor for adults, apply at peak activity. Apply approximately 7 to 14 days after adulticide to target larvae.
	deltamethrin (DeltaGard) G	2-3 lb	
	dinotefuran (Zylam) 20 SG	1 oz	For optimum control of billbugs and annual bluegrass weevil, make application to or during egg hatch of the target pest.
	imidacloprid* (Merit) 75 WSP	3-4 level tsp	Make application prior to egg hatch.

*Several trade names available. Check label for active ingredient. Always follow label instructions.

Pest	Insecticide and Formulation	Amount Per 1,000 Square Feet	Comments/Precautions
Billbug (cont.)	imidacloprid + bifenthrin (Allectus)	See label.	Rate varies with pest. Different formulations for different sites.
	lambda-cyhalothrin* (Scimitar, Cyonara)	See label.	Observe restrictions near water.
	thiamethoxam (Meridian) 0.33 G 25 WG	 60-80 lb/acre 12.7-17 oz/acre	Optimum control when applied from peak flight of adults to peak of egg hatch. Also suppresses mole crickets and chinch bugs.
	trichlorfon Dylox 420 SL Dylox 6.2 G	 4.6-6.9 fl oz/1000 sq ft (200-300 fl oz/A) 3 lb/1000 sq ft or 130 lb/A	For use on residential and golf course turf only. Post-application irrigation required. Not for sod farm use.
	zeta-cypermethrin + bifenthrin + imidacloprid (Triple Crown T&O, Triple Crown Golf)	10-20 fl oz/acre	Triple Crown Golf is a **Restricted Use Pesticide**.
Chinch Bug	acephate* (Orthene T, T&O) 75 S	1.2-2.4 oz	
	Beauveria bassiana (Botanigard, Naturalis-T)	See label.	
	bifenthrin* (Menace, Talstar, others) F, GC and G formulations also available	0.25-0.5 fl oz	Use GC formulation for golf courses.
	bifenthrin 0.058% + carbaryl 2.3% (Duocide)	2-4 lb	**Not for use on golf courses and sod farms.** Product must be watered in immediately after application to lawns. DO NOT apply more than 4 times per year to lawns. The minimum reapplication interval to lawns is 7 days. Will only kill pests present at the time of application. Pest must be directly contacted to be effective.
	carbaryl* (Sevin SL)	See label.	
	chlorantraniliprole (Acelepryn)	0.184-0.46 fl oz	Suppression.
	chlorpyrifos* (Nufarm Chlorpyrifos)	See label.	See label. For use on golf course turf, turf and ornamentals around industrial buildings and turf and ornamentals in road medians. **Restricted Use Pesticide**.
	clothianidin (Arena) 0.25 G, 50 WDG	See label.	
	clothianidin + bifenthrin (Aloft) GC SC LC SC GC G LC G	See label. 0.27-0.44 fl oz 0.27-0.54 fl oz 1.8-3.6 lb 1.8-3.6 lb	
	cyfluthrin (Tempo and other formulations)	See label.	
	cypermethrin (Demon) TC	0.33 to 0.65 fl oz	
	deltamethrin (DeltaGard) G	2-3 lb	
	dinotefuran (Zylam) 20 SG	1 oz	For suppression of chinch bugs, make application prior to hatching of the first instar nymphs.
	imidacloprid + bifenthrin (Allectus)	See label.	Rate varies with pest. Different formulations for different sites.
	lambda-cyhalothrin* (Scimitar, Cyonara)	See label.	DO NOT make applications within 20 ft of any body of water. No reentry until spray has dried.
	permethrin* (Astro)	0.4-0.8 fl oz	

Pest	Insecticide and Formulation	Amount Per 1,000 Square Feet	Comments/Precautions
Chinch Bug (cont.)	trichlorfon (Dylox 420 SL)	4.6-6.9 fl oz/1000 sq ft (200-300 fl oz/A)	Post-application irrigation required.
	zeta-cypermethrin + bifenthrin + imidacloprid (Triple Crown T&O, Triple Crown Golf)	20 to 35 fl oz/Acre	Triple Crown Golf is a **Restricted Use Pesticide.**
Cutworm, Armyworm	acephate* (Orthene T, T&O)	1.2-2.4 oz	Commercial and residential turf only.
	azadirachtin* (Neemix, Turplex)	See label.	
	bifenthrin* (Menace, Talstar, others) F, GC and G formulations also available	0.18-0.25 fl oz	Use GC formulation for golf courses.
	bifenthrin 0.058% + carbaryl 2.3% (Duocide)	2 lb	**Not for use on golf courses and sod farms.** Product must be watered in immediately after application to lawns. DO NOT apply more than 4 times per year to lawns. The minimum reapplication interval to lawns is 7 days. Will only kill pests present at the time of application. Pest must be directly contacted to be effective.
	B.t. products (various labels)	See label.	
	carbaryl* baits	0.75-1.5 oz	Treat in late afternoon. Apply in adequate water for good coverage but do not flood or water in. DO NOT cut grass for 1 to 3 days after treatment.
	carbaryl* (Sevin) 80 WSP	See label.	
	chlorantraniliprole (Acelepryn)	0.046-0.092 fl oz	
	chlorpyrifos* (Nufarm Chlorpyrifos)	See label.	See label. For use on golf course turf, turf and ornamentals around industrial buildings and turf and ornamentals in road medians. **Restricted Use Pesticide**.
	clothianidin (Arena) 0.5 G 50 WDG	 1.4-1.8 oz 0.2-0.3 oz	Cutworms only.
	clothianidin + bifenthrin (Aloft)	See label.	
	cyfluthrin (Tempo and other formulations)	See label.	
	deltamethrin (DeltaGard) G	2-3 lb	
	dinotefuran (Zylam) 20 SG	1 oz	Cutworm only.
	entomogenous nematodes*	See label.	Read and follow special application instructions. Effective only against small cutworms.
	imidacloprid + bifenthrin (Allectus)	See label.	Rate varies with pest. Different formulations for different sites.
	indoxacarb (Provaunt) WDG	See label.	Not labeled for use on sod farms.
	lambda-cyhalothrin* (Scimitar, Cyonara)	See label.	DO NOT make applications within 20 ft of any body of water. No reentry until spray has dried.
	spinosad (Conserve SC)	0.25-1.2 fl oz	Rate varies with size and species.
	trichlorfon (Dylox) 420 SL	4.6-6.9 fl oz/1000 sq ft (200-300 fl oz/A)	For use on residential and golf course turf only. Post-application irrigation required. Not for sod farm use.
	zeta-cypermethrin + bifenthrin + imidacloprid (Triple Crown T&O, Triple Crown Golf)	10-15 fl oz/acre	Triple Crown Golf is a **Restricted Use Pesticide**. To ensure optimal control of eriophyid mites, apply in combination with the labeled application rate of a surfactant. A second application, five to seven days after the first, may be necessary to achieve acceptable control.

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Pest	Insecticide and Formulation	Amount Per 1,000 Square Feet	Comments/Precautions
Earthworm			Usually not a problem. No effective controls available.
Eriophyid Mites (zoysiagrass mite and bermudagrass stunt mite)	azadirachtin (Azatrol)	See label.	Registered for use on eriophyid mites in turfgrass.
	bifenthrin (Bifenthrin 2EC, Quali-Pro Bifenthrin, Talstar F)	See label.	Registered for use on eriophyid mites in turfgrass.
	chlorpyrifos* (Nufarm Chlorpyrifos)	See label.	See label. For use on golf course turf, turf and ornamentals around industrial buildings and turf and ornamentals in road medians. **Restricted Use Pesticide**.
	deltamethrin (DeltaGard T&O 5SC)	See label.	Registered for use on eriophyid mites in turfgrass.
	imidacloprid + bifenthrin (Allectus GC SC),	See label.	Registered for use on eriophyid mites in turfgrass.
	lambda-cyhalothrin* (Quali-Pro Lambda GC-O, Scimitar)	See label.	Registered for use on eriophyid mites in turfgrass.
	zeta-cypermethrin + bifenthrin + imidacloprid (Triple Crown T&O, Triple Crown Golf)	10-20 fl oz/acre	Triple Crown Golf is a **Restricted Use Pesticide**. To ensure optimal control of eriophyid mites, apply in combination with the labeled application rate of a surfactant. A second application, five to seven days after the first, may be necessary to achieve acceptable control.
Fall Armyworm	acephate* (Orthene T, T&O)	0.5-1.2 oz	Water into soil immediately after application.
	bifenthrin 0.058% + carbaryl 2.3% (Duocide)	2 lb	**Not for use on golf courses and sod farms.** Product must be watered in immediately after application to lawns. DO NOT apply more than 4 times per year to lawns. The minimum reapplication interval to lawns is 7 days. Will only kill pests present at the time of application. Pest must be directly contacted to be effective.
	chlorantraniliprole (Acelepryn)	0.046-0.092 fl oz	
	chlorpyrifos* (Nufarm Chlorpyrifos)	See label.	See label. For use on golf course turf, turf and ornamentals around industrial buildings and turf and ornamentals in road medians. **Restricted Use Pesticide**.
	indoxacarb (Provaunt WDG)	See label.	Not labeled for use on sod farms.
	pyrethroids* (Advanced Garden, DeltaGard, Menace, Scimitar, Talstar, Tempo, Cyonara)	See label.	
	spinosad (Conserve) SC	0.25 to 1.2 fl oz	Rate varies with size and species.
	zeta-cypermethrin + bifenthrin + imidacloprid (Triple Crown T&O, Triple Crown Golf)	10-15 fl oz/acre	Triple Crown Golf is a **Restricted Use Pesticide**.
Grasshopper	acephate* (Orthene T, T&O)	0.5 oz	DO NOT mow turfgrass for at least 24 hours after application.
	bifenthrin 0.058% + carbaryl 2.3% (Duocide)	2-4 lb	**Not for use on golf courses and sod farms.** Product must be watered in immediately after application to lawns. DO NOT apply more than 4 times per year to lawns. The minimum reapplication interval to lawns is 7 days. Will only kill pests present at the time of application. Pest must be directly contacted to be effective.
	chlorpyrifos* (Nufarm Chlorpyrifos)	See label.	See label. For use on golf course turf, turf and ornamentals around industrial buildings and turf and ornamentals in road medians. **Restricted Use Pesticide**.
	deltamethrin (DeltaGard) G	2-3 lb	
	lambda-cyhalothrin* (Scimitar, Cyonara)	See label.	DO NOT make applications within 20 ft of any body of water. No reentry until spray has dried.
	zeta-cypermethrin + bifenthrin + imidacloprid (Triple Crown T&O, Triple Crown Golf)	10-20 fl oz/acre	Triple Crown Golf is a **Restricted Use Pesticide**.

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Pest	Insecticide and Formulation	Amount Per 1,000 Square Feet	Comments/Precautions
Ground Pearl			No effective control; practice good management.
Grub (white, May beetle, chafers, green June beetle, others)	bifenthrin 0.058% + carbaryl 2.3% (Duocide)	4-8 lb	**Not for use on golf courses and sod farms.** Product must be watered in immediately after application to lawns. DO NOT apply more than 4 times per year to lawns. The minimum reapplication interval to lawns is 7 days. Will only kill pests present at the time of application. Pest must be directly contacted to be effective.
	carbaryl* (Sevin 80 WSP)	See label.	
	chlorantraniliprole (Acelepryn)	0.184-0.367 fl oz	Optimal control when applied at egg hatch. Use higher rates later in summer.
	chlorpyrifos* (Nufarm Chlorpyrifos)	See label.	See label. For use on golf course turf, turf and ornamentals around industrial buildings and turf and ornamentals in road medians. **Restricted Use Pesticide**.
	clothianidin (Arena) 0.5 G 50 WDG	 14-22 oz 0.15-0.22 oz	Mole cricket suppression.
	clothianidin + bifenthrin (Aloft)	See label.	
	dinotefuran (Zylam) 20 SG	1 oz	Apply at egg hatch.
	imidacloprid* (Merit) 75 WP	3-4 level tsp	Make application prior to egg hatch. (Offers some suppression of caterpillars.)
	imidacloprid + bifenthin (Allectus)	See label.	Rate varies with pest. Different formulations for different sites.
	thiamethoxam (Meridian) 0.33 G 25 WG	 60-80 lb/acre 12.7-17 oz/acre	Optimum control when applied from peak flight of adults to peak of egg hatch. Also suppresses mole crickets and chinch bugs.
	trichlorfon (Dylox) 420 SL	4.6-6.9 fl oz/1000 sq ft (200-300 fl oz/A)	For use on residential and golf course turf only. Post-application irrigation required. Not for sod farm use.
Grub, Green June Beetle (only)	bifenthrin 0.058% + carbaryl 2.3% (Duocide)	4-8 lb	**Not for use on golf courses and sod farms.** Product must be watered in immediately after application to lawns. DO NOT apply more than 4 times per year to lawns. The minimum reapplication interval to lawns is 7 days. Will only kill pests present at the time of application. Pest must be directly contacted to be effective.
	carbaryl* (Sevin 80 WSP)	See label.	
	chlorantraniliprole (Acelepryn)	0.184-0.367 fl oz	Optimal control when applied at egg hatch. Use higher rates later in summer.
	chlorpyrifos* (Nufarm Chlorpyrifos)	See label.	See label. For use on golf course turf, turf and ornamentals around industrial buildings and turf and ornamentals in road medians. **Restricted Use Pesticide**.
	clothianidin (Arena) 0.5 G 50 WDG	 14-22 oz 0.15-0.22 oz	Mole cricket suppression.
	clothianidin + bifenthrin (Aloft)	See label.	
	dinotefuran (Zylam) 20 SG	1 oz	Apply at egg hatch.
	imidacloprid* (Merit) 75 WP	3-4 level tsp	Make application prior to egg hatch. DO NOT use on sod farms. (Offers some suppression of caterpillars.)
	imidacloprid + bifenthrin (Allectus)	See label.	Rate varies with pest. Different formulations for different sites.
	thiamethoxam (Meridian) 0.33 G 25 WG	 60-80 lb/acre 12.7-17 oz/acre	Optimum control when applied from peak flight of adults to peak of egg hatch. Also suppresses mole crickets and chinch bugs.

*Several trade names available. Check label for active ingredient. Always follow label instructions.

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Pest	Insecticide and Formulation	Amount Per 1,000 Square Feet	Comments/Precautions
Grub (Japanese beetle)	*B.t.* (various products)	See label.	
	bifenthrin 0.058% + carbaryl 2.3% (Duocide)	4-8 lb	**Not for use on golf courses and sod farms.** Product must be watered in immediately after application to lawns. DO NOT apply more than 4 times per year to lawns. The minimum reapplication interval to lawns is 7 days. Will only kill pests present at the time of application. Pest must be directly contacted to be effective.
	carbaryl* (Sevin 80 WSP)	See label.	
	chlorantraniliprole (Acelepryn)	0.184-0.367 fl oz	Optimal control when applied at egg hatch. Use higher rates later in summer.
	chlorpyrifos* (Nufarm Chlorpyrifos)	See label.	See label. For use on golf course turf, turf and ornamentals around industrial buildings and turf and ornamentals in road medians. **Restricted Use Pesticide**.
	clothianidin (Arena) 0.5 G 50 WDG	 14-22 oz 0.15-0.22 oz	Mole cricket suppression.
	clothianidin + bifenthrin (Aloft)	See label.	
	dinotefuran (Zylam) 20 SG	1 oz	Apply at egg hatch.
	imidacloprid* (Merit) 75 WP	3-4 level tsp	Make application prior to egg hatch. (Offers some suppression of caterpillars.)
	imidacloprid + bifenthrin (Allectus)	See label.	Rate varies with pest. Different formulations for different sites.
	thiamethoxam (Meridian) 0.33 G 25 WG	 60-80 lb/acre 12.7-17 oz/acre	Optimum control when applied from peak flight of adults to peak of egg hatch. Also suppresses mole crickets and chinch bugs.
	trichlorfon (Dylox) 420 SL	4.6-6.9 fl oz/1000 sq ft (200-300 fl oz/A)	For use on residential and golf course turf only. Post-application irrigation required. Not for sod farm use.
Leafhopper, Spittlebug	acephate* (Orthene T, T&O) 75 S	1 oz	
	bifenthrin* (Menace, Talstar, others) F, GC and G forms also available	0.25-0.5 fl oz	Use GC formulation for golf courses.
	bifenthrin 0.058% + carbaryl 2.3% (Duocide)	2-4 lb	**Not for use on golf courses and sod farms.** Product must be watered in immediately after application to lawns. DO NOT apply more than 4 times per year to lawns. The minimum reapplication interval to lawns is 7 days. Will only kill pests present at the time of application. Pest must be directly contacted to be effective.
	carbaryl* (Sevin 80 WSP)	See label.	
	chlorpyrifos* (Nufarm Chlorpyrifos)	See label.	See label. For use on golf course turf, turf and ornamentals around industrial buildings and turf and ornamentals in road medians. **Restricted Use Pesticide**.
	deltamethrin (DeltaGard) G	2-3 lb	
	zeta-cypermethrin + bifenthrin + imidacloprid (Triple Crown T&O, Triple Crown Golf)	10-20 fl oz/acre	Triple Crown Golf is a **Restricted Use Pesticide**.
Millipede	bifenthrin* (Menace, Talstar, others) F, GC and G forms also available	0.25-0.5 fl oz	Use GC formulation for golf courses.
	bifenthrin 0.058% + carbaryl 2.3% (Duocide)	4-8 lb	**Not for use on golf courses and sod farms.** Product must be watered in immediately after application to lawns. DO NOT apply more than 4 times per year to lawns. The minimum reapplication interval to lawns is 7 days. Will only kill pests present at the time of application. Pest must be directly contacted to be effective.

COMMERCIAL TURF AND GOLF COURSE INSECT CONTROL

Pest	Insecticide and Formulation	Amount Per 1,000 Square Feet	Comments/Precautions
Millipede (cont.)	carbaryl* (Sevin 80 WSP)	See label.	
	chlorpyrifos* (Nufarm Chlorpyrifos)	See label.	See label. For use on golf course turf, turf and ornamentals around industrial buildings and turf and ornamentals in road medians. **Restricted Use Pesticide**.
	cypermethrin (Demon) TC	See label.	For use on golf courses. See new label.
	lambda-cyhalothrin* (Scimitar, Cyonara)	See label.	DO NOT make applications within 20 ft of any body of water. No reentry until spray has dried.
	zeta-cypermethrin + bifenthrin + imidacloprid (Triple Crown T&O, Triple Crown Golf)	10-20 fl oz/acre	Triple Crown Golf is a **Restricted Use Pesticide**.
Mole Cricket	acephate* (Orthene T, T&O, Lesco-Fate)	1.0-1.9 oz	Water soil before application. DO NOT water into soil.
	bifenthrin* (Menace, Talstar, others) F, GC and G forms also available	0.5-1.0 fl oz	Use GC formulation for golf course.
	bifenthrin 0.058% + carbaryl 2.3% (Duocide)	4-8 lb	**Not for use on golf courses and sod farms.** Product must be watered in immediately after application to lawns. DO NOT apply more than 4 times per year to lawns. The minimum reapplication interval to lawns is 7 days. Will only kill pests present at the time of application. Pest must be directly contacted to be effective.
	carbaryl* baits	See label.	
	chlorpyrifos* (Nufarm Chlorpyrifos)	See label.	See label. For use on golf course turf, turf and ornamentals around industrial buildings and turf and ornamentals in road medians. **Restricted Use Pesticide**.
	cyfluthrin* (Tempo Ultra)	0.2 fl oz	
	deltamethrin (DeltaGard) G	2-3 lb	
	dinotefuran (Zylam) 20 SG	1 oz	Apply at egg hatch.
	entomogenous nematodes*	See label.	Various formulations now available. Adequate soil moisture critical for good control.
	fipronil (Chipco Choice) 0.1 G (Taurus G, Top Choice) 0.0143	 12.5-25 lb/acre 2 lb	 Use slit placement equipment. Apply as a broadcast.
	imidacloprid (Merit) 75 WP 0.5G	 4 level tsp 1.8 lb	Apply while crickets are less than 1/2 inch long (June, early July).
	imidacloprid + bifenthrin (Allectus)	See label.	Rate varies with pest. Different formulations for different sites.
	indoxacarb (Advion) mole cricket bait 0.22%	1.15-4.6 lb 50-200 lb/acre	Not for use on sod farms.
	indoxacarb (Provaunt)	0.275 oz	Must be in possession of a supplemental label for this use at the time of application.
	lambda-cyhalothrin* (Scimitar, Cyonara)	See label.	DO NOT make applications within 20 ft of any body of water. No reentry until spray has dried.
	trichlorfon (Dylox) 420 SL 6.2 G	 4.6-6.9 fl oz/1000 sq ft (200-300 fl oz/A) 3 lb/1000 sq ft or 130 lb/A	For use on residential and golf course turf only. Post-application irrigation required. Not for sod farm use.
	zeta-cypermethrin + bifenthrin + imidacloprid (Triple Crown T&O, Triple Crown Golf)	20-35 fl oz/acre	Triple Crown Golf is a **Restricted Use Pesticide**.
Slug, Snail	Mesurol 2 B	1 lb	Apply late in afternoon.
	metaldehyde	See label.	

*Several trade names available. Check label for active ingredient. Always follow label instructions.

Pest	Insecticide and Formulation	Amount Per 1,000 Square Feet	Comments/Precautions
Sod Webworm	acephate*		
	(Lesco-Fate, Orthene T, T&O)	0.5-1.0 oz	Home lawns only.
	(Precise 4G)	2.8 lb	Irrigate immediately.
	azadirachtin* (Azatrol, Neemix, Turplex)	0.5 fl oz	
	Bacillus thuringiensis (various brands)	1-2 lb/acre	
	bifenthrin* (Menace, Talstar, others) F, GC and G formulations also available	0.18-0.25 fl oz	Use GC formulation for golf courses.
	bifenthrin 0.058% + carbaryl 2.3% (Duocide)	2 lb	**Not for use on golf courses and sod farms.** Product must be watered in immediately after application to lawns. DO NOT apply more than 4 times per year to lawns. The minimum reapplication interval to lawns is 7 days. Will only kill pests present at the time of application. Pest must be directly contacted to be effective.
	carbaryl* (Sevin 80 WSP)	See label.	
	chlorantraniliprole (Acelepryn)	0.046-0.092 fl oz	
	chlorpyrifos* (Nufarm Chlorpyrifos)	See label.	See label. For use on golf course turf, turf and ornamentals around industrial buildings and turf and ornamentals in road medians. **Restricted Use Pesticide**.
	clothianidin (Arena)		
	0.5 G	14-22 oz	
	50 WDG	0.15-0.22 oz	
	clothianidin + bifenthrin (Aloft)	See label.	
	cyfluthrin* (Tempo Ultra)	0.143 fl oz	Irrigate immediately after application. DO NOT apply to newly seeded stands of bentgrass.
	deltamethrin (DeltaGard) G	2-3 lb	
	dinotefuran (Zylam) 20 SG	1 oz	
	imidacloprid + bifenthrin (Allectus)	See label.	Rate varies with pest. Different formulations for different sites.
	indoxacarb (Provaunt) SC	0.0625-0.25 fl oz	Not labeled for use on sod farms.
	lambda-cyhalothrin* (Scimitar, Cyonara)	See label.	DO NOT make applications within 20 ft of any body of water. No reentry until spray has dried.
	permethrin* (Astro)	0.4-0.8 fl oz	
	spinosad A and D (Conserve) SC	0.25-1.25 fl oz	Rate varies with size and species.
	trichlorfon (Dylox) 420 SL	4.6-6.9 fl oz/1000 sq ft (200-300 fl oz/A)	For use on residential and golf course turf only. Post-application irrigation required. Not for sod farm use.
	zeta-cypermethrin + bifenthrin + imidacloprid (Triple Crown T&O, Triple Crown Golf)	10-15 fl oz/acre	Triple Crown Golf is a **Restricted Use Pesticide**.

*Several trade names available. Check label for active ingredient. Always follow label instructions.

COMMERCIAL TURF AND GOLF COURSE INSECT CONTROL

Pest	Insecticide and Formulation	Amount Per 1,000 Square Feet	Comments/Precautions
Sowbug, Pillbug	bifenthrin* (Talstar) F, GC and G forms also available	0.25-0.5 fl oz	Use GC formulation for golf courses.
	bifenthrin 0.058% + carbaryl 2.3% (Duocide)	8 lb	**Not for use on golf courses and sod farms.** Product must be watered in immediately after application to lawns. DO NOT apply more than 4 times per year to lawns. The minimum reapplication interval to lawns is 7 days. Will only kill pests present at the time of application. Pest must be directly contacted to be effective.
	carbaryl* (Carbaryl 4L, Sevin SL) (Sevin 80 WSP)	1.5-3 fl oz 2.5-5 lb/acre	
	chlorpyrifos* (Nufarm Chlorpyrifos)	See label.	See label. For use on golf course turf, turf and ornamentals around industrial buildings and turf and ornamentals in road medians. **Restricted Use Pesticide**.
	cypermethrin* (Demon) TC	See label.	
	deltamethrin (DeltaGard) G	2-3 lb/1,000 ft	
	lambda-cyhalothrin* (Scimitar, Cyonara)	See label.	DO NOT make applications within 20 ft of any body of water. No reentry until spray has dried.
	zeta-cypermethrin + bifenthrin + imidacloprid (Triple Crown T&O, Triple Crown Golf)	10-20 fl oz/acre	Triple Crown Golf is a **Restricted Use Pesticide**.
Spittlebugs	acephate* (Orthene 75WP) (Orthene 97)	 1-1.9 oz/1000 sq ft 0.8-1.4 oz/10,000 sq ft	
	carbaryl (Sevin SL)	 1.5-3 fl oz/1000 sq ft or 2-4 qt/A	
	bifenthrin (Onyx)	 0.07-0.15 fl oz/1000 sq ft	Pyrethroids applied with sufficient volume of water have been effective but not always consistently so.
	deltamethrin (DeltaGard GC 5SC) (DeltaGard T&O 5 SC landscape turf only)	 0.2-0.4 fl oz/1000 sq ft or 8.75-17.5 fl oz/A	Cut grass to its recommended height and remove clippings prior to application.

*Several trade names available. Check label for active ingredient. Always follow label instructions.