



IPM-1313

# Commercial Turf & Lawns

## Insect Control Recommendations for 2023



These recommendations include products by active ingredients and labeled use rates for the primary pests of turfgrass. Before using an insecticide, it is important to properly identify the pest. Alabama Extension has information describing the identification, biology, and management of many of the important pests of turfgrass. If an insecticide is needed, read the labeled instructions even if you have previously used the product. There have been changes in insecticide labeling recently, especially related to location and timing.

Some products may contain the same active ingredient and have similar trade names but may not be suitable for all turf uses (lawns, athletic fields, golf courses, sod farms). For example, some products may be specifically labeled for use in lawns but not for golf courses or sod farms, and vice versa. Some products are used by professional pest control (PCO) technicians mainly for household or structural pests and may also be labeled for certain pests in home lawns. If specific uses are prohibited on the label, they should appear in the comments

section. It is important to purchase a product that is specifically labeled for the correct and intended site. The label may also have specific instructions on pre- or post-irrigation that are required for successful control of certain pests.

These recommendations do not attempt to cover all application conditions. However, failure to follow these instructions may lead to application failures.

Finally, the Environmental Hazards section of the label may have further restrictions on application locations, conditions, or amount of product allowed to be applied per year. Many of these are in place to protect fish, aquatic invertebrates, or beneficial insects such as bees. Often a product may be **RESTRICTED USE** for environmental concerns. Restricted use products may only be purchased and used by licensed pesticide applicators.

**Table 1. Commercial Turf Insect Control**

Insecticide and Formulation	Rate	Comments
<b>BILLBUGS</b>		
bifenthrin		
BASELINE 23.4% LIQUID	0.07–0.15 fl.oz./1000 sq.ft.	For use outdoors on home lawns, grounds, and ornamental gardens and parks. Not for use on sod farms or golf courses.
LAWNSTAR GRANULAR INSECTICIDE	50-100 lbs/A or 1.15-2.3 lbs/1000 sq ft	<b>RESTRICTED USE</b> insecticide. Applications should be made when adult billbugs are first observed. Not for use on sod farms, golf courses, or grass grown for seed.
TALSTAR PL 0.2% GRANULAR	1.15–2.3 lb./1000 sq.ft. or 50–100 lb./A	For use on lawns in landscaped areas and perimeters around residential, institutional, public, commercial and industrial buildings, parks, recreational areas, and athletic fields. Not for use on golf courses and sod farms. Apply when adult billbugs are first observed.
TALSTAR SELECT	0.25–0.5 fl.oz./1000 sq.ft. or 10–20 fl.oz./acre	<b>RESTRICTED USE</b> insecticide. For use on sod farms and golf courses. Irrigate prior to application.
WISDOM LAWN GRANULAR	1.15–2.3 lb./1000 sq.ft.	Not for use on golf courses or sod farms. Target the adults.
WISDOM TC FLOWABLE	0.25-0.5 fl oz/1000 sq ft	<b>RESTRICTED USE</b> insecticide. Applications should be made when adult billbugs are first observed. Not for use on sod farms, golf courses, or grass grown for seed.
WISDOM EZ	1.15-2.3 lbs/1000 sq ft	<b>RESTRICTED USE</b> insecticide. Applications should be made when adult billbugs are first observed. Not for use on sod farms, golf courses, or grass grown for seed.
bifenthrin + imidacloprid + fertilizer		
Allectus	4.6 lbs/1000 sq ft or 120-200 lbs/A	Water-in applications with up to 0.5 in of water immediately after treatment. Not for use on golf courses or sod farms.

**Table 1. Commercial Turf Insect Control**

Insecticide and Formulation	Rate	Comments
<b>BILLBUGS (cont.)</b>		
bifenthrin + zeta-cypermethrin TALSTAR XTRA featuring Verge granular technology	1.5–2.3 lb./1000 sq.ft.	For use outdoors on home lawns, athletic fields, recreational areas, and parks. Not for use on sod farms or golf courses.
bifenthrin + zeta-cypermethrin +imidacloprid TRIPLE CROWN GOLF	0.23–0.46 fl.oz./1000 sq.ft. or 10–20 fl.oz./acre	For use on golf courses. Apply when adults are first observed. <b>RESTRICTED USE</b> insecticide.
TRIPLE CROWN T&O	0.23–0.46 fl.oz./1000 sq.ft. or 10–20 fl.oz./acre	For use on lawns and landscaped areas around residential, institutional, public, commercial and industrial buildings, parks, recreational areas, and athletic fields. Apply when adults are first observed.
carbaryl SEVIN SL	6 fl.oz./1000 sq.ft. or 8 qt./A	Irrigate turfgrass soon after treatment. For use on golf turf, sports fields, domestic and commercial lawns, cemeteries, parks, campsites, and recreational areas.
chlorantraniliprole ACELEPRYN	8–20 fl.oz./A	For use on sod farms, golf courses, landscape and recreational turfgrass.
chlorpyrifos CHLORPYRIFOS SPC 4	0.75–3 fl.oz./1000 sq.ft.	<b>RESTRICTED USE</b> insecticide. For turf around industrial buildings and golf courses only. Apply for control of adults when they first appear.
DURSBAN 50W	2–4 lb./A	Dursban is a <b>RESTRICTED USE</b> insecticide. Use on sod farms only. Apply when adults are first observed.
clothianidin ARENA 50 WDG	6.4–12.8 oz./A	For use on grass grown in industrial, commercial, and residential landscapes including athletic fields, cemeteries, sod farms, golf courses, home lawns, parks, and playgrounds. Irrigate after application.
ARENA 0.25G	80–160 lb./A	
clothianidin+ bifenthrin ALOFT GC G	1.8–3.6 lb./1000 sq.ft.	<b>RESTRICTED USE</b> insecticide. Can be used to control adults and larvae.
ALOFT GC SC	0.27-0.54 fl oz/1000 sq ft or 11.65-23.3 fl oz/A	<b>RESTRICTED USE</b> insecticide. Apply for control of adults when they first appear. Controls larvae. For use on golf courses, lawns, recreational areas, parks, athletic fields, and sod farms.
cyantraniliprole FERENCE	0.184–0.367 fl.oz./1000 sq.ft. or 8–16 fl.oz./acre	For use on landscape and recreational turfgrass including golf courses and sod farms.
cyfluthrin TEMPO ULTRA GC	8 fl oz/1000 sq ft	<b>RESTRICTED USE</b> insecticide. Not for use on sod farms. Apply for control of adults when they first appear.
TEMPO SC ULTRA	8 fl.oz./1000 sq.ft.	Apply for control of adults when they first appear. For use on landscape turfgrass but not golf courses or sod farms.
dinotefuran ZYLAM LIQUID	1.8 fl.oz./1000 sq.ft. or 79 fl.oz./acre	For insect control in residential, recreational, and commercial turfgrass. Make application prior to or during egg hatch or at first appearance of young larvae.
imidacloprid GRUBS AWAY	60-80 lb/A or 1.4-1.8 lb/1000 sq ft	Not for use on sod farms. Do not apply more than 80 lbs/A per year.
MALLET 0.5 G	1.4–1.8 lb./1000 sq.ft.	Make the application before egg hatch. Not for use on sod farms.
MALLET 2F T&O	0.46–0.6 fl.oz. (14 to 17 ml)/1000 sq.ft.	Make the application before egg hatch.
MERIT 75 WSP	1.6 oz./8250–11,000 sq.ft.	For insect control in turfgrass including sod farms.

**Table 1. Commercial Turf Insect Control**

Insecticide and Formulation	Rate	Comments
<b>BILLBUGS (cont.)</b>		
MERIT 2F	1.25–1.6 pt./A	For insect control in turfgrass including sod farms. For optimum control make application prior to egg hatch
MERIT 0.5 G	60–80 lb./A	For systemic insect control in turfgrass (home lawns, golf courses, cemeteries, parks, playgrounds, and athletic fields. NOT for use on sod farms. For optimum control make application prior to egg hatch..
lambda-cyhalothrin		
AVESTA CS	7 ml/1000 sq.ft.	Labeled for bluegrass billbug only. Not for use on golf courses or sod farms.
DEMAND CS	7 ml/1000 sq.ft.	Labeled for control of adult bluegrass billbug only. Not for use on golf courses or sod farms.
DEMAND EZ	28 ml/1000 sq.ft.	Labeled for control of adult bluegrass billbug only. Not for use on golf courses or sod farms.
DEMAND G	3–4 lb./1000 sq.ft.	Not for use on golf courses or sod farms.
SCIMITAR GC	7 ml/1000 sq.ft. or 10 fl.oz./A	<b>RESTRICTED USE</b> insecticide. For use on same sites as Scimitar CS plus golf course turf and sod farms. Irrigate after application.
thiamethoxam		
CARAVAN G (+ fungicide)	2–2.8 lb./1000 sq.ft.	For control of larvae. Not for use on sod farms.
MERIDIAN 0.33G	7–9 lb./5000 sq.ft. or 60–80 lb./A	For use on turfgrasses on golf courses, residential lawns and commercial grounds (includes sod farms, playgrounds, and athletic fields).
MERIDIAN 25WG	12.7–17 oz./A	For use on turfgrasses on golf courses, residential lawns, and commercial grounds.
trichlorfon		
DYLOX 420 SL	6.9 fl.oz./1000 sq.ft.	For control of billbug larvae. Not for use on sod farms.
DYLOX 6.2 G	3 lb./1000 sq.ft.	For control of billbug larvae. Not for use on sod farms.
<b>CHINCH BUGS</b>		
acephate		
ORTHENE TTO 97	2.5–4 lb./A (golf course). 2.5–3 lb./A (sod farm)	For use on golf courses or sod farms only.
ORTHENE TTO 75 WSP	3.33–5.33 lb./A (golf course). 3.33–4 lb./A (sod farm)	For use on golf courses or sod farms only.
bifenthrin		
BASELINE 23.4% LIQUID	0.07–0.3 fl.oz./1000 sq.ft.	For use outdoors on home lawns, grounds, and ornamental gardens and parks. Not for use on sod farms or golf courses.
LAWNSTAR GRANULAR INSECTICIDE	100-200 lbs/A or 2.3-4.6 lbs/1000 sq ft	<b>RESTRICTED USE</b> insecticide. Irrigate the treated area with up to 0.25 inches of water immediately after application. Higher application rates may be required to control populations that contain both nymphs and adults during the summer. Not for use on sod farms, golf courses, or grass grown for seed.
TALSTAR PL 0.2% GRANULAR	100 lb./A (residential use) 200 lb./A (non-residential use)	For use on lawns in landscaped areas and perimeters around residential, institutional, public, commercial and industrial buildings, parks, recreational areas, and athletic fields. Not for use on golf courses and sod farms. Irrigate with up to 0.25 inch of water after application.
TALSTAR SELECT	0.25–0.5 fl.oz./1000 sq.ft. or 10–20 fl.oz./acre	<b>RESTRICTED USE</b> insecticide. For use on sod farms and golf courses. Irrigate prior to application.
WISDOM LAWN GRANULAR	2.3–4.6 lbs./1000 sq.ft.	Not for use on golf courses or sod farms.
WISDOM FLOWABLE	0.23–0.46 oz./1000 sq.ft.	<b>RESTRICTED USE</b> insecticide.

**Table 1. Commercial Turf Insect Control**

<b>Insecticide and Formulation</b>	<b>Rate</b>	<b>Comments</b>
<b>CHINCH BUGS (cont.)</b>		
WISDOM TC FLOWABLE	0.25-0.5 fl oz/1000 sq ft	<b>RESTRICTED USE</b> insecticide. Higher application rates may be required to control populations that contain both nymphs and adults during the middle of summer. Not for use on sod farms, golf courses, or grass grown for seed.
WISDOM EZ	2.3-4.6 lbs/1000 sq ft	<b>RESTRICTED USE</b> insecticide. Irrigate the treated area with up to 0.25 inches of water immediately after application. Higher application rates may be required to control populations that contain both nymphs and adults during the summer. Not for use on sod farms, golf courses, or grass grown for seed.
bifenthrin + zeta-cypermethrin TALSTAR XTRA FEATURING VERGE GRANULAR TECHNOLOGY	2.3–4.6 lbs./1000 sq.ft.	For use outdoors on home lawns, athletic fields, recreational areas, and parks. Not for use on sod farms or golf courses.
bifenthrin + zeta-cypermethrin +imidacloprid		
TRIPLE CROWN GOLF	0.46–0.80 fl.oz./1000 sq.ft. or 20–35 fl.oz./acre	<b>RESTRICTED USE</b> insecticide. For use on golf courses. Irrigate prior to application.
TRIPLE CROWN T&O	0.46–0.80 fl.oz./1000 sq.ft. or 20–35 fl.oz./acre	For use on lawns and landscaped areas around residential, institutional, public, commercial, and industrial buildings, parks, recreational, and athletic fields. Irrigate prior to application.
carbaryl SEVIN SL	6–8 qt./A	For agricultural or commercial use only. For use on turfgrass on golf courses, sports fields, domestic and commercial lawns, cemeteries, parks, campsites, and recreational areas. Do not allow public use of treated areas during applications or until sprays have dried. Irrigate prior to application. Do not irrigate within 24 hours following application.
chlorantraniliprole ACELEPRYN	0.184–0.46 fl.oz./1000 sq.ft.	For suppression of chinch bugs, apply before egg hatch.
chlorpyrifos CHLORPYRIFOS SPC 4	0.75 fl.oz./1000 sq.ft.	<b>RESTRICTED USE</b> insecticide. For turf around industrial buildings and golf courses only.
clothianidin ARENA 50 WDG	9.6–12.8 oz./A	For use on grass grown in industrial, commercial, and residential landscapes including athletic fields, cemeteries, sod farms, golf courses, home lawns, parks, and playgrounds. Irrigate after application.
ARENA 0.25 G	120–160 lb./A	For use on grass grown in industrial, commercial, and residential landscapes including athletic fields, cemeteries, sod farms, golf courses, home lawns, parks, and playgrounds. Irrigate after application.
clothianidin + bifenthrin ALOFT GC G	1.8–3.6 lb./1000 sq.ft.	<b>RESTRICTED USE</b> insecticide.
ALOFT GC SC	0.27-0.54 fl oz/1000 sq ft or 11.65-23.3 fl oz/A	<b>RESTRICTED USE</b> insecticide. For use on golf courses, lawns, recreational areas, parks, athletic fields, and sod farms.
cyantraniliprole FERRENCE	0.184–0.46 fl.oz./1000 sq.ft.	For suppression of chinch bugs, apply Acelepryn before eggs hatch.

**Table 1. Commercial Turf Insect Control**

Insecticide and Formulation	Rate	Comments
<b>CHINCH BUGS (cont.)</b>		
cyfluthrin		
TEMPO SC ULTRA	8 mg/1000 sq.ft. or 12 fl.oz./A	For pest management professionals and commercial use only. For landscape and residential turf. Not for use on golf courses.
TEMPO ULTRA GC	8 mg/1000 sq.ft. or 12 fl.oz./A	<b>RESTRICTED USE</b> insecticide. For use on turf on residential and commercial sites including golf courses.
TEMPO ULTRA WP	10 g/1000 sq.ft. or 15.4 oz./A	For pest management professionals and commercial use only. For turf on residential and commercial lawns only. Not for use on golf courses or sod farms. Irrigate after application.
cypermethrin		
DEMON MAX	0.33–0.65 fl.oz./1000 sq.ft.	This is a professional pest control product that also has labeled uses for chinch bugs.
DEMON WP	1 packet/gal water	Not for use on golf courses or sod farms.
dinotefuran		
ZYLAM LIQUID	1.8 fl.oz./1000 sq.ft. or 79 fl.oz./acre	For insect control in residential, recreational, and commercial turfgrass. Make application prior to hatching of nymphs.
imidacloprid		
GRUBS AWAY	80 lb/A or 1.8 lb/1000 sq ft	Not for use on sod farms. Do not apply more than 80 lbs/A per year. Suppression only. Broadcast application prior to the hatching of the first instar nymphs.
MALLET 2f T&O	0.6 fl.oz. (14–17 ml)/ 1000 sq.ft.	For suppression of chinch bugs, make application before the hatching of the first instar nymphs
MERIT 75 WSP	1.6 oz./8250 sq.ft.	For insect control in turfgrass including sod farms. For use on outdoor residential, recreational, and commercial turfgrass. For suppression of chinch bugs apply prior to hatching of first instar nymphs.
MERIT 0.5 G	80 lb./A or 1.8 lb./1000 sq.ft.	For systemic insect control in turfgrass (home lawns, golf courses, cemeteries, parks, playgrounds, and athletic fields. <b>NOT</b> for use on sod farms. For suppression of chinch bugs apply prior to hatching of first instar nymphs
MERIT 2F	1.6 pt./A	For insect control in turfgrass including sod farms. For suppression of chinch bugs apply prior to hatching of first instar nymphs
lambda-cyhalothrin		
AVESTA CS	3.4–7 ml/1000 sq.ft.	Primarily a professional pest control product that is labeled for lawn uses. Not for use on golf courses or sod farms.
DEMAND G	3–4 lb./1000 sq.ft.	Not for use on golf courses or sod farms.
SCIMITAR GC	20 oz./A	<b>RESTRICTED USE</b> insecticide. Irrigate after application.
permethrin		
ASTRO	0.4–0.8 fl.oz./1000 sq.ft.	For use on lawns; around residential, institutional, public, and industrial buildings, parks, and recreational areas; and athletic fields. Not for use on sod farms.
thiamethoxam		
CARAVAN G (+ fungicide)	2–2.8 lb./1000 sq.ft.	Apply when young nymphs are first observed. Not for use on sod farms.
MERIDIAN 0.33G	7–9 lb./5000 sq.ft. or 60–80 lb./A	For use on turfgrasses on golf courses, residential lawns and commercial grounds (includes sod farms, playgrounds, and athletic fields). Irrigate after application.
MERIDIAN 25WG	12.7–17 oz./A	For use on turfgrasses on golf courses, residential lawns and commercial grounds. Apply when young nymphs first appear.
trichlorfon		
DYLOX 420 SL	4.6–6.9 fl.oz./1000 sq.ft. or 200–300 fl.oz./A	For use on landscape and recreational turf and golf courses and residential turf.
DYLOX 80 T&O	3.75 oz./1000 sq.ft.	For use on landscape and recreational lawns and turf.



**Table 1. Commercial Turf Insect Control**

Insecticide and Formulation	Rate	Comments
<b>FIRE ANTS</b>		
<b>Baits</b>		
abamectin		
AWARD II FIRE ANT BAIT	5-7 T/mound 1 lb/A	Not for use on sod farms.
OPTIGARD FIRE ANT BAIT	5-7 T/mound 1 lb/A	Not for use on sod farms.
fipronil		
MAXFORCE FC FIRE ANT BAIT	2-5 T/mound 1.5 lb/A	<b>RESTRICTED USE</b> insecticide.
hydromethylnon		
AMDRO BAIT	5 T./mound 1–1.5 lb./A	
MAXFORCE FINE GRANULAR BAIT	2 T./mound 1 oz./1800 sq.ft.	
AMDRO PRO FIRE ANT BAIT	2–5 T./mound 1–1.5 lb./A	
hydromethylnon + s-methoprene		
EXTINGUISH PLUS	2-5 T/mound or 1.5 lb/A	
indoxacarb		
ADVION FIRE ANT BAIT	4 T./mound 1.5 lb./A	Avoid applying all baits just before or after irrigation or rain. The most effective method for control of ants over a broad area is the use of a broadcast bait two times per year (spring and fall) coupled with individual mound treatments as needed. Do not disturb mound.
ORTHO FIRE ANT KILLER MOUND BAIT	4 T/mound	Not for use on commercial turf.
metaflumizone		
SIESTA FIRE ANT BAIT	2–4 T./mound 1–1.5 lb./A	
pyriproxyfen		
DISTANCE FIRE ANT BAIT	1-4 T/mound 1-1.5 lb/A 0.35-0.5 oz/1000 sq ft	
s-methoprene		
EXTINGUISH BAIT	3–5 T./mound 1–1.5 lb./A	
<b>Mound Treatments</b>		
Individual Mound Treatments:		
<ul style="list-style-type: none"> <li>• <b>Drenches:</b> It typically takes 1-2 gallons of water to drench a fire ant mound. Drenches are not as effective on hot, summer days. Unless label states otherwise, do not disturb mound during application.</li> <li>• <b>Granules:</b> Scatter granules around the edge and top of the mound according to label directions.</li> <li>• Distribute product evenly around mound in accordance with label directions.</li> </ul>		
abamectin		
AWARD II FIRE ANT BAIT	5–7 T/mound	Not for use on sod farms.
OPTIGARD FIRE ANT BAIT	5–7 T/mound	For use on lawns only.
acephate		
HI-YIELD FIRE ANT CONTROL WITH ACEPHATE	1-2 t/mound	
ORTHENE FIRE ANT KILLER	1 T/mound	
ORTHENE TTO 75WP	1 oz./5 gal. water	Drench mounds when queen and brood are located close to soil surface on warm, dry days. Generally it takes 1 to 2 gallons of water to drench a fire ant mound effectively
ORTHENE TTO 97	0.75 oz./5 gal. water	

**Table 1. Commercial Turf Insect Control**

Insecticide and Formulation	Rate	Comments
<b>FIRE ANTS (cont.)</b>		
<b>Mound Treatments (cont.)</b>		
bifenthrin		
HI-YIELD ANT KILLER GRANULES	1 T/mound	For use on lawns.
HI-YIELD BUG BLASTER II TURF INSECT CONTROL GRANULES	½ cup/mound	For use on lawns.
LAWNSTAR GRANULAR INSECTICIDE	0.5 C/mound	<b>RESTRICTED USE</b> insecticide. Mounds should be treated with sufficient force to break mound apex and allow insecticide solution to flow into the ant tunnels. Not for use on sod farms, golf courses, or grass grown for seed.
TALSTAR P PROFESSIONAL	1 oz./1–2 gal. water	Not for use on golf courses or sod farms. Use higher volume for mounds larger than 12”.
TALSTAR PL GRANULAR	½ cup/mound	Drench treated mound with 1 to 2 gallons of water. Not for use on golf courses or sod farms.
TALSTAR SELECT	1 t./gal. water	<b>RESTRICTED USE</b> insecticide. Apply 1 to 2 gallons of finished spray per mound.
WISDOM EZ	1 tsp/1 gal	<b>RESTRICTED USE</b> insecticide. Mounds should be treated with sufficient force to break mound apex and allow insecticide solution to flow into the ant tunnels. Not for use on sod farms, golf courses, or grass grown for seed.
WISDOM LAWN GRANULAR	½ cup of granular product per mound	Follow application of product with 1 to 2 gallons of water.
WISDOM TC FLOWABLE	1 t/mound	Not for use on golf courses or sod farms.
bifenthrin + zeta-cypermethrin		
HI-YIELD FIRE ANT CONTROL GRANULES	0.5 cup/mound	For use on lawns.
HI-YIELD TURF RANGER II GRANULE INSECTICIDE	½ cup/mound	For use on lawns.
SEVIN INSECT KILLER LAWN GRANULES	½ cup/mound	For use on lawns.
TALSTAR XTRA FEATURING VERGE GRANULE TECHNOLOGY	½ cup granulated product per mound	Follow application of product with 1 to 2 gallons of water. Not for use on golf courses or sod farms.
TALSTAR XTRA GRANULAR	½ cup/mound	Not for use on golf courses or sod farms.
bifenthrin + zeta-cypermethrin + imidacloprid		
TRIPLE CROWN GOLF	0.80 oz./1–2 gal. water	<b>RESTRICTED USE</b> insecticide. For use on golf courses only.
TRIPLE CROWN T&O	0.80 oz./1–2 gal. water	Sprinkle mound until it is wet, and treat 3 feet out around the mound.
carbaryl		
SEVIN SL	0.75 fl.oz./gal. water	
chlorpyrifos		
CHLORPYRIFOS SPC 4	1 fl.oz./4 gal. water	<b>RESTRICTED USE</b> insecticide. Sprinkle 1 to 2 gallons of diluted insecticide over the mound surface and a 2–ft. diameter area around each mound. For turf uses around industrial buildings and golf courses.
clothianidin + bifenthrin		
ALOFT GC G	0.7 oz/mound	<b>RESTRICTED USE</b> insecticide. Works best when mound has been disturbed.
ALOFT GC SC	2.3–3.6 lb/1000 sq ft 1 t/gal water	<b>RESTRICTED USE</b> insecticide. For use on gold courses, lawns, recreational areas, parks, athletic fields, and sod farms.
cyfluthrin		
BIOADVANCED FIRE ANT KILLER	1 t./mound	

**Table 1. Commercial Turf Insect Control**

Insecticide and Formulation	Rate	Comments
<b>FIRE ANTS (cont.)</b>		
<b>Mound Treatments (cont.)</b>		
cypermethrin		
DEMON MAX	Apply 1–2 gal. of 0.1% emulsion to each mound and a 2-ft. diameter area around the mound.	Not for use on golf courses or sod farms.
DEMON WP	2 scoops (0.66 oz.)/gal. water	Sprinkle 1 gallon of mixture over the mound up to 12 inches in diameter. Not for use on golf courses or sod farms.
deltamethrin		
BENGAL ULTRADUST 2X FIRE ANT KILLER 0.10%	1 tsp/mound	
DELTA DUST		Apply dust in shaker can and thoroughly cover mound.
HI-YIELD IMPORTED FIRE ANT CONTROL GRANULES CONTAINING DELTAMETHRIN	2 T/mound	Not for use on sod farms or golf courses.
HI-YIELD TURF RANGER INSECT CONTROL GRANULES CONTAINING DELTAMETHRIN	2 T/mound	Not for use on sod farms or golf courses.
SUSPEND POLYZONE	1.5 fl.oz./gal. water	For use on lawns. Apply 1–2 gallons over each mound and a 2-ft. diameter circle around the mound.
SUSPEND SC	1.5 fl.oz./gal. water	For use on lawns. Apply 1–2 gallons over each mound and a 2-ft. diameter circle around the mound.
TERRO FIRE ANT KILLER (0.05%)	1 T/mound	
gamma-cyhalothrin		
SPECTRACIDE TRIAZICIDE INSECT KILLER FOR LAWNS	0.5 t/mound	For use on lawns only.
imidacloprid + cyfluthrin		
BIOADVANCED COMPLETE INSECT KILLER FOR SOIL AND TURF READY TO SPREAD GRANULES	¼ cup/mound	For use on lawns.
TEMPRID FX	0.54 fl.oz. (16 ml)/ gal. water	For lawn/landscape applications only. Thoroughly drench or inject the mound.
TEMPRID SC	0.54 fl.oz. (16 ml)/ gal. water	For lawn/landscape applications only. Thoroughly drench or inject the mound.
imidacloprid and lambda-cyhalothrin		
DURATURF INSECT AND GRUB CONTROL	½ t/mound	For use on lawns.
lambda-cyhalothrin		
AVESTA CS	0.5 fl.oz./2.5 gal. water	For use on lawns and athletic fields. Soak each mound and a 3-ft. diameter circle around the mound.
DEMAND CS	0.5 fl.oz./2.5 gal. water	For use on lawns and athletic fields. Soak each mound and a 3-ft. diameter circle around the mound.
DEMAND EZ	2 fl.oz./2/5 gal. water	For use on lawns and athletic fields. Soak each mound and a 3-ft. diameter circle around the mound.
SCIMITAR GC	0.5 fl.oz./2.5 gal. water	<b>RESTRICTED USE</b> insecticide.
SPECTRACIDE ANT SHIELD INSECT KILLER	1.5 t/mound	For use on lawns.
SPECTRACIDE FIRE ANT SHIELD MOUND DESTROYER	½ cup/mound	For use on lawns.
SPECTRACIDE FIRE ANT SHIELD YARD PROTECTION	0.5 t/mound	For use on lawns.



**Table 1. Commercial Turf Insect Control**

Insecticide and Formulation	Rate	Comments
<b>FIRE ANTS (cont.)</b>		
<b>Mound Treatments (cont.)</b>		
permethrin		
ANT, FLEA, AND TICK KILLER	1 cup/mound	For use on lawns.
ASTRO	0.5 % emulsion	<b>RESTRICTED USE</b> insecticide. Use on landscape turf only. Apply 1 to 2 gallons of emulsion to each mound.
HI-YIELD KILL-A-BUG II LAWN GRANULES	1 cup/mound	For use on lawns.
pyriproxyfen		
DISTANCE FIRE ANT BAIT	1–4 T/mound	
spinosad		
CONSERVE	0.1 fl.oz./gal. water	
ENTRUST	0.45 gram/1 gal. water	Use 1 to 2 gallons per mound applying to the mound out to 12 inches around each mound.
ENTRUST SC	0.05 fl.oz./gal. water	Use 1 to 2 gallons per mound applying to the mound out to 12 inches around each mound.
thiamethoxam		
MERIDIAN 25WG	0.1–0.3 oz./gal. water	Use 2 to 3 gallons of solution per mound.
thiamethoxam + lambda cyhalothrin		
AMDRO QUICK KILL LAWN AND LANDSCAPE INSECT KILLER GRANULES	½ cup/mound	Not for commercial use.
<b>Broadcast Treatments</b>		
bifenthrin		
AMDRO KILLS ANTS AND SPIDERS GRANULES	40 oz/1000 sq ft	Not for use on golf courses or sod farms.
AMDRO QUICK KILL LAWN INSECT KILLER GRANULES	1.2–2.4 lbs/1000 sq ft	Not for use on golf courses on sod farms.
BASELINE	0.07–0.3 fl.oz./1000 sq. ft.	Apply to lawns or athletic fields for control of foraging ants.
HI-YIELD ANT KILLER GRANULES	1-2 lbs/1000 sq ft	For use on lawns.
HI-YIELD BUG BLASTER II TURF INSECT CONTROL GRANULES	2.3–4.6 lbs/1000 sq ft	For use on lawns.
LAWNSTAR GRANULAR INSECTICIDE	up to 0.4 lbs/A	<b>RESTRICTED USE</b> insecticide. If soil is not moist then irrigate before application. Not for use on sod farms, golf courses, or grass grown for seed.
TALSTAR P PROFESSIONAL	0.5–1.0 fl.oz./1000 sq.ft.	If soil is not moist, irrigate before application. Not for use on golf courses or sod farms.
TALSTAR PL GRANULAR	2.3–4.6 lb./1000 sq.ft.	If soil is not moist, irrigate before application. Not for use on golf courses or sod farms.
TALSTAR SELECT	0.5–1.0 fl.oz./1000 sq.ft. or 20–40 fl.oz./acre	<b>RESTRICTED USE</b> insecticide. For use on sod farms and golf courses. If soil is not moist, irrigate before application.
WISDOM EZ	up to 0.4 lbs/A	<b>RESTRICTED USE</b> insecticide. If soil is not moist then irrigate before application. Not for use on sod farms, golf courses, or grass grown for seed.
WISDOM FLOWABLE	0.46–0.92 oz/1000 sq ft	<b>RESTRICTED USE</b> pesticide.
WISDOM LAWN GRANULAR	2.3–4.6 lbs./1000 sq.ft.	
WISDOM TC FLOWABLE	0.5–1.0 fl. oz/1000 sq ft	Not for use on golf courses or sod farms.
bifenthrin + carbaryl		
BIOADVANCED COMPLETE INSECT KILLER FOR SOIL AND TURF READY TO SPREAD GRANULES I	2.25 lb/1000 sq ft	Not for use on commercial turf.

**Table 1. Commercial Turf Insect Control**

Insecticide and Formulation	Rate	Comments
<b>FIRE ANTS (cont.)</b>		
<b>Broadcast Treatments (cont.)</b>		
bifenthrin + zeta-cypermethrin		
HI-YIELD FIRE ANT CONTROL GRANULES	4 lb /1000 sq ft	For use on lawns.
HI-YIELD TURF RANGER II GRANULE INSECTICIDE	4 lb /1000 sq ft	For use on lawns.
SEVIN INSECT KILLER LAWN GRANULES	4 lb /1000 sq ft	For use on lawns.
TALSTAR XTRA FEATURING VERGE GRANULE TECHNOLOGY	2.3–4.6 lb./1000 sq.ft.	Not for use on golf courses or sod farms.
bifenthrin + zeta-cypermethrin + imidacloprid		
TRIPLE CROWN GOLF	0.46–0.80 fl.oz./1000 sq.ft. or 20–35 fl.oz./acre	<b>RESTRICTED USE</b> insecticide. For use on golf courses.
TRIPLE CROWN T&O	0.46–0.80 fl.oz./1000 sq.ft. or 20–35 fl.oz./acre	For use on lawns and landscaped areas around residential, institutional, public, commercial and industrial buildings, parks, recreational areas, and athletic fields. If soil is not moist, irrigate before application. Apply when adults are first observed. If soil is not moist, irrigate before application.
carbaryl		
SEVIN SL	0.75 fl oz/1000 sq ft	
chlorpyrifos		
CHLORPYRIFOS SPC 4	0.75 fl.oz./1000 sq.ft.	<b>RESTRICTED USE</b> insecticide. For turf uses around industrial buildings and golf courses. Can be used on sod before harvest.
clothianidin + bifenthrin		
ALOFT GC G	2.3–3.6 lb./1000 sq.ft.	<b>RESTRICTED USE</b> insecticide.
ALOFT GC SC	0.46 fl oz/1000 sq ft	<b>RESTRICTED USE</b> insecticide.
cyfluthrin		
TEMPO SC ULTRA	8 ml/1000 sq.ft.	Use on landscape and recreational turf only.
TEMPO ULTRA GC	8 ml/1000 sq ft	<b>RESTRICTED USE</b> insecticide. Not for use on sod farms.
TEMPO ULTRA WP	10 grams (2 scoops)/ 1000 sq ft or 15.4 oz/acre	For pest management professionals and commercial use only. Use on residential and commercial lawns only. Not for use on golf courses or sod farms.
TEMPO ULTRA WSP	1 packet(50 g)/ 5000 sq ft	For pest management professionals and commercial use only. Use on residential and commercial lawns only. Not for use on golf courses or sod farms.
HI-YIELD IMPORTED FIRE ANT CONTROL GRANULES CONTAINING DELTAMETHRIN	2-3 lbs/1000 sq ft	Not for use on sod farms or golf courses.
HI-YIELD TURF RANGER INSECT CONTROL GRANULES CONTAINING DELTAMETHRIN	2-3 lbs/1000 sq ft	Not for use on sod farms or golf courses.
fipronil		
CHIPCO CHOICE	4.6 oz/1000 sq ft	<b>RESTRICTED USE</b> insecticide. For use on golf courses, sod farms, sports fields, and other locations.
TOP CHOICE	2 lb./1000 sq.ft.	<b>RESTRICTED USE</b> insecticide. For use on golf courses, sod farms, sports fields, and other locations.
gamma-cyhalothrin		
SPECTRACIDE TRIAZICIDE INSECT KILLER FOR LAWNS	0.8 lb/1000 sq ft	For use on lawns only.

**Table 1. Commercial Turf Insect Control**

Insecticide and Formulation	Rate	Comments
<b>FIRE ANTS (cont.)</b>		
<b>Broadcast Treatments (cont.)</b>		
hydromethylnon and s-methoprene AMDRO KILLS FIRE ANT YARD TREATMENT BAIT	0.5–1.0 lb/1000 sq ft	For use on lawns.
imidacloprid + cyfluthrin BIOADVANCED COMPLETE INSECT KILLER FOR SOIL AND TURF READY TO SPREAD GRANULES	1-3 lbs/1000 sq ft	For use on lawns.
TEMPRID FX	0.54 fl.oz. (16 ml)/1000 sq.ft.	For lawn/landscape applications only.
TEMPRID SC	0.54 fl.oz. (16 ml)/1000 sq.ft.	For lawn/landscape applications only.
imidacloprid and lambda-cyhalothrin DURATURF INSECT AND GRUB CONTROL	0.8 lb/1000 sq ft	For use on lawns.
lambda-cyhalothrin AVESTA CS	3.4-7 mL/1000 sq ft 5-10 fl oz/acre	Do not apply when turfgrass is waterlogged.
DEMAND CS	3.4–7 ml/1000 sq.ft.	For use on lawns and athletic fields.
DEMAND EZ	13.6–28 ml/1000 sq.ft.	For use on lawns and athletic fields.
SCIMITAR GC	3.4–7 ml/1000 sq.ft. or 5–10 fl.oz/A	<b>RESTRICTED USE</b> insecticide. Use on golf courses, sod farms, and other locations.
SPECTRACIDE ANT SHIELD INSECT KILLER	2 lb/1000 sq ft	
SPECTRACIDE FIRE ANT SHIELD YARD PROTECTION	0.8 lb/1000 sq ft	
permethrin Ant, Flea, and Tick Killer	2 lb/1000 sq ft	
Hi-Yield Kill-a-Bug II Lawn Granules	2-3 lbs/1000 sq ft	For use on lawns.
pyriproxyfen DISTANCE FIRE ANT BAIT	0.35-0.5 oz/1000 sq ft 1 to 1.5 lbs/acre	
thiamethoxam + lambda cyhalothrin AMDRO QUICK KILL LAWN AND LANDSCAPE INSECT KILLER GRANULES	2 -3 lbs/1000 sq ft	Not for use on golf courses or sod farms.
TANDEM	Make a single application of 0.6 fl.oz. (19 ml)/1000 sq.ft. or make two applications of 0.3 fl.oz. (10 ml)/1000 sq.ft. on a 3- to 5-week interval.	Not for use on golf courses or sod farms.
<b>MOLE CRICKETS</b>		
acephate ORTHENE TTO 97	3.9 lb./A (golf course) 2.5–3 lb./A (sod farm)	For use on golf courses and sod farms only.
ORTHENE TTO WSP	2.66–5.33 lb./A (golf course) 3.33–4 lb./A (sod farm)	For use on golf courses and sod farms only.

**Table 1. Commercial Turf Insect Control**

Insecticide and Formulation	Rate	Comments
<b>MOLE CRICKETS (cont.)</b>		
bifenthrin		
BASELINE 23.4% LIQUID	0.07–0.3 fl.oz./1000 sq.ft.	For use outdoors on home lawns, grounds, and ornamental gardens and parks. Not for use on sod farms or golf courses.
TALSTAR P PROFESSIONAL	0.5–1.0 fl.oz./1000 sq.ft.	Irrigate before and after application. Not for use on golf courses or sod farms.
TALSTAR PL GRANULAR	2.3–4.6 lb./1000 sq.ft.	Irrigate before and after application. Do not apply more than 2.3 pounds per 1,000 square feet per application to residential lawns. Not for use on golf courses or sod farms.
TALSTAR SELECT	0.25–0.50 fl.oz./1000 sq.ft. or 10–20 fl.oz./acre	<b>RESTRICTED USE</b> insecticide. For use on sod farms and golf courses. Apply late in the day and water in with up to 0.5 inches of water.
WISDOM TC FLOWABLE	0.25–0.5 fl oz/1000 sq ft	<b>RESTRICTED USE</b> insecticide. Applications should be made as late in the day as possible and watered in with up to 0.5 inch water immediately after treatment. Not for use on sod farms, golf courses, or grass grown for seed.
WISDOM EZ	2.3–4.6 lbs/1000 sq ft	<b>RESTRICTED USE</b> insecticide. Applications should be made as late in the day as possible and watered in with up to 0.5 inch water immediately after treatment. Not for use on sod farms, golf courses, or grass grown for seed.
LAWNSTAR GRANULAR INSECTICIDE	100–200 lbs/A or 2.3–4.6 lbs/1000 sq ft	<b>RESTRICTED USE</b> insecticide. Applications should be made as late in the day as possible and watered in with up to 0.5 inch water immediately after treatment. Not for use on sod farms, golf courses, or grass grown for seed.
bifenthrin + zeta-cypermethrin		
TALSTAR XTRA FEATURING VERGE GRANULAR TECHNOLOGY	2.3 to 4.6 Lbs/1000 sq ft	Applications should be made as late in the day as possible and should be watered in with up to 0.5 inches of water immediately after treatment. If the soil is not moist, then it is important to irrigate before application to bring the mole crickets closer to the soil surface where contact with the insecticide will be maximized.
bifenthrin + imidacloprid + fertilizer		
Allectus	4.6 lbs/1000 sq ft or 120–200 lbs/A	Water-in applications with up to 0.5 in of water immediately after treatment. Not for use on golf courses or sod farms.
bifenthrin + zeta-cypermethrin + imidacloprid		
TRIPLE CROWN GOLF	0.46–0.80 fl.oz./1000 sq.ft. or 20–35 fl.oz./acre	<b>RESTRICTED USE</b> insecticide. For use on golf courses. Apply late in the day and water in with up to 0.5 inches of water.
TRIPLE CROWN T&O	0.46–0.80 fl.oz./1000 sq.ft. or 20–35 fl.oz./acre	For use on lawns and landscaped areas around residential, institutional, public, commercial and industrial buildings, parks, recreational areas, and athletic fields. Apply late in the day and water in with up to 0.5 inches of water.
chlorpyrifos		
CHLORPYRIFOS SPC 4	1.5 fl.oz./1000 sq.ft.	<b>RESTRICTED USE</b> insecticide. For turf uses around industrial buildings and golf courses.
DURSBAN 50 W	4–6 lb./A	<b>RESTRICTED USE</b> insecticide. Sod farm use only. Minimum of 50 gallons of water per acre.
carbaryl		
MOLE CRICKET BAIT	0.75–0.9 lb./1000 sq.ft.	This is a bait. Product may be applied to lawns by push spreader only and should be watered-in immediately following treatment. Baits are used primarily for control of large nymphs and adults.
clothianidin		
ARENA 50WDG	12.8 oz./A	Irrigate after application. Apply during peak egg hatch. For suppression
ARENA 0.25G	160 lb./A	

**Table 1. Commercial Turf Insect Control**

Insecticide and Formulation	Rate	Comments
<b>MOLE CRICKETS (cont.)</b>		
clothianidin + bifenthrin		
ALOFT GC G	1.8–3.6 lb./1000 sq.ft.	<b>RESTRICTED USE</b> insecticide.
ALOFT GC SC	0.27-0.54 fl oz/1000 sq ft or 11.65-23.3 fl oz/A	<b>RESTRICTED USE</b> insecticide. Apply during peak adult flight and egg lay. If soil is dry, irrigate before application. For use on golf courses, lawns, recreational areas, parks, athletic fields, and sod farms.
cypermethrin		
DEMON MAX	0.33–0.65 fl.oz./1000 sq.ft.	Primarily a structural pest control product with labeled usage for lawns.
cyfluthrin		
TEMPO SC ULTRA	8 ml/1000 sq.ft. or 12 fl.oz./A	For pest management professionals and commercial use only. For use on landscape and recreational turfgrass. Not for use on golf courses.
TEMPO ULTRAGC	8 ml/1000 sq.ft. or 12 fl.oz./A	<b>RESTRICTED USE</b> insecticide. For use on residential and commercial sites, including golf courses. Apply at peak egg hatch.
TEMPO ULTRA WP	10 g/1000 sq.ft. or 15.4 oz./A	For pest management professionals and commercial use only. For use on residential and commercial lawns. Not for use on golf courses or sod farms.
deltamethrin		
dinotefuran		
ZYLAM LIQUID	1.8 fl.oz./1000 sq.ft. or 79 fl.oz./A	Apply prior to or during the peak egg hatch period. When adults or large nymphs are present and actively tunneling, tank mix with a curative insecticide.
fipronil		
CHIPCO CHOICE	4.6–9.4 oz./1000 sq.ft. or 12.5–25 lb./A	Apply using slit-placement application equipment. For use on golf courses, sod farms, sports fields, and other locations.
imidacloprid		
GRUBS AWAY	80 lb/A or 1.8 lb/1000 sq ft	Not for use on sod farms. Do not apply more than 80 lbs/A per year. Make application prior to or during the peak egg hatch period. Not effective if adults or large nymphs are present and actively tunneling.
MALLET 2F T&O	0.6 fl oz (17 ml)/ 1000 sq ft	Make application prior to or during the peak egg hatch period. When adults or large nymphs are actively tunneling, accompany application with a remedial insecticide.
MERIT 75 WSP	1.6 oz./8250 sq.ft.	For insect control in turfgrass, including sod farms. Apply during peak egg hatch. Irrigate within 24 hours after application.
MERIT 2F	1.6 pt./A.or 0.6 fl.oz./1000 sq.ft.	For insect control in turfgrass including sod farms. Apply prior to or during peak egg hatch. Irrigate within 24 hours after application.
MERIT 0.5G	80 lb./A.	For systemic insect control in turfgrass, including home lawns, golf courses, cemeteries, parks, playgrounds, and athletic fields. NOT for use on sod farms. Apply prior to egg hatch. Irrigation or rain fall needed after application.
indoxacarb		
ADVION INSECT GRANULE	1.15–4.6 lb./1000 sq.ft.	A granular insecticide bait for use on lawns in residential, commercial, public and institutional landscaped areas, golf courses, parks, recreational areas, and sports and/or athletic fields. For best results apply in late afternoon. If soil is not moist, irrigate before application to bring mole crickets to soil surface.

**Table 1. Commercial Turf Insect Control**

<b>Insecticide and Formulation</b>	<b>Rate</b>	<b>Comments</b>
<b>MOLE CRICKETS (cont.)</b>		
PROVAUNT	0.275 oz./1000 sq.ft. or 12 oz./A	For use on landscape and recreational turfgrass, including golf courses. Not for use on sod farms.
PROVAUNT WDG	18 oz / Acre 0.41 oz / 1000 sq ft	For use on landscape and recreational turf grass, including golf courses and landscape ornamentals. Not for use on plants being grown for sale or other commercial use, or for commercial seed production. Make 1-2 applications on a 2 to 4 week interval when nymphs or adults are actively foraging
lambda-cyhalothrin		
AVESTA CS	7 ml/1000 sq.ft.	Apply with 4 to 10 gallons of water peer 1,000 square feet. Not for use on golf courses or sod farms.
DEMAND CS	7 ml/1000 sq.ft.	For use on lawns and athletic fields.
DEMAND EZ	28 ml/1000 sq.ft.	For use on lawns and athletic fields.
DEMAND G	3–4 lb./1000 sq.ft.	Not for use on golf courses or sod farms.
SCIMITAR GC	7 ml/1000 sq.ft. (nymphs and young adults)	<b>RESTRICTED USE</b> insecticide. For use on same sites as Scimitar CS plus golf courses and sod farms. Apply in 4 to 10 gallons of water per 1,000 square feet. Use a wetting agent. Apply to turf wet with dew or rain or that has been irrigated. Water immediately after application with up to 0.5 inch of water.
permethrin		
ASTRO	0.8–9.6 fl.oz./1000 sq.ft.	Rate and amount of water applied dependent on the size of the lawn. See label for specifics. Not for use on golf courses or sod farms.
PERMETROL 10% ec	7 tsp./10 gal. water/1000 sq.ft.	Irrigate with ¼ inch of water immediately after application.
thiamethoxam		
CARAVAN G (+ FUNGICIDE)	2–2.8 lb./1000 sq.ft.	Not for use on sod farms.
MERIDIAN 0.33G	7–9 lb./5000 sq.ft. or 60–80 lb./A	For use on turfgrass on golf courses, residential lawns, and commercial grounds, including sod farms, playgrounds, and athletic fields. Provides suppression of mole crickets.
MERIDIAN 25WG	12.7–17 oz./A	For use on turfgrass on golf courses, residential lawns, and commercial grounds. Provides suppression of mole crickets.
trichlorfon		
DYLOX 420 SL	6.9 fl.oz./1000 sq.ft.	For use on landscape and recreational turf and golf courses and residential turf. Irrigate after application to moisten the top 1 inch of soil
DYLOX 6.2 GRANULAR	3 lb./1000 sq.ft.	For commercial use only. Can be used on golf courses, Irrigate after application.
<b>RHODESGRASS AND OTHER MEALYBUGS</b>		
bifenthrin		
BASELINE 23.4% LIQUID	0.07–0.15 fl.oz./1000 sq.ft.	For use outdoors on home lawns, grounds, and ornamental gardens and parks. Not for use on sod farms or golf courses.
TALSTAR PL	1.15–2.3 lb./1000 sq.ft.	For use outdoors on home lawns, athletic fields, recreational areas, and parks. Not for use on sod farms.
TALSTAR S SELECT	0.25–0.5 fl.oz./1000 sq.ft.	<b>RESTRICTED USE</b> insecticide. For use on golf courses or sod farms only.
WISDOM TC FLOWABLE	0.25-0.5 fl oz/1000 sq ft	<b>RESTRICTED USE</b> insecticide. Not for use on sod farms, golf courses, or grass grown for seed.
WISDOM EZ	1.15-2.3 lbs/1000 sq ft	<b>RESTRICTED USE</b> insecticide. Not for use on sod farms, golf courses, or grass grown for seed.
bifenthrin + zeta-cypermethrin		
TALSTAR XTRA FEATURING VERGE GRANULAR TECHNOLOGY	1.15–2.3 lb./1000 sq.ft.	For use outdoors on home lawns, athletic fields, recreational areas, and parks. Not for use on sod farms or golf courses.



**Table 1. Commercial Turf Insect Control**

Insecticide and Formulation	Rate	Comments
<b>SPITTLEBUGS</b>		
acephate		
ORTHENE TTO 75 WSP	2.66–5.33 lb./A (golf course) 3.33–4 lb./A (sod farms)	For use on golf courses and sod farms only.
ORTHENE TTO 97 WSP	2–3.9 lb./A (golf course) 2.5–3 lb./A (sod farms)	For use on golf courses and sod farms only.
bifenthrin		
BASELINE 23.4% LIQUID	0.07–0.3 fl.oz./1000 sq.ft.	For use outdoors on home lawns, grounds, and ornamental gardens and parks. Not for use on sod farms or golf courses.
carbaryl		
SEVIN SL	2–4 qt./A	For agricultural or commercial use only. For use on turfgrass on golf courses, sports fields, domestic and commercial lawns, cemeteries, parks, campsites, and recreational areas. Do not allow public use of treated areas during applications or until sprays have dried. Irrigate prior to application. Do not irrigate within 24 hours following application.
chlorantraniliprole		
ACELEPRYN	0.275–0.46 fl.oz./ 1000 sq.ft.	Not for use on sod farms.
clothianidin		
ARENA 0.25 G	80–160 lb./A	
ARENA 25 WDG	0.14–0.29 oz./1000 sq.ft.	
clothianidin + bifenthrin		
ALOFT GC G	1.8–3.6 lb./1000 sq.ft.	<b>RESTRICTED USE</b> insecticide.
ALOFT GC SC	0.27–0.54 fl oz/1000 sq ft or 11.65–23.3 fl oz/A	<b>RESTRICTED USE</b> insecticide. For use on golf courses, lawns, recreational areas, parks, athletic fields, and sod farms.
permethrin		
PERMETROL GRANULES	2–3 lb./1000 sq.ft.	Apply using a fertilizer spreader. Not for use on sod farms.
thiamethoxam		
MERIDIAN 0.33G	7–9 lb./5000 sq.ft.	
MERIDIAN 25 WG	3–4 oz./10000 sq.ft.	
CARAVAN G (+ FUNGICIDE)	2–2.8 lb./1000 sq.ft.	Not for use on sod farms.
<b>TURF CATERPILLARS</b>		
acephate		
ORTHENE TTO 75 WP	1.33–3.33 lb./A	For use on golf courses and sod farms only. Use a minimum of 5 gallons of water per 1000 square feet.
ORTHENE TTO 97	1–2.5 lb./A	For use on golf courses and sod farms only. Use a minimum of 5 gallons of water per 1000 square feet.
bacillus thuringiensis		
DIPEL PRO DF	0.5–2 lb./A	
XENTARI	0.5–2 lb./a	

**Table 1. Commercial Turf Insect Control**

Insecticide and Formulation	Rate	Comments
<b>TURF CATERPILLARS (cont.)</b>		
bifenthrin		
BASELINE 23.4% LIQUID	0.07–0.15 fl.oz./1000 sq.ft.	For use outdoors on home lawns, grounds, and ornamental gardens and parks. Not for use on sod farms or golf courses.
LAWNSTAR GRANULAR INSECTICIDE	50 lbs/A or 1.15 lbs/1000 sq ft	<b>RESTRICTED USE</b> insecticide. Not for use on sod farms, golf courses, or grass grown for seed.
TALSTAR PL 0.2% GRANULAR	50 lb./A	For use on lawns in landscaped areas and perimeters around residential, institutional, public, commercial and industrial buildings, parks, recreational areas, athletic fields. Not for use on golf courses and sod farms. Irrigate with up to 0.1 inch of water after application.
TALSTAR SELECT	0.25 fl.oz./1000 sq.ft. or 10 fl.oz./A	<b>RESTRICTED USE</b> insecticide. For use on sod farms and golf courses. Delay watering or mowing for 24 hours after application.
WISDOM EZ	1.15 lbs/1000 sq ft	<b>RESTRICTED USE</b> insecticide. For optimum control, irrigate the treated area with up to 0.1 inch of water immediately after application to activate the insecticide. Not for use on sod farms, golf courses, or grass grown for seed.
WISDOM TC FLOWABLE	0.15-0.25 fl oz/1000 sq ft	<b>RESTRICTED USE</b> insecticide. For optimum control, delay watering or mowing for 24 hours after application. If the grass area is being maintained at a moving height greater than 1 inch, higher application rates may be required during periods of high pest pressure. Not for use on sod farms, golf courses, or grass grown for seed.
WISDOM LAWN GRANULES	1.15 lb./1000 sq.ft.	
bifenthrin + zeta-cypermethrin		
TALSTAR XTRA FEATURING VERGE GRANULE TECHNOLOGY	2.3–4.6 lb./1000 sq.ft.	Not for use on gold courses or sod farms.
bifenthrin + zeta-cypermethrin + imidacloprid		
TRIPLE CROWN GOLF	0.23–0.34 fl.oz./1000 sq.ft. or 10–15 fl.oz./A	<b>RESTRICTED USE</b> insecticide. For use on golf courses. Delay watering or mowing for 24 hours after application.
TRIPLE CROWN T&O	0.23–0.34 fl.oz./1000 sq.ft. or 10–15 fl.oz./acre	For use on lawns and landscaped areas around residential, institutional, public, commercial and industrial buildings, parks, recreational areas, and athletic fields. Delay watering or mowing for 24 hours after application.
carbaryl		
SEVIN SL	2–4 qt./A (armyworms, cutworms) 6-8 qt./A (sod webworms)	For agricultural or commercial use only. For use on turfgrass on golf courses, sports fields, domestic and commercial lawns, cemeteries, parks, campsites, and recreational areas. Do not allow public use of treated areas during applications or until sprays have dried. Irrigate prior to application. Do not irrigate within 24 hours following application.
chlorantraniliprole		
ACELEPRYN	2–4 fl.oz./A	Use on landscape and recreational turfgrass, golf courses and sod farms. Delay watering or mowing for 24 hours after application.
chlorpyrifos		
CHLORPYRIFOS SPC 4	0.75 fl.oz./1000 sq.ft.	<b>RESTRICTED USE</b> insecticide. For turf uses around industrial buildings and golf courses.
DURSBAN 50	2 lb./A	Apply to turfgrass grown for sod or seed. For sod webworms delay watering or mowing for 12 to 24 hours after application.

**Table 1. Commercial Turf Insect Control**

Insecticide and Formulation	Rate	Comments
<b>TURF CATERPILLARS (cont.)</b>		
clothianidin		
ARENA 0.25G	80–160 lb./A	
ARENA 25 WDG	0.14–0.29/1000 sq.ft.	
clothianidin + bifenthrin		
ALOFT GC G	1.8–3.6 lb./1000 sq.ft.	<b>RESTRICTED USE</b> insecticide.
ALOFT GC SC	0.27–0.54 fl oz/1000 sq ft or 11.65–23.3 fl oz/A	<b>RESTRICTED USE</b> insecticide. Apply at the first sign of insects or insect damage. For use on golf courses, lawns, recreational areas, parks, athletic fields, and sod farms.
cyantraniliprole		
Ference	0.046–0.367 fl.oz./1000 sq.ft. or 2–16 fl.oz./A	For use on landscape and recreational turfgrass including golf courses and sod farms. Delay watering or mowing for 24 hours after application.
cyfluthrin		
TEMPO SC ULTRA	8 ml/1000 sq.ft. or 6–12 fl.oz./A	For pest management professionals and commercial use only. For landscape and residential turf. Not for use on golf courses.
TEMPO ULTRA GC	4–8 ml/1000 sq.ft. or 6–12 fl.oz./A	<b>RESTRICTED USE</b> insecticide. For use on turf on residential and commercial sites including golf courses. Do not water or mow for 24 hours after application.
TEMPO ULTRA WP	5–10 g/1000 sq.ft. or 7.7–15.4 oz./A	For pest management professionals and commercial use only. For turf on residential and commercial lawns only. Not for use on golf courses or sod farms. Do not water or mow for 24 hours after application.
diflubenzuron		
DIMILIN 2L	2 oz. /A	<b>RESTRICTED USE</b> insecticide. Use on sod farms only. Apply before larvae become a half inch long in 20 to 50 gallons of water per acre.
dinotefuran		
ZYLAM LIQUID	1.8 oz./1000 sq.ft. or 79 fl.oz./A	For insect control in residential, recreational, and commercial turfgrass. For control of armyworms, cutworms, and sod webworms. Apply when caterpillars are small.
indoxacarb		
PROVAUNT	2–4 oz./A or 0.046–0.092 oz./1000 sq.ft.	For use on landscape and recreational turfgrass, including golf courses. Delay mowing and irrigation for 24 hours after application. If applied to turf maintained at greater than 1 inch, use 4 ounces per acre application rate.
PROVAUNT WDG	18 oz / Acre 0.41 oz / 1000 sq ft	For use on landscape and recreational turf grass, including golf courses and landscape ornamentals. Not for use on plants being grown for sale or other commercial use, or for commercial seed production. Make 1-2 applications on a 2 to 4 week interval when nymphs or adults are actively foraging
lambda-cyhalothrin		
AVESTA CS	7 ml/1000 sq.ft.	Apply with 4–10 gallons of water per 1,000 square feet. Not for use on golf courses or sod farms.
DEMAND CS	7 ml/1000 sq.ft.	For use on lawns and athletic fields.
DEMAND EZ	28 ml/1000 sq.ft.	For use on lawns and athletic fields.
DEMAND G	3–4 lb./1000 sq.ft.	Not for use on gold courses or sod farms.
SCIMITAR GC	3.4–7 ml/1000 sq.ft. or 5–10 fl.oz./A	<b>RESTRICTED USE</b> insecticide. Use on same sites as Scimilar CS plus golf courses and sod farms. Apply in 2 to 5 gallons of water per 1,000 square feet. Delay watering or mowing for 24 hours after application

**Table 1. Commercial Turf Insect Control**

Insecticide and Formulation	Rate	Comments
<b>TURF CATERPILLARS (cont.)</b>		
permethrin		
ASTRO	0.4–0.8 fl.oz./1000 sq.ft.	For use on lawns; around residential, institutional, public, commercial, and industrial buildings; parks; recreational areas; and athletic fields. Not for use on sod farms.
PERMETROL	7 tsp./10 gal. water/1000 sq.ft.	
PERMETROL GRANULES	2–3 lb./1000 sq.ft.	Apply using a fertilizer spreader. Not for use on sod farms.
spinosad		
CONSERVE SC	0.25–0.8 fl.oz./1000 sq.ft. or 10–35 fl.oz./A	For use on turfgrass. Lower rates effective against small fall armyworms and sod webworms, but higher rate is required against cutworms. Delay watering or mowing for 24 hours after application.
ENTRUST SC	2–4 fl.oz./A	For use on sod farms only.
MATCHPOINT	0.08–0.41 oz./1000 sq.ft.	Not for use on residential turf.
TRACER	1–2 fl.oz./A	For use on sod farms only.
thiamethoxam		
CARAVAN G (+ FUNGICIDE)	2–2.8 lb./1000 sq.ft.	Apply when young nymphs are first observed. Not for use on sod farms.
MERIDIAN 0.33G	7–9 lb./5000 sq.ft.	Only labeled for sod webworms.
MERIDIAN 25 WG	3–4/10000 sq.ft.	Only labeled for sod webworms.
trichlorfon		
DYLOX 420 SL	4.6–6.9 fl.oz./1000 sq.ft. or 200–300 fl.oz./A	For use on landscape and recreational turf and golf courses and residential turf.
<b>TURF MITES</b>		
bifenthrin		
BASELINE 23.4% LIQUID	0.07–0.15 fl.oz./1000 sq.ft.	For use outdoors on home lawns, grounds, and ornamental gardens and parks. Not for use on sod farms or golf courses.
TALSTAR SELECT	0.25–0.5 fl.oz./1000 sq.ft.	<b>RESTRICTED USE</b> insecticide. For use on golf courses or sod farms only. For control of eriophyid mites, apply with a surfactant.
WISDOM TC FLOWABLE	0.25-0.5 fl oz/1000 sq ft	For control of eriophyid mites, apply in combination with the labeled application rate of a surfactant. A second application, 5-7 days after the first, may be necessary. Not for use on sod farms, golf courses, or grass grown for seed.
chlorpyrifos		
CHLORPYRIFOS SPC 4	0.75 fl.oz./1000 sq.ft.	<b>RESTRICTED USE</b> insecticide. For turf uses around industrial buildings and golf courses.
DURSBAN 50 W	2 lb./A	<b>RESTRICTED USE</b> insecticide. Sod farm use only.
lambda-cyhalothrin		
AVESTA CS	3.4–7 ml/1000 sq.ft.	Not for use on golf courses or sod farms.
DEMAND CS	3.4–7 ml/1000 sq.ft.	For use on lawns and athletic fields.
DEMAND EZ	13.6–28 ml/1000 sq.ft.	For use on lawns and athletic fields.
DEMAND G	2–3 lb./1000 sq.ft.	Not for use on golf courses or sod farms.
SCIMITAR GC	3.4–7 ml/1000 sq.ft.	<b>RESTRICTED USE</b> insecticide.
permethrin		
PERMETROL GRANULES	2–3 lb./1000 sq.ft.	Apply outdoors to lawns for control of bermudagrass mites and clover mites.
zeta cypermethrin + bifenthrin + imidacloprid		
TRIPLE CROWN GOLF	2.3–0.46 fl.oz./1000 sq.ft.	<b>RESTRICTED USE</b> insecticide. For control of eriophyid mites, apply with a surfactant. Not for use on sod farms.
TRIPLE CROWN T&O	0.23–0.46 fl.oz./1000 sq.ft.	For control of eriophyid mites, apply with a surfactant. Not for use on sod farms or golf courses.

**Table 1. Commercial Turf Insect Control**

Insecticide and Formulation	Rate	Comments
<b>WHITE GRUBS</b>		
bifenthrin+zeta cypermethrin + imidacloprid TRIPLE CROWN GOLF	0.46–0.80 fl.oz./1000sq.ft. or 20–35 fl.oz./A	For use on golf courses.
TRIPLE CROWN T&O	0.46–0.80 fl.oz./1000sq.ft. or 20–35 fl.oz./A	For use on lawns and landscaped areas around residential, institutional, public, commercial, and industrial buildings, parks, recreational areas, and athletic fields.
carbaryl SEVIN SL	8 qt./A or 6 fl.oz./1000 sq.ft.	For agricultural or commercial use only. For use on turfgrass on golf courses, sports fields, domestic and commercial lawns, cemeteries, parks, campsites, and recreational areas. Do not allow public use of treated areas during applications or until sprays have dried. Irrigate prior to application. Do not irrigate within 24hours following application.
chlorantraniliprole ACELEPRYN	8–16 fl.oz./A or 0.184–0.367 fl.oz./1000 sq.ft.	Use on landscape and recreational turfgrass, golf courses, and sod farms. Irrigate immediately after treatment.
chlorpyrifos CHLORPYRIFOS SPC 4	1.5–3 fl.oz./1000 sq.ft.	<b>RESTRICTED USE</b> insecticide. For turf uses around industrial buildings and golf courses.
DURSBAN 50 W	1.5–3 fl.oz./1000 sq.ft.	<b>RESTRICTED USE</b> insecticide. Sod farm use only. Minimum of 50 gallons of water per acre.
clothianidin ARENA 50 WDG	12.8 oz./A	For use on grass grown in industrial, commercial, and residential landscapes including athletic fields, cemeteries, sod farms, golf courses, home lawns, parks, and playgrounds. Irrigate after application. Suppression only.
ARENA 0.25 G	160 lb./A	For use on grass grown in industrial, commercial, and residential landscapes including athletic fields, cemeteries, sod farms, golf courses, home lawns, parks, and playgrounds. Irrigate after application.
clothianidin + bifenthrin ALOFT GC G	1.8–3.6 lb./1000 sq.ft.	<b>RESTRICTED USE</b> insecticide.
ALOFT GC SC	0.27-0.54 fl oz/1000 sq ft or 11.65-23.3 fl oz/A	<b>RESTRICTED USE</b> insecticide. Apply at the first sign of insects or insect damage. For use on golf courses, lawns, recreational areas, parks, athletic fields, and sod farms.
cyantraniliprole Ference	0.184–0.367 fl.oz./1000 sq.ft. or 8–16 fl.oz./A	For use on landscape and recreational turfgrass including golf courses and sod farms.
dinotefuran ZYLAM LIQUID	1.8 oz./1000 sq.ft. or 79 fl.oz./A	For insect control in residential, recreational, and commercial turfgrass. Make application prior to or during egg hatch. Provides suppression of white grubs.
imidacloprid MALLET 0.5 G	1.8 lb./1000 sq.ft.	Make the application prior to egg hatch. Not for use on sod farms.
MALLET 2F T&O	0.46–0.6 fl.oz. (14–17 ml)/1000 sq.ft.	Make the application prior to egg hatch.
MERIT 75 WSP	1.6 oz./8250 sq.ft.	For insect control in turfgrass including sod farms. For use on outdoor residential, recreational, and commercial turfgrass. Make application prior to or during the peak egg hatch period. Irrigate within 24 hours after application.

**Table 1. Commercial Turf Insect Control**

Insecticide and Formulation	Rate	Comments
<b>WHITE GRUBS (cont.)</b>		
MERIT 2F	1.6 pt./A or 0.6 fl.oz./1000 sq.ft.	For insect control in turfgrass including sod farms. Make application prior to or during the peak egg hatch period. Irrigate within 24 hours after application.
MERIT 0.5G	80 lb./A or 1.8 lb./1000 sq.ft.	For systemic insect control in turfgrass (home lawns, golf courses, cemeteries, parks, playgrounds, and athletic fields). NOT for use on sod farms. Make applications prior to or during the peak egg hatch period. Irrigate within 24 hours after application.
lambda-cyhalothrin		
AVESTA CS	7 ml/1000 sq.ft.	Suppression only. Not for use on golf courses or sod farms.
DEMAND CS	7 ml/1000 sq.ft.	For use on lawns and athletic fields.
DEMAND EZ	28 ml/1000 sq.ft.	For use on lawns and athletic fields.
DEMAND G	3–4 lb./1000 sq.ft.	Not for use on golf courses or sod farms.
SCIMITAR GC	7 ml/1000 sq.ft.	<b>RESTRICTED USE</b> insecticide.
thiamethoxam		
CARAVAN G (+ FUNGICIDE)	2–2.8 lb./1000 sq.ft.	Apply when young nymphs are first observed. Not for use on sod farms.
MERIDIAN 0.33G	7–9 lb./5000 sq.ft. or 60–80 lb./A	For use on turfgrasses on golf courses, residential lawns and commercial grounds (includes sod farms, playgrounds, and athletic fields). Make application from egg hatch to second instar. Irrigate after application.
MERIDIAN 25WG	12.7–17 oz./A	For use on turfgrasses on golf courses, residential lawns and commercial grounds. For optimum control treat from peak flight to peak egg hatch. Irrigate after application.
trichlorfon		
DYLOX 420 SL	6.9 oz./1000 sq.ft. or 300 fl.oz./A	For use on landscape and recreational turf and golf courses and residential turf. Irrigate after application and moisten the top inch of soil. Under dry conditions where thatch is present, water also prior to application.
DYLOX 6.2 G	3 lb./1000 sq.ft. or 130 lb./A	Can be used on golf courses. Do not apply within 25 feet of surface waters. Not for use on turf being grown for sale or other commercial use as sod. Irrigate following application.

Commercial Turf and Lawns: Insect Control Recommendations prepared by **Katelyn Kesheimer**, *Extension Entomologist*, Assistant Professor, Entomology and Plant Pathology; **David Held**, Associate Professor, Entomology and Plant Pathology; and **Lawrence Graham**, Research Fellow, Entomology and Plant Pathology, all with Auburn University.



**FOR MORE INFORMATION** on pesticides, pesticide safety, or submitting samples for analysis, see the following publications in the IPM series:

IPM 1293, "Safety." Safety contact information; worker protection standards; the safe use, handling, and storage of pesticides

IPM 1294, "Submitting Samples." Procedures for submitting samples for diagnosis, analysis, and identification

IPM 1295, "General Pesticide Information." Federal and state restricted use pesticide lists; pesticides and water quality

IPM 1317, "Appendix." Pesticide guidelines for agronomic crops, including preharvest intervals; rain-free requirements; grazing restrictions; crop rotation guidelines; and the names, classifications, and toxicities of pesticides.



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