

## HOME LAWN INSECT CONTROL

The following table provides home lawn insect control recommendations with pesticides for use by the homeowner and with pesticides for use by licensed professionals only. 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. Additional trade names that may be available locally are listed in the **HOMEOWNER INSECTICIDE PRODUCT LIST** beginning on page 308.

| Pest   | Insecticide and Formulation   | Amount Per 1,000 Square Feet      | Precautions and Remarks   |
|--|---|-----------------------------------|---|
| <b>Ant</b><br>(also see <b>Red Imported Fire Ant</b> )   | bifenthrin 0.3% (Ortho)   | see label                         |   |
|  | carbaryl (various brands)   | see label                         | Treat mounds and surrounding area or apply broadcast.   |
|  | clothianidin + bifenthrin (Aloft)   |                                   | Toxic to fish and aquatic invertebrates. DO NOT apply near or allow runoff to surface waters.                               |
|  | SC  | 0.27-0.54 fl oz                   |   |
|  | G   | 1.8-3.6 lb                        |   |
|  | cyfluthrin 0.75% (Bayer Advanced)   | see label                         |   |
|  | gamma-cyhalothrin 0.08% (Spectracide)   | see label                         |   |
|  | hydramethylnon* (Maxforce G)  | see label                         |   |
|  | lambda-cyhalothrin 0.5% (Bonide)  | see label                         |   |
| other pyrethroids* (DeltaGard, Scimitar, Talstar, Tempo) | see label   |                                   |   |
| permethrin 10% (Hi-Yield)                                | see label   |                                   |   |
| <b>Ant, Red Imported Fire</b>                            | <b>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.</b> |                                   |   |
|  | abamectin B1* (Ascend, Award II) 0.011% bait  | 5-7 Tbsp/mound<br>1 lb/acre       | Mound-to-mound treatment rate<br>Broadcast rate   |
|  | acephate*<br>(Orthene T, T&O) 75 S<br>(Ortho Orthene Fire Ant Killer1) 50 S   | 1-2 tsp/mound<br>1 Tbsp/mound     | Distribute uniformly over mound. For best results, apply early in the morning or late afternoon.                            |
|  | carbaryl (various brands)   | see label                         | Use as a mound drench.  |
|  | d-limonene (Orange Guard)   | see label                         | Mound treatment (acceptable to organic growers).  |
|  | fipronil 0.0143% granular insecticide<br>(Quali-Pro Fipronil, Top Choice)   | 2 lb or<br>87 lb/acre             | Broadcast only  |
|  | fipronil (Maxforce FC) bait   | see label                         | Apply as a mound treatment or broadcast bait.   |
|  | hydramethylnon (Amdro, Amdro Pro, Maxforce Fire Ant Granular Bait)  | 2-5 Tbsp/mound<br>1.0-1.5 lb/acre | Mound-to-mound treatment rate<br>Broadcast rate   |
|  | indoxacarb (Advion)   | see label                         |   |
|  | metaflumizone (Siesta Fire Ant Bait) 0.063%   | 1.0-1.5 lb/acre<br>2-4 Tbsp/mound | Broadcast rate<br>Mound-to-mound treatment rate.<br>DO NOT exceed 6.0 lb/acre total or 4 applications in a one-year period. |

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

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|---|---|--|---|
| <b>Ant, Red Imported Fire</b><br>(cont.)                          | pyrethroids (various brands)  | see label  |   |
|   | bifenthrin (Ortho MAX Fire Ant Killer Broadcast Granules, Over 'n Out, Talstar) |  |   |
|   | cyfluthrin (Bayer Advanced Lawn Fire Ant Killer, Tempo)                         |  |   |
|   | deltamethrin (DeltaGard G, D-Fense SC)  |  |   |
|   | lambda-cyhalothrin (Spectracide Fire Ant Killer Granules)                       |  |   |
|   | pyriproxyfen (Distance)   | 1-4 Tbsp/mound<br>1.0-1.5 lb/acre  | Mound-to-mound treatment rate<br>Broadcast rate. This is an insect growth regulator (IGR).  |
|   | S-methoprene (Extinguish)   | 3-5 Tbsp/mound<br>1.0-1.5 lb/acre  | Mound-to-mound treatment rate<br>Broadcast rate. This is an IGR.  |
| S-methoprene + hydramethylnon (Amdro Firestrike, Extinguish Plus) | see label   | Mound-to-mound and broadcast treatments. This is an IGR plus a toxicant.   |   |
| spinosad (Ferti-lome Come and Get It Fire Ant Killer)             | see label   | Acceptable to organic growers. Follow label directions precisely. Repeat treatments usually required. Use fresh bait.                    |   |
| thiamethoxam 11.6% + lambda-cyhalothrin 3.5% (Tandem)             | see label   | Apply a single application of 28 fl oz per acre.<br><b>OR</b><br>Apply two applications of 14 fl oz per acre on a 3- to 5-week interval. |   |
| <b>Armyworm, Fall</b><br><b>Armyworm, Cutworm</b>                 | azadirachtin* (Azatrol, Neemix, Turplex, etc.)                                  | see label  |   |
|   | <i>Bacillus thuringiensis/B.t.</i> (various brands)                             | see label  | Small armyworms only.   |
|   | bifenthrin 0.3% (Ortho)   | see label  |   |
|   | carbaryl (various brands)   | see label  | Apply as a coarse spray in sufficient water for good coverage. Treat when first injury noted. Repeat as needed. DO NOT water into soil. DO NOT cut grass for 1 to 3 days after treatment. |
|   | chlorantraniliprole (Acelepryn)   |  |   |
|   | SC  | 0.046-0.092 fl oz  |   |
|   | G   | 1.15-2.3 lb  |   |
|   | chlorantraniliprole (GrubEx1)   | see label  |   |
|   | cyfluthrin 0.75% (Bayer Advanced)   | see label  |   |
|   | gamma-cyhalothrin 0.08% (Spectracide)   | see label  |   |
|   | halofenozide* (Mach 2)  |  | Can be applied two times per season at these rates.   |
|   | 2 SC  | 1.5 fl oz  |   |
|   | 1.5 G   | 1 lb   |   |
|   | indoxacarb (Provaunt) G   | 1.15-2.3 lb  |   |
| lambda-cyhalothrin 0.5% (Bonide)                                  | see label   |  |   |
| other pyrethroids* (DeltaGard, Scimitar, Talstar, Tempo)          | see label   |  |   |
| permethrin 10% (Hi-Yield)   | see label   |  |   |
| spinosad A and D (Conserve SC)                                    | 0.25-1.25 fl oz   | Rate varies with size and species.   |   |

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| Pest   | Insecticide and Formulation                              | Amount Per<br>1,000 Square Feet                          | Precautions and Remarks   |
|--|--|--|---|
| <b>Armyworm, Fall<br/>Armyworm, Cutworm</b>                    | thiamethoxam 11.6% + lambda-cyhalothrin 3.5%<br>(Tandem) | see label  | Apply a single application of 28 fl oz per acre.<br><b>OR</b><br>Apply two applications of 14 fl oz per acre on a 3- to 5-week interval.  |
|  | trichlorfon* (Bayer Advanced)                            | see label  |   |
|  | various entomogenous nematode and <i>B.t.</i> products   | see label  |   |
| <b>Bee and Wasp</b>  | bifenthrin 0.3% (Ortho)                                  | see label  | Most of these are parasitic on soil pests, especially grubs; therefore, they are beneficial. Sometimes there are so many bees and wasps burrowing in the soil that chemical treatments are necessary to prevent damage or reduce danger from stings. Spot spray ground nest openings. Bee, wasp and hornet sprays in pressurized cans are also effective.                     |
|  | carbaryl (various brands)                                | see label  |   |
|  | cyfluthrin 0.75% (Bayer Advanced)                        | see label  |   |
|  | other pyrethroids* (DeltaGard, Scimitar, Talstar, Tempo) | see label  |   |
| <b>Chinch Bug</b>  | <i>Beauveria bassiana</i> * (Naturalis-T)                | see label  | Suppression only. Toxic to aquatic invertebrates.<br><br>Toxic to fish and aquatic invertebrates. DO NOT apply near or allow runoff to surface waters.<br><br>For suppression, make application prior to hatching of first instar nymphs.<br><br>Apply when insects are first observed. Repeat applications may be necessary. Highly toxic to fish and aquatic invertebrates. |
|  | bifenthrin 0.3% (Ortho)                                  | see label  |   |
|  | carbaryl (various brands)                                | see label  |   |
|  | chlorotraniliprole (Acelepryn)<br>G<br>SC                | 1.15-2.3 lb<br>0.184-0.46 fl oz                          |   |
|  | clothianidin + bifenthrin (Aloft)<br>SC<br>G             | 0.27-0.54 fl oz<br>1.8-3.6 lb                            |   |
|  | cyfluthrin 0.75% (Bayer Advanced)                        | see label  |   |
|  | dinotefuran (Zylam 20 SG)                                | 1.0 fl oz  |   |
|  | gamma-cyhalothrin 0.08% (Spectracide)                    | see label  |   |
|  | lambda-cyhalothrin 0.5% (Bonide)                         | see label  |   |
|  | other pyrethroids* (DeltaGard, Scimitar, Talstar, Tempo) | see label  |   |
|  | permethrin 10% (Hi-Yield)                                | see label  |   |
|  | thiamethoxam 11.6% + lambda-cyhalothrin 3.5%<br>(Tandem) | see label  |   |
|  | <b>Crane Fly</b>   | bifenthrin (Ortho Bug-B-Gon MAX Insect Killer for Lawns) |   |
| chlorantraniliprole (GrubEx1)                                  |  | see label  |   |
| gamma-cyhalothrin (Spectracide)                                |  | see label  |   |
| imidacloprid<br>(Merit)<br>(Advanced Season Long Grub Control) |  | see label  |   |
| lambda-cyhalothrin (Bonide)                                    |  | see label  |   |

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

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| Pest  | Insecticide and Formulation  | Amount Per<br>1,000 Square Feet                         | Precautions and Remarks   |
|---|--|---|---|
| <b>Eriophyid Mites</b><br>(zoysiagrass mite<br>and bermudagrass<br>stunt mite)                                    | azadirachtin (Azatrol)   | see label   | Registered for use on eriophyid mites in turfgrass.   |
|   | bifenthrin (Allectus GC SC, Bifenthrin 2EC,<br>Quali-Pro Bifenthrin, Talstar F)  | see label   | Registered for use on eriophyid mites in turfgrass.   |
|   | deltamethrin (D-Fense SC)  | see label   | Suppression ONLY.   |
|   | lambda-cyhalothrin (Quali-Pro Lambda GC-O, Scimitar)   | see label   | Registered for use on eriophyid mites in turfgrass.   |
| <b>Grasshopper</b>  | bifenthrin 0.3% (Ortho)  | see label   |   |
|   | carbaryl (various brands)  | see label   |   |
|   | cyfluthrin 0.75% (Bayer Advanced)  | see label   |   |
|   | gamma-cyhalothrin 0.08% (Spectracide)  | see label   |   |
|   | lambda-cyhalothrin 0.5% (Bonide)   | see label   |   |
|   | other pyrethroids* (DeltaGard, Scimitar, Talstar, Tempo)   | see label   |   |
|   | permethrin 10% (Hi-Yield)  | see label   |   |
| thiamethoxam 11.6% + lambda-cyhalothrin 3.5% (Tandem)   | see label  | Apply 10.5 fl oz per acre on a 3- to 5-week interval.   |   |
| <b>Ground Pearls</b>  | Maintain a vigorous lawn through proper fertilization, watering, mowing, etc. Good cultural practices will help the lawn outgrow damage. No practical, effective pesticide treatments are currently available. |   |   |
| <b>Grub, Green June Beetle (only)</b><br>(also see <b>White Grub</b> )  | carbaryl (various brands)  | see label   |   |
|   | thiamethoxam 11.6% + lambda-cyhalothrin 3.5% (Tandem)  | see label   | Begin applications up to 45 days before the historical peak of adult flight to second instar grub of the species being targeted. For optimum control, treat from peak flight to peak egg hatch. Irrigate to move Tandem into the root zone. Full-season control of white grubs will be obtained with either a single 28 fl oz application or two 14 fl oz applications. |
| <b>Grub, White</b><br>(Japanese beetle,<br>southern chafer,<br>European chafer,<br>billbug, green<br>June beetle) | carbaryl (various brands)  | see label   |   |
|   | chlorantraniliprole (Acelepryn) G  | 1.15-2.3 lb   |   |
|   | chlorantraniliprole (GrubEx1)  | see label   |   |
|   | clothianidin (Arena) G WDG   | see label   | Toxic to aquatic invertebrates. DO NOT apply near or allow to runoff into surface or intertidal areas.  |
|   | clothianidin + bifenthrin (Aloft)  |   |   |
|   | SC   | 0.27-0.54 fl oz   |   |
|   | G  | 1.8-3.6 lb  |   |
|   | dinotefuran (Zylam 20 SG)  | 1.0 fl oz   | Make application prior to or during peak egg hatch.   |
|   | halofenozide* (Mach 2) 2 SC and 1.5 G  | see label   |   |
|   | imidacloprid<br>(Merit)<br>(Advanced Lawn Grub Control)  | see label   |   |
|   | thiamethoxam (Meridian)  | see label   | Highly toxic to aquatic invertebrates.  |
|   | thiamethoxam 11.6% + lambda-cyhalothrin 3.5%<br>(Tandem)   | see label   | Begin applications up to 45 days before the historical peak of adult flight to second instar grub of the species being targeted. For optimum control, treat from peak flight to peak egg hatch. Irrigate to move Tandem into the root zone. Full-season control of white grubs will be obtained with either a single 28 fl oz application or two 14 fl oz applications. |
| trichlorfon* (Bayer Advanced)   | see label  |   |   |
| various entomogenous nematode products  | see label  | Must be <i>Heterorhabditid</i> species to be effective. |   |

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| Pest  | Insecticide and Formulation                                      | Amount Per<br>1,000 Square Feet   | Precautions and Remarks   |
|---|--|---|---|
| <b>Millipede</b>  | bifenthrin 0.3% (Ortho)  | see label   |   |
|   | carbaryl (various brands)  | see label   |   |
|   | gamma-cyhalothrin (Spectracide)                                  | see label   |   |
|   | lambda-cyhalothrin (Bonide)                                      | see label   |   |
|   | other pyrethroids* (DeltaGard, Scimitar, Talstar, Tempo)         | see label   |   |
|   | permethrin 10% (Hi-Yield)  | see label   |   |
| <b>Mole Cricket</b>                                     | bifenthrin 0.3% (Ortho)  | see label   |   |
|   | carbaryl (various baits)   | see label   |   |
|   | clothianidin + bifenthrin (Aloft)                                |   |   |
|   | G  | 1.8-3.6 lb  |   |
|   | SC   | 0.27-0.54 fl oz   |   |
|   | cyfluthrin 0.75% (Bayer Advanced)                                | see label   |   |
|   | dinotefuran (Zylam 20 SG)  | 1 fl oz   | Make application prior to or during peak egg hatch.   |
|   | fipronil (several products)                                      | 2 lb  | Apply as a broadcast.   |
|   | gamma-cyhalothrin 0.08% (Spectracide)                            | see label   |   |
|   | imidacloprid (Advanced Lawn Grub Control, Merit)                 | see label   |   |
|   | indoxacarb<br>(Advion Mole Cricket Bait)                         | see label   |   |
|   | (Provaunt) SC  | 0.275 fl oz   |   |
|   | lambda-cyhalothrin 0.5% (Bonide)                                 | see label   |   |
|   | other pyrethroids* (DeltaGard, Menace, Scimitar, Talstar, Tempo) | see label   |   |
| permethrin 10% (Hi-Yield)                               | see label  |   |   |
| thiamethoxam 11.6% + lambda-cyhalothrin 3.5% (Tandem)   | see label  | Apply from first egg hatch to peak egg hatch. Highly toxic to fish and aquatic invertebrates. |   |
| various entomogenous nematode products                  | see label  | Requires irrigation.  |   |
| <b>Slug, Snail</b>                                      | iron phosphate (Natria) bait                                     | see label   | Apply in late afternoon.  |
|   | Mesuroil 2% B  | 1 lb  | Apply in late afternoon.  |
|   | metaldehyde  | see label   | Apply in late afternoon.  |
| <b>Sod Webworm<br/>(also Burrowing Sod<br/>Webworm)</b> | <i>Bacillus thuringiensis/B.t.</i> (various brands)              | see label   |   |
|   | bifenthrin 0.3% (Ortho)  | see label   |   |
|   | carbaryl (various brands)  | see label   | DO NOT water sprays into soil. Use 6 gal water plus the insecticide per 1,000 sq ft. Treat in late afternoon. DO NOT cut grass for 1 to 3 days after treatment. Granules must be watered into soil. |

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

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| Pest   | Insecticide and Formulation                                   | Amount Per<br>1,000 Square Feet         | Precautions and Remarks  |
|--|---|---|--|
| <b>Sod Webworm<br/>(also Burrowing Sod<br/>Webworm)</b><br>(cont.) | chlorantraniliprole (GrubEx1)                                 | see label                               |  |
|  | cyfluthrin 0.75% (Bayer Advanced)                             | see label                               |  |
|  | dinotefuran (Zylam 20 SG)                                     | 1 fl oz                                 |  |
|  | gamma-cyhalothrin 0.08% (Spectracide)                         | see label                               |  |
|  | halofenozide* (Mach 2)<br>2 SC<br>1.5 G                       | 1.5 fl oz<br>1 lb                       | Can be applied two times per season at these rates.  |
|  | lambda-cyhalothrin 0.5% (Bonide)                              | see label                               |  |
|  | other pyrethroids* (DeltaGard, Scimitar, Talstar, Tempo)      | see label                               |  |
|  | permethrin 10% (Hi-Yield)                                     | see label                               |  |
|  | spinosad A and D (Conserve) SC                                | 0.25-1.25 fl oz                         | Rate varies with size and species.   |
|  | thiamethoxam 11.6% + lambda-cyhalothrin 3.5% (Tandem)         | see label                               | Highly toxic to fish and aquatic invertebrates.  |
| trichlorfon* (Bayer Advanced)                                      | see label   | Use sufficient water for good coverage. |  |
| various entomogenous nematode and <i>B.t.</i> products             | see label   |   |  |
| <b>Spittlebug and<br/>Leafhopper</b>                               | acephate* (Orthene T, T&O) 75 S                               | see label                               |  |
|  | bifenthrin 0.3% (Ortho)                                       | see label                               | Cut grass to its recommended height and remove clippings prior to application. Various pyrethroid materials are available in a variety of homeowner formulations for use as broad-spectrum contact insecticides. Common active ingredients include bifenthrin, cyfluthrin, cypermethrin, deltamethrin, lambda-cyhalothrin, and permethrin. |
|  | deltamethrin (D-Fense SC)                                     | see label                               |  |
|  | gamma-cyhalothrin (Spectracide)                               | see label                               |  |
|  | lambda-cyhalothrin (Bonide)                                   | see label                               |  |
|  | other pyrethroids* (DeltaGard, Scimitar, Talstar, Tempo)      | see label                               |  |
| permethrin 10% (Hi-Yield)  | see label   |   |  |
| <b>Ticks and Chiggers</b>  | carbaryl (various)  | see label                               |  |
|  | bifenthrin (Hi-Yield, Ortho)                                  | see label                               |  |
|  | cyfluthrin 0.75% (Bayer Advanced)                             | see label                               |  |
|  | deltamethrin (D-Fense SC, DeltaGard G)                        | see label                               | DeltaGard G registered for ticks only.   |
|  | imidacloprid 0.72%+ beta-cyfluthrin 0.36%<br>(Bayer Advanced) | see label                               |  |
|  | gamma-cyhalothrin (Spectracide)                               | see label                               |  |
|  | lambda-cyhalothrin (Bonide, Martin's)                         | see label                               |  |

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