

# TURF

## HOME TURF INSECT CONTROL

Will Hudson, Extension Entomologist

**NOTE:** There is increasing concern about the health of pollinator populations, especially honeybees and other bees. Flowering plants in the landscape, including flowering weeds and wildflowers, are important sources of food for these very beneficial insects. Care should be taken when using insecticides around any flowering plants when bees are actively foraging. Timing sprays for late afternoon and evening will minimize risks from broad-spectrum contact insecticides (pyrethroids, carbaryl, etc.). Under some circumstances, systemic insecticides like imidacloprid and dinotefuran may be translocated to the blooms and picked up in nectar and pollen. Avoid spraying turf when flowering weeds or clover are in bloom. Mowing to remove the blooms before treating will greatly reduce risks associated with these materials. **Follow all label directions carefully.**

PEST	INSECTICIDE AND FORMULATION	AMOUNT PER 1,000 SQ. FT.*	REMARKS AND PRECAUTIONS
Ants (also see Imported fire ants)	Various pyrethroids		See note below.
Armyworms, cutworms, sod webworms	trichlorfon (Bayer Advanced) carbaryl (Sevin) 50WP <i>Bacillus thuringiensis</i> (Dipel WP) Various pyrethroids	6 1/2 ozs. 3/4-1 1/2 ozs.	Apply as a coarse spray in sufficient water for good coverage. Repeat as needed.  See note below.
Chinch bugs	carbaryl (Sevin, etc.) bifenthrin cyfluthrin (Bayer Advanced Lawn and Garden) Various pyrethroids	See label. 3 fl. ozs./gal.	Apply as a coarse spray in 4-5 gallons water per 1000 ft. <sup>2</sup> . Irrigation of lawn prior to application will give better control.
Digger wasps, earwigs, sowbugs	carbaryl (Sevin) 50WP Various pyrethroids	6 1/2 ozs.	
Ground pearls	All suggested practices regarding fertilization, watering, mowing, etc., should be carried out to keep grass growing ahead of damage. At the present time, there is no practical, effective, pesticide treatment.		
Imported fire ant	<b>Individual Mound Treatments</b> acephate (Orthene TTO) carbaryl (Sevin) 50WP Various pyrethroids	1 1/2 Tbs. 4 ozs. See label.	Mix with 2 gal. water. Sprinkle the entire amount on and around one mound. Do not disturb mound during treatment.
	acephate (Orthene TTO)	2 tsp./mound	Dust evenly over top of mound. Do not water in.
	<b>Bait Treatments</b> Amdro B Ascend or Varsity Distance Fire Ant Bait, Spectracide, Once 'n' Done Extinguish		Fire ant bait should be used at 1-1 1/2 lbs. per acre. Bait should be used as soon as possible after opening package. Apply baits when ants are actively foraging for food. Follow label directions.
	<b>Broadcast Treatments</b> bifenthrin (Talstar, others) Various pyrethroids	2 lb. See label.	See note below.
Millipedes	carbaryl (Sevin) 50WP  Various pyrethroids	6 ozs.	Apply to turf 6 to 10 feet around building to provide a barrier treatment. Water thoroughly after application of granules. See note below.

NOTE: A number of pyrethroid materials are available in a variety of homeowner formulations for use as broad-spectrum contact insecticides. Active ingredients include bifenthrin, cyfluthrin, cypermethrin, deltamethrin, lambda-cyhalothin, permethrin and tralomethrin. Active ingredients are listed on the label.

Most of the materials listed in the Commercial Landscape Insect Control section of this handbook are not Restricted Use Pesticides, and so are available for homeowner use. They are not marketed for homeowners, in small quantities at retail garden centers, but they could provide options for some homeowners. Consult your county Cooperative Extension Agent for advice on alternatives.

\*Unless otherwise specified, mix with six gallons of water/1,000 square feet.

**HOME TURF INSECT CONTROL (continued)**

<b>PEST</b>	<b>INSECTICIDE AND FORMULATION</b>	<b>AMOUNT PER 1,000 SQ. FT.*</b>	<b>REMARKS AND PRECAUTIONS</b>
Mole crickets	bifenthrin carbaryl (Sevin) 20B imidacloprid (Bayer Advanced Lawn Product)	See label. 2-4 ozs. 2.87 lbs.	Water lawn before applying bait if soil is dry.
Spittlebugs	Various pyrethroids		Cut grass to its recommended height and remove clippings prior to application. Various pyrethroids may also provide some control. See note below.
White grubs (such as Japanese beetle larva, European chafer, Southern chafer, Billbugs)	trichlorfon (Bayer Advanced) imidacloprid carbaryl (Sevin SL) halofenozide (Grub-B-Gon) dinotefuran (Safari by Green Light)	4-6 ozs.	Water lawn before application of any control material. Water thoroughly following insecticide application.  For Green June beetle only. Apply as directed on label. Identification of pest grub species is important for effective control recommendations. Consult your local County Extension Agent.

NOTE: A number of pyrethroid materials are available in a variety of homeowner formulations for use as broad-spectrum contact insecticides. Active ingredients include bifenthrin, cyfluthrin, cypermethrin, deltamethrin, lambda-cyhalothin, permethrin and tralomethrin. Active ingredients are listed on the label.

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# HOMEOWNER TURF DISEASE CONTROL

Elizabeth Little, Extension Homeowner IPM Specialist

Proper management is of utmost importance in preventing turf disease. Most of the time, culture and environment are the key reasons diseases develop, since potential turf pathogens are virtually always present. Disease problems are encouraged by improper watering, improper fertilization, nutrient deficiencies, excessive thatch, and improper mowing. Effective disease management centers on avoiding these problems through sound turf management and prevention of plant stress. In most cases, presence of a disease indicates an underlying cultural and/or environmental problem that needs to be addressed. Fungicides are not always necessary and when used should be part of a total management program. Follow label recommendations for rates and safety precautions when using all pesticides.

## **BROWN/LARGE PATCH (*Rhizoctonia solani*)**

## **DOLLAR SPOT (*Sclerotinia homeocarpa*)**

Management Tips:

- Use low to moderate amounts of nitrogen, moderate amounts of phosphorous and moderate to high amounts of potash.
- Avoid nitrogen applications when the disease is active.
- Increase the height of cut.
- Increase air circulation.
- Minimize the amount of shade.
- Irrigate turf early in the day.
- Improve the drainage of the turf.
- Reduce thatch.
- Remove dew from the turf early in the day (drag a hose over the turf).
- Warm season grasses — FALL preventative applications are BEST/MOST EFFECTIVE (Sept-Oct), with a follow-up SPRING application.

PESTICIDE	RATE	REMARKS AND PRECAUTIONS
Captan (Hi-Yield Captan Fungicide 50% WP)	Use 5 tsp/gal water for Brown Patch.	Apply 1 gal/100 sq. ft. Begin application when new growth starts in the spring. Do NOT exceed 2 applications/year.
Maneb, Mancozeb (Hi-Yield Maneb lawn & Garden)	See individual product labels.	Apply every 7-14 days as needed.
Myclobutanil (Immunox Lawn Disease Control - RTU, Concentrate, and Granules)	4-8 lbs/1000 sq. ft.	Apply every 14-28 days as needed. Rotate with other chemicals to avoid resistance problems.
PCNB (Terraclor 75WP, Hi-Yield Terraclor Granular Fungicide, Hi-Yield Turf & Ornamental Fungicide containing 10% PCNB, Hi-Yield PCNB Granular Fungicide)	Brown Patch: 16 oz/1000 sq. ft. In 10-15 gals. Of water for warm season turfs. 3-4 oz/1000 sq.ft. In 3-6 gals of water for cool season turfs.  Dollar Spot: 7-10 oz/1000 sq. ft. In 5-10 gals of water.	Treated areas should be watered following application to move material to soil.  Caution on cool season turfs for phytotoxicity.  Retreat in 3-4 weeks if disease reappears.
Thiophanate methyl (Cleary's 3336, Scotts Lawn Fungus Control)	wettable powder (50%)-2 oz/3-5 gals water/1000 sq.ft.  flowable (46.2%)-1-2 oz/1000 sq. ft.	Apply every 7-14 days as needed.

**HOMEOWNER TURF DISEASE CONTROL (continued)**

**FADING OUT (*Curvularia* sp.)**

**MELTING OUT (*Helminthosporium* sp.)**

**LEAF SPOTS, RUST, ANTHRACNOSE**

Management Tips:

- Increase the height of cut.
- Reduce turf stress by using lightweight equipment.
- Increase air circulation to speed turf's drying process.
- Avoid application of high rates of water-soluble nitrogen in the spring.
- Minimize the amount of shade.
- Irrigate turf deeply and as in frequently as possible.
- Reduce thatch in the early spring or fall for cool-season turfgrass and in the summer for warm-season turfgrass.

PESTICIDE	RATE	REMARKS AND PRECAUTIONS
Maneb, Mancozeb (Hi-Yield Maneb lawn & Garden)	See individual product labels.	Apply every 7-14 days as needed.
Myclobutanil (Immunox Lawn Disease Control-RTU, Concentrate, and Granules)	4 lb/1000 sq. ft.	Apply every 14-28 days as needed. Rotate with other chemicals to avoid resistance problems.
PCNB (Terraclor 75WP, Hi-Yield Terraclor Granular Fungicide, Hi-Yield Turf & Ornamental Fungicide containing 10% PCNB, Hi-Yield PCNB Granular Fungicide)	7-10 oz/1000 sq. ft. In 5-10 gals of water.	Treated areas should be watered following application to move material to soil. Caution on cool season turfs for phytotoxicity. Retreat in 3-4 weeks if disease reappears.
Thiophanate methyl (Cleary's 3336, Scotts lawn Fungus Control)	1-2 oz/1000 sq. ft. In 3-5 gals of water (anthracnose of cool season turfs).	Apply 10-14 days as needed.

**FUSARIUM (*Fusarium* sp.)**

Management Tips:

- Maintain balance fertility.
- Avoid using lime. Alkaline soils enhance disease development.
- Increase air circulation to speed turf's drying process.
- Minimize the amount of shade.
- Reduce thatch.

PESTICIDE	RATE	REMARKS AND PRECAUTIONS
Myclobutanil (Immunox Lawn Disease Control Granules)	4-8 lb/1000 sq. ft.	Apply 14-21 days, when conditions are favorable for disease development. Rotate with other chemicals to avoid resistance problems.
Thiophanate methyl (Cleary's 3336, Scotts Lawn Fungus Control)	Patch: 2oz/1000 sq. ft. Repeat at 5-14 day intervals.  Blight: 4-8 oz/1000 sq. ft. Apply 2 applications at 10-14 day intervals.	Apply every 7-14 days as needed.

**HOMEOWNER TURF DISEASE CONTROL (continued)**

**FAIRY RING (*various fungi*)**

Management Tips:

- Avoid using root zone mixes with high levels of undecomposed organic materials.
- Reduce thatch.
- Irrigate deeply.
- Use nitrogen fertilizer to mask symptoms on some types of fairy ring.
- Use soil wetting agents to help penetrate hydrophobic areas.
- NO PESTICIDES FOR HOMEOWNER USE.

**GRAY LEAF SPOT (*Pyricularia grisea*)**

Management Tips:

- Avoid medium to high nitrogen levels during mid-summer.
- Irrigate turf deeply and as infrequently as possible to avoid water stress.
- Allow water to remain on leaves for only a short period of time.
- Reduce thatch.
- When possible, plant turfgrass that is resistant to gray leaf spot.
- Avoid using herbicides or plant growth regulators when disease is active

PESTICIDE	RATE	REMARKS AND PRECAUTIONS
Propiconazole (Banner Max, Bayer Advanced)	Refer to label for rates (1-2 fl. oz./1000 sq. ft.)	Local systemic; provides some control, best used in rotation or tank mix with other chemistries.
Thiophanate methyl (Cleary's 3336)	Refer to label for rates (1-2 fl. oz./1000 sq. ft.)	Local systemic; provides some control, best used in rotation or tank mix with other chemistries.

**PYTHIUM BLIGHTS  
PYTHIUM ROOT ROTS  
(*Pythium sp.*)**

Management Tips for Pythium Blight:

- Avoid mowing wet turf when temperature is over 70°F to minimize spreading the disease.
- Reduce thatch.
- Apply less than ½ pound of nitrogen per 1000 square feet a month during hot weather.
- Increase air circulation to speed the drying process of the turf.
- Minimize the amount of shade.
- Irrigate turf early in the day.
- Improve the drainage of the turf.
- Irrigate turf deeply and as in frequently as possible.

Management Tips for Pythium Root Rot:

- Increase the height of cut.
- Apply optimum amounts of nitrogen, phosphorous and potash.
- Reduce mowing frequency and use lightweight mowers.
- Avoid overwatering.
- Apply low amounts of nitrogen in the spring when roots are forming.
- Minimize the amount of shade.
- Improve the drainage of the turf.
- Reduce soil compaction through aerification by using lightweight equipment.

PESTICIDE	RATE	REMARKS AND PRECAUTIONS
Maneb , Mancozeb (Hi-Yield Maneb lawn & Garden)	See individual product labels.	Apply every 5 days as needed.
Aluminum tris (Monterey Aliette)	4 oz./1000 sq. ft.	Every 14 days

**HOMEOWNER TURF DISEASE CONTROL (continued)**

**SPRING DEAD SPOT (*Leptosphaeria*)**

Management Tips:

- Avoid late summer or fall applications of nitrogen fertilizers which may enhance disease severity.
- Use ammonium sources of nitrogen for fertilizer from spring through early August.
- Control weeds in affected turf to enhance recovery from spring dead spot.
- Apply moderate to high levels of phosphorous, potash, and minor elements.
- Improve drainage of turf.
- Reduce thatch.
- Use preventive fungicides applications in late September and October.

PESTICIDE	RATE	REMARKS AND PRECAUTIONS
Myclobutanil (Immunox Lawn Disease Control - Ready to Spray Concentrate)	See label.	Start treating when grass begins to turn green in spring or when signs of disease are first noticed.

**TAKE-ALL PATCH (*Gauemannomyces graminis*)**

**TAKE-ALL ROOT ROT**

**BERMUDAGRASS DECLINE**

Management Tips:

- Maintain soil pH below 6.5, preferably between 5.5 and 6.0.
- Manganese deficiency enhances development of take-all patch. Supplemental applications of this in fall or spring should reduce disease severity (rate of 2lb/acre).
- Avoid excessive irrigation and nitrogen applications.
- Improve surface and subsurface drainage.
- Reduce thatch.
- Aerate the soil.
- Application of sphagnum peat moss (3.8 cu. ft./1000 sq. ft).
- Use preventive fungicides (in fall, prior to dormancy, and early spring). **FALL FUNGICIDES** (Sept-Oct for Warm Season grasses) and follow-up early spring application — most effective. Summer applications NOT effective.

PESTICIDE	RATE	REMARKS AND PRECAUTIONS
Myclobutanil (Immunox Lawn Disease Control- RTU, Concentrate, and Granules; Green light Fung-Away Systemic Granules)	8 lb/1000 sq. ft.	Spring/Fall: 28 day intervals. Optimum disease control is achieved when the product is applied preventively. To reduce the severity of take-all, make 1 to 2 applications in Sept/Oct when night temps. drop below 55°F and 1 to 2 applications in the spring.
Propiconazole (Banner Max, Bayer Advanced)	Refer to label for rates (1-2 fl. oz./1000 sq. ft.)	Local systemic; provides some control, best used in rotation or tank mix with other chemistries.

**NEMATODES**

Management tips:

- Optimize growing conditions (pH, nutrient levels).
- If practical, top dress with high quality compost (one quarter inch depth)
- If a nematode problem is suspected, contact your Extension office to have a soil sample sent to the UGA nematode lab.

PESTICIDE	RATE	REMARKS AND PRECAUTIONS
Chitin (ClandoSan, Shrimp shell meal)	Depends upon soil analysis. Apply only when nematode soil assay indicates a need. 50 lbs./100 sq. feet	Treat when grass is actively growing. A single annual application is usually sufficient for nematode control. Chitin is a non-chemical soil amendment made from crustacean shells that promotes growth of beneficial soil microorganisms, which in turn feed on nematodes, whose bodies are made of chitin. This product has limited effectiveness at reducing nematodes and may not be practical for large turf areas. Improving growing conditions and adding organic matter are best treatments for plant parasitic nematodes.

# TURFGRASS WEED CONTROL FOR HOMEOWNERS

Patrick McCullough, Extension Agronomist – Weed Science

The herbicides recommended in this section are available in small containers at most lawn and garden, hardware and discount stores. The herbicides listed in the section entitled “TURFGRASS WEED CONTROL RECOMMENDATIONS FOR PROFESSIONAL MANAGERS” are not usually available in small containers at stores that homeowners purchase lawn and garden pesticides. For more information, see “Weed Control in Home Lawns” (UGA Extension Bulletin #978) at <http://extension.uga.edu/publications/detail.cfm?number=B978>.

USE STAGE AND HERBICIDE	TURFGRASSES	AMOUNT OF PRODUCT PER 1,000 SQ.FT.	REMARKS AND PRECAUTIONS
<p><b>PREEMERGENCE HERBICIDES:</b> Applications must be made prior to weed emergence or poor control will result. Recommended dates of application for crabgrass and other annual grasses are February 15 - March 5 in South GA and March 1-20 in North GA. Recommended dates for annual weeds are September 1-15 in North GA and October 1-15 in South GA.</p>			
<p><b>PREEMERGENCE (Established Grasses)</b></p>			
<p><b>atrazine</b> (Bonus S) (Southern Lawn Fertilizer plus Weed Control)</p> <p>(Hi-Yield Atrazine) 4.0% (Image for St. Augustine &amp; Centipedegrass) 4.0%</p>	<p>Carpetgrass, centipedegrass, St. Augustine, zoysiagrass</p>	<p>4.3 lbs.<sup>1</sup> 5.0 lbs.<sup>1</sup></p>	<p>Atrazine controls annual bluegrass and a wide range of broadleaf weeds. These products are formulated on a dry fertilizer carrier. <b>DO NOT</b> apply to newly seeded carpetgrass or centipedegrass until after two mowings. <b>DO NOT</b> sprig for one month or seed for six months after application. Atrazine will provide preemergence and postemergence control of many annual weeds. These products are not Restricted Use Herbicides.</p>
	<p>Centipedegrass, St. Augustine</p>	<p>8.0 fl. oz. 8.0 fl. oz.</p>	<p>Controls a wide range of broadleaf weeds, sandspur (sandbur) and suppresses crabgrass. May be applied in all 12 months for postemergence control of various weeds. Use in the fall or spring for the preemergence control of a wide range of annual grass and broadleaf weeds. Delay application to newly sodded or sprigged lawns until the sprigs have rooted and are actively growing. May be applied up to two times per year.</p>
<p><b>benefin</b> (Balan) 2.5G (Crabgrass Preventer) 2.5G (Crabgrass Preventer) 1.72G</p>	<p>Ky. Bluegrass, bermudagrass, centipedegrass, tall fescue, zoysiagrass, St. Augustine</p>	<p>1.5-3.0 lbs.<sup>1</sup> 1.8-2.8 lbs.<sup>1</sup> 2.0-2.7 lbs.<sup>1</sup></p>	<p>Controls annual grasses and certain annual broadleaf weeds. An additional application may be made 8 weeks after the initial treatment for continued weed control. <b>DO NOT</b> apply to newly sprigged grass until well established. <b>DO NOT</b> make a spring application to fall planted turfgrass. Delay reseeding for 6 weeks after application for the low rate, and for 12 to 16 weeks at the high rate. Benefin is available on a dry fertilizer carrier under various trade names.</p>
<p><b>benefin + oryzalin</b> (XL) 2G</p>	<p>Bermudagrass, centipedegrass, tall fescue, St. Augustine, zoysiagrass,</p>	<p>2.5-5 lbs.<sup>1</sup></p>	<p>Controls annual grasses and certain annual broadleaf weeds. <b>DO NOT</b> apply to newly sprigged grasses until well established. <b>DO NOT</b> make a spring application to fall planted Augustine turfgrasses. Delay reseeding for 6 weeks (low rate) and for 12 to 16 weeks (high rate).</p>
<p><b>benefin + trifluralin</b> (Team) 2G</p>	<p>Ky. Bluegrass, bermudagrass, centipedegrass, tall fescue, St. Augustine, zoysiagrass,</p>	<p>2.5-3.5 lbs.<sup>1</sup></p>	<p>Controls annual grasses and certain annual broadleaf weeds. <b>DO NOT</b> make a spring application to fall planted turfgrasses. <b>DO NOT</b> apply to newly sprigged grasses until full soil coverage is achieved. Under conditions of heavy goosegrass or annual bluegrass infestations, a second application should be made 10 weeks after the initial application. Delay reseeding for 8 weeks (low rate) to 12 weeks (high rate) after application.</p>
<p><b>dithiopyr</b> (Hi-Yield Turf &amp; Ornamental Weed &amp; Grass Stopper) 0.125GR</p>	<p>Ky. Bluegrass, bermudagrass, centipedegrass, tall fescue, St. Augustine, zoysiagrass</p>	<p>4.6 to 9.2 lbs.<sup>1</sup></p>	<p>Controls annual grasses and certain annual broadleaf weeds. A sequential application of 4.6 lbs. followed by a second application at 4.6 lbs. may improve control of annual grasses. Apply the second treatment 8 weeks after the first application. <b>DO NOT</b> apply to newly sprigged grasses until full soil coverage is achieved. Delay reseeding for 10 weeks (low rate) to 16 weeks (high rate) after application.</p>

<sup>1</sup> Apply granules directly to the soil surface.

**TURFGRASS WEED CONTROL FOR HOMEOWNERS (continued)**

USE STAGE AND HERBICIDE	TURFGRASSES	AMOUNT OF PRODUCT PER 1,000 SQ.FT.	REMARKS AND PRECAUTIONS
<b>PREEMERGENCE (Established Grasses) (cont.)</b>			
<b>oryzalin</b> (Surflan) 4AS	Bermudagrass centipedegrass, tall, fescue, zoysiagrass, St. Augustine	1.0-1.5 fl.oz.	Controls annual grasses and certain annual broadleaf weeds. Apply 1.5 oz./1,000 sq. ft. for summer annual grass control, or apply 1.0 oz./1,000 sq. ft. and apply an additional 1.0 oz./1,000 sq. ft. 8 to 10 weeks after the initial application. Split applications are recommended for improved goosegrass control. Use the low rate for annual bluegrass control. <b>DO NOT</b> apply to newly sprigged grasses until well established. <b>DO NOT</b> make a spring application to fall planted turfgrasses. Surflan is recommended for use on healthy, established turf. Delay reseeding for 3 to 4 months after applications.
<b>pendimethalin</b> (Halts) 1.71G	Ky. Bluegrass, bermudagrass, centipedegrass, tall fescue, zoysiagrass, St. Augustine	2.0 lbs. <sup>1</sup>	Controls annual grasses and certain annual broadleaf weeds. <b>DO NOT</b> use on newly sprigged grasses. On newly-seeded lawns, delay the application until after the fourth mowing. An additional application may be made 8 weeks after the first application to improve control of crabgrass and goosegrass. <b>NOT</b> recommend for turfgrass that has been severely thinned due to winter stress. <b>DO NOT</b> reseed within 4 months of application. Pendimethalin is available on a dry fertilizer carrier under various trade names.
<b>POSTMERGENCE (Established Grasses)</b>			
<b>2,4-D + MCPP + dicamba</b> (33 Plus) (Ace Lawn Weed Killer) (Wipe-out) (Trimec) (Southern Weed Killer for Lawns)	Ky. Bluegrass, tall fescue, zoysiagrass, bermudagrass	2.67 fl. oz. 4.0 fl. oz. 5.0 fl. oz. 4.0 fl. oz. 4.0 fl. oz..	Controls a broader spectrum of weeds than 2,4-D alone. Newly seeded lawns may be treated after a minimum of 3 mowings. Use one-half rates and spot treatments to minimize injury on centipedegrass and St. Augustinegrass. Applications during spring transition (green-up) should be avoided unless temporary (2 to 4 weeks) delays in green-up is acceptable. <b>DO NOT</b> apply at air temperatures >90°F.
<b>2,4-D + quinclorac + dicamba</b> (All-in-One Lawn Weed and Crabgrass Killer)  (Weed-B-Gon Max Plus Crabgrass Control Concentrate)	Ky. Bluegrass, bermudagrass, tall fescue, zoysiagrass	Product is designed to be applied by connecting bottle to garden hose. One quart will treat 5,000 sq. ft.  6.0 fl. ozs.	Controls both annual broadleaf weeds and crabgrass. Apply 1 to 3 days after mowing. <b>DO NOT</b> mow for 1 to 2 days after spraying. <b>DO NOT apply at air temperatures &gt;85° F. Not recommended</b> for use on centipedegrass, carpetgrass and St. Augustinegrass. A repeat application at 14 days after the first application may be necessary to control certain perennial broadleaf weeds and annual grasses. Newly seeded lawns may be treated after a minimum of 4 mowings. <b>DO NOT</b> reseed for 4 weeks after application.
<b>atrazine</b> (Hi-Yield Atrazine) 4.0% (Image for St. Augustine & Centipedegrass) 4.0% (Weed-B-Gon Spot Weed Killer for St. Augustine) 0.6% GR	Centipedegrass, St. Augustine	8.0 fl. oz. 8.0 fl. oz.  Spot treatment.	Controls a wide range of broadleaf weeds, sandspur (sandbur) and suppresses crabgrass. May be applied in all 12 months for postemergence control of various weeds. Use in the fall or spring for the preemergence control of a wide range of annual grass and broadleaf weeds. Delay application to newly sodded or sprigged lawns until the sprigs have rooted and are actively growing. May be applied up to two times per year. Weed-B-Gon Spot Weed Killer for St. Augustinegrass is a granular product used as spot treatment (1.0 tablespoon per 4.0 sq. ft.) to control broadleaf weeds in centipedegrass, carpetgrass, St. Augustinegrass and zoysia. <b>DO NOT</b> overseed 4 months before or 6 months after treatment. <b>DO NOT</b> apply within the active zone of azaleas, ammelias, boxwoods, etc. <b>DO NOT</b> apply to any cool-season turfgrass or severe injury will occur.
<b>bentazon</b> (Basagran T/O) 4.0 lbs/gal  (Hi-Yield Basagran) 4.0 lbs./gal.	Ky. Bluegrass, bermudagrass, centipedegrass, tall fescue, St. Augustinegrass zoysiagrass	0.75-0.5 fl oz	Apply bentazon to emerged yellow nutsedge that is actively growing and under good soil moisture conditions. Follow 10 to 14 days later with an additional application. Crop oil concentrate at 0.75 fl oz/1,000 sq ft should be added to the spray mix. <b>DO NOT</b> mow 3 days before or after application. <b>DO NOT</b> apply to newly seeded or newly sprigged turfgrass until the seedlings or sprigs are well established.

<sup>1</sup> Apply granules directly to the soil surface.



**TURFGRASS WEED CONTROL FOR HOMEOWNERS (continued)**

USE STAGE AND HERBICIDE	TURFGRASSES	AMOUNT OF PRODUCT PER 1,000 SQ.FT.	REMARKS AND PRECAUTIONS
<b>POSTMERGENCE (Established Grasses) (continued)</b>			
<b>carfentrazone + 2,4-D + MCPP + dicamba</b> (SpeedZone Lawn Weed Killer)	Ky. Bluegrass, tall fescue, bermudagrass, zoysiagrass	0.75-1.0 fl. oz.	Controls a wide range of broadleaf weeds, including spotted spurge. May be applied after the second mowing in newly established cool-season turfgrasses, or 4 weeks after sprigging or sodding warm-season turfgrasses. <b>DO NOT</b> reseed until 2 weeks after application. <b>DO NOT</b> apply at air temperatures > 90°F.
<b>fenoxaprop</b> (Bermudagrass Control for Lawns)	Ky. Bluegrass, tall fescue, zoysiagrass		Controls bermudagrass, crabgrass, Japanese stiltgrass, sandbur and numerous other grass weeds. <b>DO NOT</b> apply to bermudagrass, centipedegrass or St. Augustinegrass lawns. Apply at monthly intervals during the summer months to suppress/control bermudagrass. Plan on doing this program annually for at least two years. Annual grass weeds are usually controlled with a single application.
<b>imazaquin</b> (Image Consumer Concentrate) 0.3 lbs./gal.	bermudagrass centipedegrass St. Augustine zoysiagrass	3.75 fl. oz.	Controls nutsedge(s), wild garlic and selected broadleaf weeds. <b>DO NOT</b> apply when turfgrass is emerging from winter dormancy. <b>DO NOT</b> apply to newly planted or sprigged turfgrasses. This product is not recommended for use on St. Augustinegrass during the winter months.
<b>sethoxydim</b> (Segment) 1.0 lb/gal	centipedegrass, fine fescue	0.5-0.75 fl. oz.	Apply only to centipedegrass and fine fescues (creeping red, chewing, hard fescue). Other turfgrasses will be severely injured by this herbicide. Controls annual grasses and suppresses bahiagrass growth. Apply no sooner than 3 weeks after spring green-up. May be applied at the low rate to seedling centipedegrass. <b>DO NOT</b> mow 7 days prior to or after application. Two applications per season may be utilized in established centipede. For bahiagrass suppression, repeat treatment 10 to 14 days after the first application.
<b>triclopyr</b> (Weed-B-Gon Chickweed, Clover and Oxalis Killer) 8%	Ky. Bluegrass, tall fescue, zoysiagrass	2.5 fl. oz..	Controls numerous broadleaf weeds. Particularly effective for control of violets and ground ivy. Apply twice, at an interval of 3 to 4 weeks for improved control. NOT recommended for use on bermudagrass, centipedegrass and St. Augustinegrass. Newly seeded lawns may be treated after a minimum of 3 mowings. <b>DO NOT</b> reseed for 3 weeks after application.
<b>potassium soap of fatty acids</b> (Bayer 2-in-1 Moss & Algae Killer)	Ky. Bluegrass, bermudagrass, centipedegrass, tall fescue, St. Augustine, zoysiagrass,	Product is designed to be applied by connecting bottle to garden hose.	Controls moss and algae in established lawns. Rinse treated areas with water 15 to 30 minutes after treatment to lower risk of turfgrass injury. <b>DO NOT</b> heavily irrigate turf for 6 hours after treatment. For best results apply in spring or fall months. This product should not be applied at air temperatures > 85° F. Treated areas can be reseeded 5 days after treatment.
<b>iron sulfate</b> (Scotts Turf Builder Fertilizer with Moss Control)	Ky. Bluegrass, bermudagrass, centipedegrass, tall fescue, St. Augustine, zoysiagrass,	See product label.	This product contains iron sulfate formulated on a 22-2-2 fertilizer carrier. One bag will treat up 5,000 sq. ft. Apply in winter or spring months to moist turf when moss is actively growing. This product may cause turfgrass foliage to temporarily blacken. Subsequent mowing will alleviate this condition.  <b>DO NOT</b> apply to a newly seeded or sodded lawn until it has been mowed four times. Brush or rinse particles from cement, stone, clothing, or shoes to prevent staining.

<sup>1</sup>Apply granules directly to the soil surface.

# TURFGRASS HERBICIDES COMMONLY FOUND IN RETAIL LAWN AND GARDEN STORES/CENTERS

Patrick E. McCullough, Extension Agronomist – Weed Science

## I. Preemergence Herbicides

Trade Name	Active Ingredient
Balan	benefin
Bonus S	atrazine
Southern Lawn Fertilizer plus Weed Control	atrazine
Gallery	isoxaben
Green Light Amaze	benefin + oryzalin
Green Light Betasan	bensulide
Halts	pendimethalin
Hi-Yield Crabgrass Preventer	benefin + trifluralin
Surflan	oryzalin
StaGreen CrabEx	dithiopyr
Hi-Yield Turf & Ornamental Weed & Grass Stopper	dithiopyr
StaGreen Crabgrass Preventer	proflam
Lawn Fertilizer plus Weed Control	proflam
StaGreen Crabgrass Preventer with Fertilizer	benefin + trifluralin
Team	benefin + trifluralin
XL	benefin + oryzalin

## II. Postemergence Herbicides

Trade Name	Active Ingredient
Ace Lawn Weed Killer	2,4-D + MCPP + dicamba
Acme Super Chickweed Killer	2,4-D + MCPP + dicamba
Basagran T&O	bentazon
Bayer Advanced All-in-One Weed Killer	MSMA + 2,4-D + MCPP + dicamba
Bayer Advanced Southern Lawn Weed Killer	2,4-D + MCPP + dicamba
Dragon Lawn Weed Killer	2,4-D + MCPP + dicamba
Drexel MSMA 6 Plus	MSMA
Enforcer Weed Stop	2,4-D + MCPP + dicamba
Fertilome Crabgrass, Nutgrass & Dallisgrass Killer	MSMA
Fertilome Weed Out Lawn Weed Killer	2,4-D + MCPP + dicamba
Green Light Wipe Out	2,4-D + MCPP + dicamba
Green Light DSMA Crabgrass Killer	DSMA
Green Light MSMA Crabgrass Killer	MSMA
Green Light Spot Weed Killer	MCPA + MCPP + dicamba

**TURFGRASS HERBICIDES COMMONLY FOUND IN RETAIL LAWN AND GARDEN STORES/CENTERS (continued)**

Trade Name	Active Ingredient
Hi-Yield Basagran	bentazon
Hi-Yield 529 Crabgrass Killer	MSMA
Hi-Yield Atrazine	atrazine
Ortho Spot Weed Killer for St. Augustine Lawns	atrazine
Image	imazaquin
Image for St. Augustine and Centipede	atrazine
Image with MSMA	MSMA
Rigo's Best Crabgrass Killer	MSMA
Rigo Super Lawn Weed Killer	2,4-D + MCPP + dicamba
Safer Weed Away	2,4-D + MCPP + dicamba
Sethoxydim G-Pro	sethoxydim
Spectrum Lawn Weed Killer 33 Plus	2,4-D + MCPP + dicamba
Speed Zone Lawn Weed Killer	2,4-D + MCPP + dicamba + carfentrazone
Spectracide Weed Stop	2,4-D + MCPP + dicamba
Trimec Classic	2,4-D + MCPP + dicamba
Trimec Southern	MCPP + 2,4-D + dicamba
Weed-B-Gon Chickweed, Clover & Oxalis Killer	triclopyr
Weed-B-Gon Crabgrass Killer Formula II	CAMA
Weed-B-Gon Max	MCPA + triclopyr + dicamba

# TURFGRASS WEED RESPONSE TO HERBICIDES— HOMEOWNER PRODUCTS

Patrick E. McCullough, Extension Agronomist – Weed Science

	atrazine	benefin	dithiopyr	oryzalin	pendimethalin	prodiamine
<b>Time of application</b>	<b>PREEMERGENCE</b>					
<b>PERENNIAL GRASSES AND GRASS-LIKE WEEDS</b>						
bahiagrass	P	P	P	P	P	P
bermudagrass	P	P	P	P	P	P
dallisgrass	P	P	P	P	P	P
nutsedge, purple	P	P	P	P	P	P
nutsedge, yellow	P-F	P	P	P	P	P
tall fescue	P	P	P	P	P	P
wild garlic/onion	P	P	P	P	P	P
<b>ANNUAL GRASSES</b>						
annual bluegrass	E	E	G	G	G	E
crabgrass	F	E	G-E	E	E	E
crowfootgrass	P	G		G	G	
goosegrass	P	F	F	F-G	F-G	G
sandbur	F	F		G	G	
<b>BROADLEAF WEEDS</b>						
chamberbitter (niruri)	G					P
common chick weed	E	G	G	G	G	G
corn speedwell	E	E	G		E	P
cudweed	E	G			G	P
dandelion	F	P	P	P	P	P
dichondra	G	P	P	P	P	P
docks	G	P	P	P	P	P
Florida betony	E	P		P	P	P
ground ivy		P	P	P	P	P
henbit	E	G	G	G	G	G
hop clovers	E	P				P
knotweed	E			F	G	P
lespedeza	E		E			P
mallow		P	P	P	P	P
mock strawberry		P	P	P	P	P
mouseear chickweed		E		P	G	P
mugwort		P	P	P	P	P
mustards	E					P
parsley piert	E	P			P	P
pennywort	E	P		P	P	P
plantains	G	P	P	P	P	P
spurges	E	P	G		F	P
spurweed (burweed)	E	P				P
VA buttonweed		P	P	P	P	P
violets			P	P	P	P
white clover	F	P	P	P	P	P
yellow woodsorrel	E	P	P	F	F	P

Key to response symbols: E = Excellent control (90 to 100 %), G = Good control (80 to 89%), F = Fair control (70 to 79%), P = Poor control (< 70%).

A blank space indicates weed response is not known.

TURFGRASS WEED RESPONSE TO HERBICIDES – HOMEOWNER PRODUCTS (continued)

	2,4-D	2,4-D + MCPP + dicamba	atrazine	bentazon	imazaquin	MSMA CAMA	sethoxydim	triclopyr
Time of application	POSTEMERGENCE							
<b>PERENNIAL GRASSES AND GRASS-LIKE WEEDS</b>								
bahiagrass	P	P	P	P	P-F	F	F	P
bermudagrass	P	P	P	P	P	P	F	P
dallisgrass	P	P	P	P	P	F-G	P-F	P
nutsedge, purple	F	P	P	P	G	F	P	P
nutsedge, yellow	F	P	P	G	F-G	F	P	P
tall fescue	P	P	P-F	P	P-F	P	F	P
wild garlic/onion	G	G	P	P	E	P	P	P
<b>ANNUAL GRASSES</b>								
annual bluegrass	P	P	E	P	F-G	P	P	P
crabgrass	P	P	F	P	P	E	E	P
crowfootgrass	P	P		P	P	E		P
goosegrass	P	P	P	P	P	F	G	P
sandbur	P	P		P	F-G	G	G	P
<b>BROADLEAF WEEDS</b>								
chamberbitter (niruri)	P		G	P	P	P-F	P	
common chick weed	P	G	E	G	E	P	P	E
corn speedwell	F	F	E	P	P	P	P	G
cudweed	G-E	E	G			F-G	P	F
dandelion	E	G	F	P		P	P	G
dichondra	G	G	E	P		P	P	F-G
docks	F	G	G	P		P	P	F-G
Florida betony	F	G	E	P		P	P	G
ground ivy	P-F	G		P		P	P	G
henbit	P	G	E	P		P	P	E
hop clovers	F	E	E			P	P	E
knotweed	P	G	E			P	P	F
lespedeza	P-F	G	E			P	P	G
mallow	F	G		P		P	P	G
mock strawberry	P	G		P		P	P	
mouseear chickweed	P-F	G	G	P	G	P	P	G
mugwort	P	F		P		P	P	P-F
mustards	E	G	E	G		P	P	F
parsley piert	P	G	E	G	G	P	P	E
pennywort	G	E	E	P		P	P	F
plantains	E	E	F	P		P	P	F
spurges	F	G	E	P		P	P	F
spurweed (burweed)	G	G	E	E		P	P	F
VA buttonweed	P	F		P		P	P	P
violets	P	F	P	P		P	P	F-G
white clover	F	G	F-G	P	F	P	P	F-G
yellow woodsorrel	P	F	G	P		G	P	F

Key to response symbols: E = Excellent control (90 to 100 %), G = Good control (80 to 89%), F = Fair control (70 to 79%), P = Poor control (< 70%).  
A blank space indicates weed response is not known.