



Commercial Turf and Lawns

Chemical Weed Control Recommendations for 2008

PREPLANT

Table 1. Herbicide Preplant Recommendations

Herbicide	Herbicide Rate		Weeds Controlled	Time of Application and Special Instructions
	Formulation per 1000 Square Feet	Lb. Active Ingredient per Acre		
Preplant				
glyphosate ROUNDUP PRO	4-6 T. of 4 lb./gal. isopropyl- amine salt	3-4 lb. (isopropyl- amine salt)	Annual and perennial grasses, broadleaf weeds and sedges, including	TURFGRASS RENOVATION: This must be applied by a professional applicator. Apply to actively growing vegetation that is at least 4 to 5 inches tall. Mowing, tillage, or renovation techniques should be delayed for 7 to 14 days after application to allow proper translocation into underground plant parts. A second application may be necessary. Mid to late summer is the best time to treat for control of warm-season weeds. Desirable turfgrasses may be established as soon as acceptable control has been obtained on existing vegetation. See label for precautionary statements.
ROUNDUP PRO DRY	1.25-1.75 oz. of 71.4% SP	3-4 lb. (ammonium salt)	nutsedge, bermudagrass, bahiagrass, torpedograss, etc.	

PREEMERGENCE

Preemergence herbicide treatments should be applied to turfgrasses prior to emergence of the specific target weed. The recommended herbicide rates given below are for turfgrasses growing under optimum conditions of light, moisture, and nutrients. For sensitive grasses or for any grasses growing

under stress conditions (such as on golf greens, in shade, or in drought situations), apply the lowest effective rate in split applications. Make two applications, 10 to 14 days apart, with each application using half of the lowest effective rate.

Table 2. Herbicide Preemergence Recommendations

Herbicide	Herbicide Rate		Weeds Controlled	Time of Application and Special Instructions
	Formulation per 1000 Square Feet	Lb. Active Ingredient per Acre		
Preemergence (New Plantings)				
oxadiazon RONSTAR 2G	2.25-3.3 lb.	2-3	Crabgrass, goosegrass	Make application to weed-free area immediately after sprigging bermudagrass or zoysiagrass. Irrigate immediately after application. DO NOT apply to newly seeded areas. See label for additional precautions.

Herbicide	Herbicide Rate		Weeds Controlled	Time of Application and Special Instructions
	Formulation per 1000 Square Feet	Lb. Active Ingredient per Acre		
ESTABLISHED WARM-SEASON—Bermudagrass, Centipedegrass, St. Augustinegrass, Zoysiagrass				
ESTABLISHED COOL-SEASON—Tall Fescue, Red Fescue, Kentucky Bluegrass				
Preemergence				
atrazine AATREX 4L	1.5-3 T. of 4 lb./gal.	1-2	Annual bluegrass, henbit, spurweed, burclover, other annual broadleaf weeds	For use ONLY on warm-season turfgrasses listed on label. Apply after October 1 for control of winter weeds or during late winter but before April 15 for control of summer annual weeds. Use the low rate on newly sprigged turfgrass, on hybrid bermudagrass, or for the control of annual bluegrass. The 0.76% product is labeled for centipedegrass and St. Augustinegrass only. DO NOT make more than two applications per year. DO NOT use on alkaline soils or on golf greens. Read label carefully before using this product around trees and ornamentals. DO NOT overseed for 6 months after application. Atrazine is a RESTRICTED USE pesticide. DO NOT apply more than 2 pounds of atrazine a.i. per acre per year.
AATREX NINE-O LESCO ATRA- ZINE 0.76% + 0-0-7 fertilizer	0.4-0.8 oz. of 90 WDG 4.5-6 lb.	1-2 1.5-2		
benefin BALAN	1.8-2.75 lb. of 2.5G	2-3	Crabgrass, goosegrass, annual bluegrass, others	Apply to well-established warm and cool-season turfgrasses. An additional treatment may be made 8 weeks after initial application for continued weed control. DO NOT apply to golf greens. Use high rate for annual bluegrass control on warm-season grasses when applied in late summer or early fall. Delay overseeding for 6 to 16 weeks after treatment, depending on rate used.
benefin + oryzalin XL 2G	2.5-3.5 lb. of 2G	2-3	Crabgrass, goosegrass, annual bluegrass, barnyardgrass, foxtail	Apply to established warm-season turfgrasses in February or early March for crabgrass control. For goosegrass control, use high rate. For annual bluegrass control, apply in late August or early September at high rate. Delay overseeding for 6 to 16 weeks after treatment, depending on rate used. Read label for additional directions and application instructions.
benefin + trifluralin TEAM PRO 0.86G	4-8 lb. of 0.86G	1.5-3	Crabgrass, goosegrass, annual bluegrass	Same as for XL 2G, above.
bensulide BENSUMEC 4LF SCOTT'S WEEDGRASS PREVENTER 8.5G	5-9 fl.oz. of 4LF 3.3 lb. of 8.5G	7.5-12.5 12.5	Crabgrass, goosegrass, annual bluegrass, other annual grasses, small-seeded broadleaf weeds	Apply to well-established bermudagrass, centipedegrass, St. Augustinegrass, zoysiagrass, Kentucky bluegrass, and fescues in March for summer weed control. For goosegrass control, apply about 4 to 6 weeks later. For crabgrass and goosegrass control within 50 miles of Gulf Coast, apply in late February. For winter weed control, apply in late August or early September. Follow directions on label.

Herbicide	Herbicide Rate		Weeds Controlled	Time of Application and Special Instructions
	Formulation per 1000 Square Feet	Lb. Active Ingredient per Acre		
ESTABLISHED WARM-SEASON AND COOL-SEASON GRASSES (cont.)				
Preemergence (cont.)				
bensulide + oxadiazon ANDERSON'S GOOSEGRASS/ CRABGRASS CONTROL	2.6 lb. of 6.5G	7.5	Crabgrass, goosegrass	For use on established bermudagrass, zoysiagrass, tall fescue, and perennial bluegrass. Apply prior to weed seed germination and while grass is dormant. Irrigate immediately after application. Delay overseeding for 5 months after application. May be used on bermudagrass and bentgrass putting greens only under conditions of heavy goosegrass infestations and where the herbicide side effects are tolerable. Yellowing and thinning for up to 4 weeks may be observed on such greens. Can be used to control annual bluegrass on established bentgrass greens. DO NOT use on bermudagrass putting greens to be overseeded. See label for other application instructions.
dithiopyr DIMENSION 1EC	1.5 fl.oz. of 1 lb./gal.	0.5	Crabgrass, yellow foxtail,	Provides preemergence control of annual grasses and certain broadleaf weeds. Also controls small crabgrass (before tillering). Dimension does not provide consistent control of goosegrass at labeled rates. Apply as a spring or fall treatment. DO NOT apply more than 1.5 fluid ounces of 1EC or 0.46 ounce of 40 WSP per 1000 square feet per application. DO NOT apply more than 4.5 fluid ounces of 1EC or 1.375 ounces of 40 WSP per 1000 square feet per year. DO NOT overseed or sprig treated areas for 3 months after application.
DIMENSION ULTRA	0.46 oz. of 40 WSP	0.5	smutgrass, woodsorrel, annual bluegrass	
isoxaben GALLERY 75DF	0.25-0.5 oz. of 75DF	0.5-1	Chickweed, clover, henbit, bittercress, spurge, plantains, and other broad- leaf weeds	Use on established warm- and cool-season grasses listed. For summer weed control, apply during early spring. For fall and winter control, apply during late summer to early fall. DO NOT apply to golf course putting greens. Apply 0.5 inch of water within 25 days after application. DO NOT reseed treated area within 60 days.
metolachlor PENNANT MAGNUM 7.62EC	1 oz. of 7.62 lb./gal.	2.5	Yellow nutsedge, annual sedges, annual grasses	For established bermudagrass, centipedegrass, St. Augustinegrass, and zoysiagrass ONLY . Make application before yellow nutsedge emerges. If rainfall does not occur within 7 days, irrigate with 0.5 inch of water. DO NOT use on golf greens, tees, and aprons. DO NOT seed or overseed with desirable turfgrasses within 4 months before or 6 months after treatment.
oryzalin ORYZALIN 4PRO SURFLAN 4AS	1-1.5 oz. of 4 lb./gal.	1.5-2	Crabgrass, goosegrass, annual bluegrass, barnyardgrass, foxtail	Apply to established warm-season turf in February or early March for crabgrass control. For goosegrass control, apply 4 to 6 weeks later at low rate, except in South Alabama. For annual bluegrass control, apply in late August or early September, using low rate. Some movement may occur if not "watered in." Read label for additional directions and application instructions. DO NOT use on putting greens or tees. Reseeding should be delayed for 120 days after treatment.

Herbicide	Herbicide Rate		Weeds Controlled	Time of Application and Special Instructions
	Formulation per 1000 Square Feet	Lb. Active Ingredient per Acre		
ESTABLISHED WARM-SEASON AND COOL-SEASON GRASSES (cont.)				
Preemergence (cont.)				
oxadiazon RONSTAR 2G	2.25-4.5 lb. of 2G	2-4	Crabgrass, goosegrass, annual bluegrass	Ronstar G can be used on all warm- and cool-season grasses, except red fescue, centipedegrass, and bentgrass. DO NOT apply more than 3.25 pounds of the 2G formulation per 1000 square feet to St. Augustinegrass. Ronstar 50WSP can only be applied on <i>dormant, established</i> bermudagrass, St. Augustinegrass, and zoysiagrass. Ronstar is not labeled for use on home lawns. Delay overseeding for 4 months after application. See label for additional application instructions.
RONSTAR 50WSP	1.5-2.2 oz. of 50WSP	2-3		
pendimethalin PENDULUM 2G	1.7-3.4 lb. of 2G	1.5-3	Crabgrass, goosegrass, annual bluegrass, chickweed, henbit	Apply the high rate to all warm-season grasses and the low rate to all cool-season grasses. A late summer application at the low rate will control annual bluegrass and the other winter annuals. Apply prior to weed seed germination. DO NOT reseed, sprig, or sod with new grass or seed until 4 to 5 months after treatment.
PENDULUM 3.3EC	1.8-2.6 oz. of 3.3EC	1.5-3		
PENDULUM 60WDG	0.9-1.8 oz. of 60WDG	1.5-3		
PENDULUM AQUACAP	1.12-2.3 oz. of 3.8CS	1.5-3		
prodiamine BARRICADE 65WG	0.4 oz. of 65WG	0.75	Crabgrass, annual bluegrass, chickweed, spurge, goosegrass	Provides preemergence control of annual grasses and certain broadleaf weeds in established turfgrasses. See label for maximum use rate per season. DO NOT make more than two applications per season. See overseeding restrictions on label (3-18 months).
BARRICADE 4FL	3 t. of 4LF	0.75		
pronamide KERB T/O	0.75-1.5 T. of 50WSP	0.5-1	Annual bluegrass, other cool-season grasses, and broadleaf weeds	USE ONLY ON BERMUDAGRASS. Apply in October or November when annual bluegrass begins to germinate or is in the 1- to 2-leaf stage. CAUTION: Kerb moves with surface water. DO NOT use on golf putting greens or lawns and other turf areas to be overseeded. Excessive rate will cause injury. Irrigate after application. DO NOT overseed within 90 days of application. Kerb is a RESTRICTED USE pesticide.
simazine PRINCEP LIQUID	1.5-3 T. of 4 lb./gal.	1-2	Annual bluegrass, burclover, henbit, other annual grasses and broadleaf weeds	For use ONLY on warm-season turfgrasses listed on label. Apply after September 1 for control of winter weeds or during late winter but before germination for control of summer annual weeds. DO NOT apply after June 1. Use the low rate on newly sprigged turfgrass, on hybrid bermudagrass, or for the control of annual bluegrass. DO NOT make more than two applications per year. DO NOT use on alkaline soils or on golf greens. Read label carefully before using this product around trees and ornamentals. DO NOT overseed for 6 months after application.
SIMAZINE 90DF	0.4-0.8 oz. of 90DF			

Herbicide	Herbicide Rate		Weeds Controlled	Time of Application and Special Instructions
	Formulation per 1000 Square Feet	Lb. Active Ingredient per Acre		
SOD PRODUCTION ONLY				
Preemergence				
simazine PRINCEP LIQUID SIMAZINE 90DF	1.5-3 T. of 4 lb./gal. 0.4-0.8 oz. of 90DF	1-2	Many annual grasses and broadleaf weeds	For use on centipedegrass and St. Augustinegrass. DO NOT apply to actively growing bermudagrass. Apply within 2 days after lifting sod or on new beds 7 to 10 days after sprigging or plugging. The soil should be well settled around sprigs and plugs before applying herbicide. Use low rate on sandy soils and/or on bermudagrass. Apply in fall for winter weed control and in spring for summer weed control. DO NOT apply within 30 days of harvesting sod. DO NOT apply to cool-season turfgrasses.
Postemergence				
clethodim ENVOY	0.4-0.8 oz. of 0.94 lb./gal.	0.125- 0.25	Common bermudagrass	FOR SOD FARMS ONLY. Apply to centipedegrass in the spring at least 3 weeks after green-up to actively growing common bermudagrass. Two applications will be necessary for control. Make second application 3 to 4 weeks after first when there is 1 to 2 inches of bermudagrass regrowth. Use high rate on patches of well-established common bermudagrass. Avoid mowing sod for one week before or after application. Always add a non-ionic surfactant to spray mix at rate of 2 pints per 100 gallons. State Label.

POSTEMERGENCE

ESTABLISHED BERMUDAGRASS AND/OR ZOYSIAGRASS

Spray when weeds are actively growing, preferably when weeds are in the seedling stage. Postemergence herbicide applications should be made in 30 to 40 gallons of water per acre. Control may be greatly increased by using a non-ionic surfactant at 0.5 percent of spray solution (1 pint per 25 gallons).

Air temperature in the 80-degree range for MSMA and DSMA and the 70-degree range for 2,4-D and dicamba is

advisable. For sensitive grasses or for grasses growing under stress conditions (such as grasses growing in shady areas, on golf greens, or in drought situations), the lowest effective rate should be applied in split applications. Two applications should be made 10 to 14 days apart with each application using one-half of the lowest effective rate.

Table 3. Herbicide Postemergence Recommendations for Warm-Season Grasses

Herbicide	Herbicide Rate		Weeds Controlled	Time of Application and Special Instructions
	Formulation per 1000 Square Feet	Lb. Active Ingredient per Acre		
ESTABLISHED BERMUDAGRASS AND/OR ZOYSIAGRASS				
Postemergence				
2,4-D amine AMINE 4 WEEDAR 64 (Other trade names)	0.75-1.5 T. of 4 lb./gal.	0.5-1	Many broadleaf weeds, dandelion, dock, plantains, certain clovers	Apply when weeds are young and actively growing. Repeat applications may be necessary. Use low pressure—25 psi. Avoid spray drift to susceptible flowers and shrubs. Use lower rate on Tifgreen and Tifdwarf bermudagrass. DO NOT allow people (other than applicator) or pets to enter treatment areas until sprays have dried. Refer to label for instructions on adding a surfactant.
2,4-D amine AMINE 4 WEEDAR 64 (Other trade names)	3 T. of 4 lb./gal.	2	Wild onion and garlic	Same as 2,4-D amine above. Apply in November or December and again in February or early March. Repeat applications on this cycle for 2 to 5 years. Use of ester formulations usually causes more problems when drift occurs.
2,4-D + clopyralid + dicamba MILLENNIUM ULTRA	0.73-1.1 oz. of 3.75 lb./gal. (2-3 pt./A)	0.75-1.12 + 0.09-0.14 + 0.09-0.14	Broad spectrum of broadleaf weeds	Read the label. When treating grass growing under stress conditions, use half rates. Slight turf yellowing will disappear after one week. To minimize turf injury, a second application should not be made for at least 4 weeks. DO NOT spray when air temperature exceeds 90°F. DO NOT reseed for 3 to 4 weeks after application. DO NOT use on residential lawn areas. DO NOT compost treated lawn clippings.
2,4-D + dicamba + fluroxypyr ESCALADE	0.75-1.1 oz. of 4.4 lb./gal. (2-3 pt./A)	0.8-1.2 + 0.1-0.15 + 0.2-0.3	Broad spectrum of broadleaf weeds	Apply to actively growing established bermudagrass and zoysiagrass. Use low rate on closely mowed turf or to turf under stress. Some turf yellowing can be expected. To minimize grass injury, retreatment should not occur until later than 4 weeks after initial treatment. See label for reduced rate and timings of use on sod farms.

Herbicide	Herbicide Rate		Weeds Controlled	Time of Application and Special Instructions
	Formulation per 1000 Square Feet	Lb. Active Ingredient per Acre		
ESTABLISHED BERMUDAGRASS AND/OR ZOYSIAGRASS (cont.)				
Postemergence (cont.)				
2,4-D + mecoprop + 2,4-DP TRIAMINE	See label.	See label.	Broad spectrum of weeds	For use on zoysiagrass and common bermudagrass only. DO NOT spray when air temperatures exceed 85°F or when turfgrass is growing under stress conditions. Delay reseeding for 4 weeks after treatment. Avoid applications when turfgrass is emerging from winter dormancy.
2,4-D + mecoprop + dicamba TRIMEC BENT- GRASS FORMULA TRIMEC CLASSIC TRIMEC SOUTHERN TRIPLET SF	Follow label directions on Trimec or equivalent.	0.8-1 lb. *See Special Instructions.	Broad spectrum of broadleaf weeds, including wild onion or garlic	*DO NOT apply more than 0.8-1 pound of 2,4-D from any formulation. DO NOT use within drip line of trees or shrubs. Observe precautions for each component part. Excellent herbicide for broad spectrum weed control. Use Trimec For Bentgrass for grasses sensitive to 2,4-D.
2,4-D + MCPA + dicamba + carfentrazone SPEEDZONE SOUTHERN	4.5-9 t. of 0.81 lb./gal.	0.13-0.26 + 0.05-0.1 + 0.012- 0.025 + 0.01- 0.02		Controls a number of broadleaf weeds, including spurge and ground ivy. Apply when day temperatures are between 60 and 85°F. May be applied 4 weeks after sprigging or sodding turfgrass.
asulam ASULAM 3.3	1.75 fl.oz. of 3.3 lb./gal. (5 pt./A)	2	Crabgrass, goosegrass, sandbur	FOR SOD PRODUCTION ONLY. Apply ONLY to Tifway 419 bermudagrass. Make only one application per season in 20 to 50 gallons of water per acre. DO NOT add a surfactant.
bentazon BASAGRAN T/O	1.5 T. of 4 lb./gal.	1	Yellow nutsedge	Apply when yellow nutsedge is actively growing under good moisture conditions. Make additional applications at intervals of 10 to 14 days until nutsedge is eliminated. DO NOT make more than three applications in a single growing season. Avoid spraying adjacent trees, shrubs, and flowers. DO NOT mow 3 to 5 days before or after application. Purple nutsedge will not be controlled by this treatment. Add a crop oil concentrate to the spray mix at a rate of 2 pints per acre when making application to yellow nutsedge.

Herbicide	Herbicide Rate		Weeds Controlled	Time of Application and Special Instructions
	Formulation per 1000 Square Feet	Lb. Active Ingredient per Acre		
ESTABLISHED BERMUDAGRASS AND/OR ZOYSIAGRASS (cont.)				
Postemergence (cont.)				
bromoxynil BUCTRIL 2E	0.75-1.5 T. of 2 lb./gal.	0.25-0.5	Many seedling broadleaf weeds	FOR NON-RESIDENTIAL TURF AND SOD PRODUCTION ONLY. Apply to established bermudagrass to control seedling broadleaf weeds. Weeds must be actively growing, and good spray coverage is essential. Apply in 20 to 40 gallons of water per acre or in 2 to 4 gallons of water per 1000 square feet.
carfentrazone QUICKSILVER T&O	0.023-0.048 oz. of 1.9 lb./gal. (1-2.1 oz./A)	0.015-0.03	Numerous seedling broadleaf weeds	To expand the weed spectrum, QuickSilver may be tank-mixed with 2,4-D, 2,4-DP, and/or dicamba. Add a non-ionic surfactant at the rate of 1 to 2 pints surfactant per 100 gallons of spray mix.
chlorsulfuron CORSAIR 75 WDG	0.06-0.12 oz. of 75 WDG	0.13-0.25	Tall fescue, wild violet	Apply as a postemergence spot treatment to tall fescue plants in bermudagrass using a hand-held or boom sprayer. Spray ONLY to wet the tall fescue blades. Avoid overapplication. Repeat treatment may be needed in 60 days. DO NOT apply under desirable trees. Add a non-ionic surfactant to spray mix at rate of 1 quart per 100 gallons of spray mix.
clopyralid LONTREL T&O	0.1-0.5 fl.oz. of 3 lb./gal. (0.25-1.33 pt./A)	0.09-0.5	Clovers, black medic, dandelions, vetch, other broadleaf weeds	See label for specific rate for target pest. Can cause injury to desirable legumes and composite species. DO NOT apply to residential lawn areas. DO NOT compost treated lawn clippings. DO NOT irrigate for at least 2 hours after application.
dicamba VANQUISH 4S	1-2 t. of 4 lb./gal. (0.5-1 pt./A)	0.25-0.5	Most broadleaf weeds, including wild onions	DO NOT use around shrubs or trees. Roots take up the chemical from the soil and some species are damaged. Good for use on golf tees, fairways, and roughs. DO NOT exceed a total of 1 pound a.i. per acre per year.

Herbicide	Herbicide Rate		Weeds Controlled	Time of Application and Special Instructions
	Formulation per 1000 Square Feet	Lb. Active Ingredient per Acre		
ESTABLISHED BERMUDAGRASS AND/OR ZOYSIAGRASS (cont.)				
Postemergence (cont.)				
diclofop-methyl ILLOXAN 3EC	0.75-1 fl.oz. of 3 lb./gal. (1-1.4 qt./A)	0.75-1	Goosegrass	Use ONLY on bermudagrass on golf courses and sod farms. A non-ionic surfactant can be added at the rate of 2 pints per 100 gallons of spray mix to improve control of goosegrass growing under adverse conditions. Use the low rate when treating goosegrass in the 1- to 3-leaf stage and the high rate when treating goosegrass in the 1-tiller stage. Make application using 20 to 40 gallons of water per acre at 30 to 60 psi using flat fan nozzle spray tips. Application should result in a uniform spray pattern with minimum overlap. Illoxan is most effective on closely mowed goosegrass (not less than 0.33 inch cutting height). DO NOT mow for 36 hours after application. DO NOT apply with any other pesticide or liquid fertilizer. DO NOT overseed treated area for 3 months after application. DO NOT apply more than 65 ounces of Illoxan per acre per year. Illoxan is a RESTRICTED USE pesticide.
diquat dibromide REWARD L&A	2-4 t. of 2 lb./gal. (1-2 pt./A)	0.25-0.5	Annual bluegrass, Carolina geranium, henbit, little barley	APPLY TO DORMANT BERMUDAGRASS ONLY. Apply to small, actively growing weeds in established turf. DO NOT apply during "green up" in spring. Add 1 to 2 pints of a non-ionic surfactant to every 100 gallons of spray mix.
ethofumesate PROGRASS 1.5	4-6 T. of 1.5 lb./gal.	1-1.1	Annual bluegrass, common chickweed	Use ONLY on dormant bermudagrass overseeded with perennial ryegrass. Apply in fall after bermudagrass is dormant and 1 to 2 weeks after emergence of perennial ryegrass. One or two additional applications at 21- to 28-day intervals may be needed to maintain control during the winter. Provides postemergence and preemergence control of listed weeds. DO NOT apply after February 1. DO NOT use on golf greens.

Herbicide	Herbicide Rate		Weeds Controlled	Time of Application and Special Instructions
	Formulation per 1000 Square Feet	Lb. Active Ingredient per Acre		
ESTABLISHED BERMUDAGRASS AND/OR ZOYSIAGRASS (cont.)				
Postemergence (cont.)				
fenoxaprop ACCLAIM EXTRA	2-4 t. of 0.57 lb./gal. (13-26 oz./A)	0.06-0.125	Crabgrass, goosegrass, barnyardgrass, johnsongrass, and common bermudagrass	FOR NEWLY PLUGGED OR ESTABLISHED ZOYSIAGRASS ONLY. Apply in late spring or early summer to actively growing weedy grasses in the 3-leaf (low rate) to 5-tiller (high rate) growth stage. Apply using 30 to 60 gallons of water per acre at 30 to 60 psi. Add a non-ionic surfactant (1 quart per 100 gallons) if using a spray pressure less than 30 psi or when spray volumes are larger than 60 gallons per acre. Make no more than three applications per season at spray intervals greater than 14 days. Tank-mixing Acclaim with phenoxy or related herbicides will reduce grass control on larger (tillered) grasses. Acclaim will not control annual bluegrass.
fluroxypyr SPOTLIGHT	0.25-0.5 fl. oz. of 1.5 lb./gal. (0.67-1.33 pt./A)	0.125-0.25	Bedstraw, chickweed, Virginia buttonweed, clover, woodsorrel, ground ivy	Apply postemergence to established bermudagrass and zoysiagrass to control a number of annual and perennial broadleaf weeds. Use the low rate on bermudagrass. Repeat treatment can be made 4 weeks after previous treatment. Do not apply more than 2.5 pints per acre per year. See label concerning need for addition of non-ionic surfactant.
fluazifop FUSILADE II T/O	0.07-0.11 oz. of 2 lb./gal. (3-5 oz./A)	0.05-0.08	Common and hybrid bermudagrass	Apply to zoysia in late spring (around June 1) and repeat every 30 days. Higher rate can be used during hot summer applications, and lower rates can be used in fall before dormancy. Add 1 quart of non-ionic surfactant to every 100 gallons of spray mix. Higher use rates may cause temporary zoysia discoloration. For use on zoysia turf except commercial sod farms.

Herbicide	Herbicide Rate		Weeds Controlled	Time of Application and Special Instructions
	Formulation per 1000 Square Feet	Lb. Active Ingredient per Acre		
ESTABLISHED BERMUDAGRASS AND/OR ZOYSIAGRASS (cont.)				
Postemergence (cont.)				
foramsulfuron REVOLVER	0.2-0.4 oz. of 0.19 lb./gal. (8.8-17.6 oz./A)	0.013- 0.026	Annual bluegrass, ryegrass, fescue (tall), rough bluegrass (<i>Poa trivialis</i>), goosegrass	May be applied to established bermudagrass to (a) remove ryegrass and annual bluegrass during spring transition; (b) control annual bluegrass before overseeding bermudagrass with perennial ryegrass or <i>Poa trivialis</i> ; or (c) control annual bluegrass, tall fescue, ryegrass, and other cool-season grasses in non-overseeded bermudagrass. Apply during transition when bermudagrass has resumed active growth. Rate and temperature will influence speed of weed removal. Apply 14 days prior to overseeding to control annual bluegrass. See label for directions for use on bermudagrass greens, tees, and collars. Revolver may also be used on <i>Meyer</i> zoysiagrass.
halosulfuron SEDGEHAMMER 75DF	0.015-0.03 oz. of 75DF (0.67-1.33 oz./A)	0.031- 0.062	Yellow nutsedge, purple nutsedge	Apply to established bermudagrass and zoysiagrass. Apply after nutsedge has reached 3- to 8-leaf stage. Apply 2 quarts of non-ionic surfactant per 100 gallons of spray mix, but DO NOT exceed 2 pints of surfactant per acre. A second application can be made 6 to 10 weeks later when nutsedge has three to eight leaves. DO NOT make more than two applications or apply more than 0.125 pound a.i. per acre. DO NOT apply to golf course putting greens.
imazaquin IMAGE 70DG	0.2-0.26 oz. of 70DG (8.6-11.4 oz./A)	0.375-0.5	Wild garlic, wild onion, nutsedge, sandbur, henbit, chickweed	Apply to well-established, actively growing turf when weeds are small. Add non-ionic surfactant to the spray solution at the rate of 2 pints per 100 gallons. A repeat treatment may be needed in 6 to 8 weeks for season-long control. Image may be mixed with MSMA or DSMA for better yellow nutsedge control. DO NOT apply when turfgrass is emerging from dormancy. Image will severely damage fescue and ryegrass.
MCPA + MCPP + 2,4-DP TRIAMINE II	See label.	See label.	Broad spectrum of broadleaf weeds	For zoyiagrass ONLY . Refer to appropriate label for use rate. DO NOT use when air temperature is above 90°F. Delay reseeding for 4 weeks after treatment.
MCPA + MCPP + dicamba TRI-POWER	See label.	See label.	Broad spectrum of broadleaf weeds	Refer to appropriate label for use rate. DO NOT apply during green-up growth stage. DO NOT apply when air temperature exceeds 85°F. Delay reseeding for 3 to 4 weeks after treatment.

Herbicide	Herbicide Rate		Weeds Controlled	Time of Application and Special Instructions
	Formulation per 1000 Square Feet	Lb. Active Ingredient per Acre		
ESTABLISHED BERMUDAGRASS AND/OR ZOYSIAGRASS (cont.)				
Postemergence (cont.)				
MCPA + MCPP + dicamba + carfentrazone POWERZONE	4.5-9 t. of 2.91 lb./gal.	0.55-1.1+ 0.11-0.22 + 0.055-0.11 + 0.01-0.02		Controls a number of broadleaf weeds including spurge and ground ivy. Apply when day temperatures are between 45 and 75°F. May be applied 4 weeks after sprigging or sodding turfgrass.
MCPA + triclopyr + dicamba COOL POWER	0.91-1.29 oz. of 3.6 lb./gal.	0.94-1.31 + 0.09-0.13 + 0.09-0.13	Broad spectrum of broadleaf weeds	Read the label. When treating dormant turf, use higher rate. When treating actively growing turf, use low rate. Turf injury will occur if application is made when turf is under stress. DO NOT reseed sooner than 3 to 4 weeks after application. DO NOT spray when air temperature is above 85°F. Cool Power contains the ester formulations primarily for use during the cool winter months.
HORSEPOWER	0.73-1.1 oz. of 4.4 lb./gal.	0.95-1.4 + 0.09-0.14 + 0.09-0.14		
MSMA MSMA TURF MSMA PLUS	0.92-1 oz. of 6 lb./gal. (2.5-2.67 pt.)	1.8-2	Crabgrass, dallisgrass, bahiagrass, goosegrass (seedling), nutsedge	Mow turfgrass to a height of 1 to 1.5 inches before application. Repeat applications at 7- to 10-day intervals are necessary. For dallisgrass and bahiagrass control, repeat applications on a 5-day interval. Adequate soil moisture gives best results. DO NOT water for 24 hours after application. Use on new plantings after several mowings. Nutsedge can be controlled with these rates if weeds are sprayed every 30 days throughout the growing season for 3 to 5 years. Zoysiagrass cultivars vary in tolerance to MSMA. "Meyer" is more tolerant than "Emerald" or "Matrella." DO NOT use on carpetgrass, centipede grass, or St. Augustinegrass.
metribuzin SENCOR 75DF	See label for rate to use.	0.25-0.5	Goosegrass	For use on established bermudagrass on golf course fairways, grounds, and lawns. Make application when turf is actively growing and not under stress conditions for postemergence control of goosegrass. Temporary discoloration of turf may result. See label for directions and rates for use on dormant bermudagrass. An application to dormant turf can provide postemergence control of henbit, common chickweed, and spurweed. See label for tank-mixing with MSMA.

Herbicide	Herbicide Rate		Weeds Controlled	Time of Application and Special Instructions
	Formulation per 1000 Square Feet	Lb. Active Ingredient per Acre		
ESTABLISHED BERMUDAGRASS AND/OR ZOYSIAGRASS (cont.)				
Postemergence (cont.)				
metsulfuron methyl MANOR 60WDG	0.005-0.02 oz. of 60 WDG (0.25-1 oz./A)	0.009- 0.0375	Bahiagrass, clover, chickweed, dandelion, spurge, wild garlic	Apply as a postemergence treatment to control target weeds. Add a non-ionic surfactant to spray mix at the rate of 1 quart per 100 gallons of spray mix. Use the low to medium rate to control many broadleaf weeds, but use the higher rate to control bahiagrass.
quinclorac DRIVE 75DF	0.367 oz. of 75DF (1 lb./A)	0.75	Torpedograss suppression	Requires two applications each year. DO NOT apply more than 1.5 pounds a.i. per acre per year. Must be applied with a methylated seed oil at a rate of 1.5 pints per acre to spray mix. DO NOT apply within root zone of ornamentals.
rimisulfuron TRANXIT GTA	1.3 g of 25DF (2 oz./A)	0.031	Annual bluegrass, perennial ryegrass, rough bluegrass (<i>Poa trivialis</i>)	Use on established bermudagrass ONLY . DO NOT apply to residential lawns. To control annual bluegrass in non-overseeded bermudagrass, apply 2 ounces per acre in November/December and again in February/March. If annual bluegrass population is heavy and plants are large, a single application of 4 ounces per acre can be made. Add a non-ionic surfactant with each application at the rate of 1 quart per 100 gallons of spray mix. To control perennial ryegrass and rough bluegrass overseeded in bermudagrass, apply Tranxit at a rate of 2 ounces per acre in the spring three to four weeks before the desired date for overseed removal. Add a non-ionic surfactant to the spray mix at a rate of 1 quart per 100 gallons. Repeat treatment in 3 weeks, if needed. See label for use on putting greens. See label for use on zoysia.
sulfosulfuron CERTAINTY	0.017-0.029 oz. of 75DF (0.75-1.25 oz./A)	0.035- 0.059	Yellow nutsedge, purple nutsedge, annual sedges, tall fescue	Apply postemergence to established bermudagrass and zoysiagrass to control listed weeds and other broadleaf weeds. A second application can be made 4 to 10 weeks after the initial treatment if needed. Add a non-ionic surfactant to spray mix at rate of 1 quart per 100 gallons of spray mix. Some turf yellowing can be expected. Certainty can be applied to dormant or actively growing bermudgrass (not overseeded) to control annual bluegrass. Use higher rate if annual bluegrass is heavy or dense. See label for fall application or for bermudagrass application prior to overseeding.

Herbicide	Herbicide Rate		Weeds Controlled	Time of Application and Special Instructions
	Formulation per 1000 Square Feet	Lb. Active Ingredient per Acre		
ESTABLISHED BERMUDAGRASS AND/OR ZOYSIAGRASS (cont.)				
Postemergence (cont.)				
triclopyr + clopyralid CONFRONT	0.37-0.75 oz. of 3 lb./gal. (1-2 pt./A)	0.375-0.75	Broad spectrum of broadleaf weeds	Apply to established bermudagrass and zoysiagrass mowed to a height taller than 0.5 inch. DO NOT apply in areas of shallow-rooted trees and shrubs. DO NOT apply more than 1.5 pounds a.i. (4 pints) per acre per year. Repeat treatments to control wild violets and woodsorrel. Some discoloration may be seen on hybrid bermudagrass. DO NOT reseed for 3 weeks after application. DO NOT apply to residential lawn areas. DO NOT compost treated lawn clippings.
trifloxysulfuron-sodium MONUMENT 75WG	0.007-0.013 oz. of 75WG (0.32-0.55 oz./A)	0.015- 0.026	Annual bluegrass, ryegrass, nutsedge, tall fescue, signalgrass, spurge, green kyllinga, clover	May be used in established bermudagrass and zoysiagrass. DO NOT apply to residential lawns. Add a non-ionic surfactant at the rate of 1 to 2 quarts per 100 gallons of spray mix. Control may not occur for up to 4 weeks after treatment. Repeat treatment may be necessary on difficult weeds in 4 to 6 weeks. At reduced rates (see label), Monument may be used to remove overseeded perennial ryegrass and <i>Poa trivialis</i> from bermudagrass during spring transition.
bispyribac-sodium VELOCITY 80SP	0.028 oz. of 80SP (1.2 oz./A)	0.06	Annual bluegrass	Apply to established bermudagrass overseeded with perennial ryegrass on golf course fairways. Apply between February 1 and March 15 to bermudagrass overseeded the previous fall with perennial ryegrass for annual bluegrass control and seedhead suppression. Earlier or later application may decrease efficacy or increase risk of ryegrass injury. The first application should be made just as soon as annual bluegrass seedheads begin to emerge. Make a second application at the same rate 14 to 21 days after the first application. DO NOT apply if air temperatures are less than 50°F or if maximum temperatures are expected to be less than 50°F for the first 3 days after treatment. Not recommended for applications above 80°F or when air temperatures are expected to exceed 80°F for the first 3 days after treatment. DO NOT apply to golf course greens, non-overseeded bermudagrass, or to ryegrass mowed less than 0.38 inch.

ESTABLISHED CENTIPEDEGRASS AND/OR ST. AUGUSTINEGRASS

Spray when weeds are actively growing, preferably when they are in seedling stage. Postemergence herbicides should be applied in 30 to 40 gallons of water per acre. A non-ionic surfactant at 0.5 percent of the spray solution (1 pint per 25 gallons) greatly increases control. Air temperatures in the 70-degree range are advisable. Application during dormancy

will minimize turf damage. For the sensitive grasses or for grasses growing under stress conditions (such as those growing in shade or in drought situations), use the lowest effective rate in split applications. Make two applications 10 to 14 days apart with each application using one-half of the lowest effective rate.

Table 3. Herbicide Postemergence Recommendations for Warm-Season Grasses (cont.)

Herbicide	Herbicide Rate		Weeds Controlled	Time of Application and Special Instructions
	Formulation per 1000 Square Feet	Lb. Active Ingredient per Acre		
ESTABLISHED CENTIPEDEGRASS AND/OR ST. AUGUSTINEGRASS				
Postemergence				
2,4-D + mecoprop + 2,4-DP TRIAMINE	See label.	See label.	Broad spectrum of weeds	DO NOT spray when air temperatures exceed 90°F or when turfgrass is growing under stress conditions. Delay reseeding for 4 weeks after treatment. Avoid applications when turfgrass is emerging from winter dormancy.
2,4-D + mecoprop + dicamba TRIMEC FOR BENTGRASS	2 T. of 0.5 + 1.5 + 0.2 lb./gal.	0.17 + 0.55 + 0.07	Broad spectrum of broadleaf weeds	Read label. DO NOT overdose or apply during hot summer months. Repeat after 3 weeks if necessary. Spraying while grass is dormant reduces possibility of injury. Temperature should be above 70°F, but below 85°F.
TRIMEC SOUTHERN FORMULA	2 t. of 1.5 + 2.77 + 0.31 lb./gal.	0.19 + 0.35 + 0.04		
2,4-D + MCPA + dicamba + carfentrazone SPEEDZONE SOUTHERN	See label.	See label.	Chickweed, clover, dollarweed, henbit, ground ivy, oxalis, spurge, red sorrel	Apply only to centipedegrass and common St. Augustinegrass. Controls a number of broadleaf weeds. May be applied as a single broadcast treatment or as sequential treatments with a 2- to 6-week time interval. DO NOT apply when day temperatures are below 50°F or above 85°F. May be applied to newly seeded areas after the second mowing or 4 weeks after sodding, sprigging, or plugging. DO NOT apply this product to Floratam, Bitterblue, or other improved varieties of St. Augustine.
asulam ASULAM 3.3	1.75 oz. of 3.3 lb./gal. (5 pt./A)	2	Crabgrass, goosegrass, sandbur	For sod production ONLY . Apply only to St. Augustinegrass. Make only one application per season in 20- to 50- gallons of water per acre. DO NOT add a surfactant.

Herbicide	Herbicide Rate		Weeds Controlled	Time of Application and Special Instructions
	Formulation per 1000 Square Feet	Lb. Active Ingredient per Acre		
ESTABLISHED CENTIPEDEGRASS AND/OR ST. AUGUSTINEGRASS (cont.)				
Postemergence (cont.)				
bentazon BASAGRAN T/O	1.5 T. of 4 lb./gal.	1	Yellow nutsedge	Apply when yellow nutsedge is actively growing under good moisture conditions. Make additional applications at intervals of 10 to 14 days until nutsedge is eliminated. DO NOT make more than three applications in a single growing season. Avoid spraying adjacent trees, shrubs, and flowers. DO NOT mow 3 to 5 days before or after application. Purple nutsedge will not be controlled by this treatment. Add a crop oil concentrate to spray mix at a rate of 2 pints per acre when making application to yellow nutsedge.
bromoxynil BUCTRIL 2E	0.75-1.5 T. of 2 lb./gal.	0.25-0.5	Many seedling broadleaf weeds	FOR NON-RESIDENTIAL TURF AND SOD PRODUCTION ONLY. Apply to established St. Augustinegrass to control seedling broadleaf weeds. Weeds must be actively growing, and good spray coverage is essential. Apply in 20 to 40 gallons of water per acre or in 0.5 to 1 gallon of water per 1000 square feet.
carfentrazone QUICKSILVER T&O	0.023-0.048 oz. of 1.9 lb./gal. (1-2.1 oz./A)	0.015-0.03	Numerous seedling broadleaf weeds	To expand the weed spectrum, QuickSilver may be tank-mixed with 2,4-D, 2,4-DP, and/or dicamba. Add a non-ionic surfactant at the rate of 1 to 2 pints surfactant per 100 gallons of spray mix.
clethodim ENVOY	0.4-0.8 fl.oz. of 0.94 lb./gal. (17-34 oz./A)	0.125- 0.25	Common bermudagrass	Use only on centipedegrass grown on sod farms. Add a non-ionic surfactant at rate of 1 quart per 100 gallons of spray mix. Two applications will be necessary for control. Make second application 3 to 4 weeks after the initial treatment when new growth (regrowth) is 1 to 2 inches tall. Use the high rate when treating established bermudagrass. Avoid mowing sod for one week before and after applications. DO NOT apply until 3 weeks after 100-percent green-up of centipedegrass in spring.
clopyralid LONTREL T&O	0.1-0.5 fl.oz. of 3 lb./gal. (0.25-1.33 pt.)	0.09-0.5	Clovers, black medic, dandelions, vetch, other broadleaf weeds	See label for specific rates for target pests. Can cause injury to desirable legumes and composite species. DO NOT irrigate for at least 2 hours after application. DO NOT apply to residential lawn areas. DO NOT compost treated lawn clippings.
dicamba VANQUISH 4S	1-2 t. of 4 lb./gal. (0.5-1 pt.)	0.25-0.5	Many broadleaf weeds	Apply to established centipedegrass only. DO NOT use within drip line of trees or shrubs. Follow label directions. Make only one application per year.

Herbicide	Herbicide Rate		Weeds Controlled	Time of Application and Special Instructions
	Formulation per 1000 Square Feet	Lb. Active Ingredient per Acre		
ESTABLISHED CENTIPEDEGRASS AND/OR ST. AUGUSTINEGRASS (cont.)				
Postemergence (cont.)				
fluroxypyr SPOTLIGHT	0.25-0.5 fl. oz. of 1.5 lb./gal. (0.67-1.33 pt./A)	0.125-0.25	Bedstraw, chickweed, Virginia buttonweed, clover, woodsorrel, ground ivy	Apply postemergence to established centipede grass and St. Augustine grass to control a number of annual and perennial broadleaf weeds. Use low rate on St. Augustine grass. Repeat treatment can be made 4 weeks after previous treatment. Do not apply more than 2.5 pints per acre per year. See label concerning need for addition of non-ionic surfactant.
halosulfuron SEDGEHAMMER 75DF	0.015-0.03 oz. of 75DF (0.67-1.33 oz./A)	0.031- 0.062	Yellow nutsedge, purple nutsedge	Apply to established centipede grass and St. Augustine grass. Apply after nutsedge has reached 3- to 8-leaf stage. Apply 2 quarts of non-ionic surfactant per 100 gallons of spray mix, but DO NOT exceed 2 pints of surfactant per acre. A second application can be made 6 to 10 weeks after the first one when nutsedge has three to eight leaves. DO NOT make more than two applications or apply more than 0.125 pound a.i. per acre.
imazaquin IMAGE 70DG	0.2-0.26 oz. of 70DG (8.6-11.4 oz./A)	0.375-0.5	Wild garlic, wild onion, nutsedge, sandbur, henbit, chickweed	Apply to well-established, actively growing turf when weeds are small. Add non-ionic surfactant to the spray solution at the rate of 2 pints per 100 gallons. A repeat treatment may be needed for season-long control. St. Augustine grass should not be mowed until 48 hours after application. DO NOT use on St. Augustine grass for winter weed control.
MCPA + MCPP + 2,4-DP TRIAMINE II	See label.	See label.	Broad spectrum of broadleaf weeds	Refer to appropriate label for use rate. DO NOT use when air temperature is above 85°F. Delay seeding for 4 weeks after treatment.
metsulfuron methyl MANOR 60WDG	0.005-0.02 oz. of 60WDG (0.25-1 oz./A)	0.009- 0.0375	Bahiagrass, clover, chickweed, dandelion, spurge, wild garlic	Apply as a postemergence treatment to control target weeds. DO NOT apply more than 0.01 ounce of Manor per 1000 square feet to centipede grass. Some yellowing and stunting may be observed. Add a non-ionic surfactant to spray mix at the rate of 1 quart per 100 gallons of spray mix. Use the low to medium rate (0.01 ounce per 1000 square feet) to control most broadleaf weeds and bahiagrass. Repeat treatment may be necessary in 4 to 6 weeks.

Herbicide	Herbicide Rate		Weeds Controlled	Time of Application and Special Instructions
	Formulation per 1000 Square Feet	Lb. Active Ingredient per Acre		
ESTABLISHED CENTIPEDEGRASS AND/OR ST. AUGUSTINEGRASS (cont.)				
Postemergence (cont.)				
sethoxydim VANTAGE 1EC SETHOXYDIM PRO	1-1.5 T. of 1 lb. EC	0.2-0.25	Crabgrass	Apply to seedling and established centipede grass only, but no sooner than 3 weeks after spring green-up. Apply low rate to seedling centipede and high rate to established centipede. Make application before crabgrass is well established. DO NOT mow turf area for 7 days before or after application. DO NOT make more than two applications per season. DO NOT add crop oil concentrate when making Vantage application. Add a crop oil concentrate to spray mix at a rate of 1 quart per 25 gallons of mix when making a Sethoxydim PRO application.
sulfosulfuron CERTAINTY	0.017-0.029 oz. of 75DF (0.75-1.25 oz./A)	0.035- 0.059	Yellow nutsedge, purple nutsedge, annual sedges	Apply postemergence to established centipede grass and St. Augustine grass to control listed sedges and broadleaf weeds. A second application can be made 4 to 10 weeks after the initial treatment if needed. Add a non-ionic surfactant to spray mix at rate of 1 quart per 100 gallons of spray mix. Some turf yellowing or stunting can be expected. DO NOT exceed 2.66 ounces per acre per year.
triclopyr + clopyralid CONFRONT	0.37-0.75 oz. of 3 lb./gal. (1-2 pt./A)	0.375- 0.75	Broad spectrum of broadleaf weeds	Apply to established centipede grass only. DO NOT apply in areas of shallow-rooted trees and shrubs. DO NOT apply more than 1.5 pounds a.i. per year. Repeat treatments to control wild violets and woodsorrel. DO NOT use on residential lawn areas. DO NOT compost treated lawn clippings.

Table 4. Herbicide Postemergence Recommendations for Cool-Season Grasses

Herbicide	Herbicide Rate		Weeds Controlled	Time of Application and Special Instructions
	Formulation per 1000 Square Feet	Lb. Active Ingredient per Acre		
ESTABLISHED KENTUCKY BLUEGRASS, FESCUES, AND RYEGRASS				
Postemergence				
2,4-D + clopyralid + dicamba MILLENNIUM ULTRA	0.73-1.1 oz. of 3.75 lb./gal. (2-3 pt./A)	0.75-1.12 + 0.09-0.14 + 0.09-0.14	Broad spectrum of broadleaf weeds	Read the label. When treating grass growing under stress conditions, use half rates. Slight yellowing of turf will disappear after one week. To minimize turf injury, a second application should not be made for at least 4 weeks. DO NOT spray when air temperatures exceed 90°F. DO NOT reseed for 3 to 4 weeks after application. DO NOT apply to residential lawn areas. DO NOT compost treated lawn clippings.
2,4-D + dicamba + fluroxypyr ESCALADE	0.75-1.1 oz. of 4.4 lb/gal. (2-3 pt./A)	0.8-1.2 + 0.1-0.15 + 0.2-0.3	Broad spectrum of broadleaf weeds	Apply to actively growing established fescue and Kentucky bluegrass. Use low rate on closely mowed turf or turf under stress. Some turf yellowing can be expected. To minimize grass injury, retreatment should not occur until later than 4 weeks after initial treatment. See label for reduced rate and timings of use on sod farms.
2,4-D + MCPP + dicamba TRIMEC CLASSIC (Other trade names)	Follow label directions on Trimec or equivalent.	*See Special Instructions.	Broad spectrum of broadleaf weeds including wild garlic and onion	*DO NOT apply more than 1 pound of 2,4-D per acre per application. DO NOT use within the dripline of trees or shrubs. Avoid spraying during long periods of dry or hot weather. Reseeding can occur 4 weeks after treatment. Make no more than two applications per year.
2,4-D + MCPP + dicamba + sulfentrazone SURGE	1.2-1.5 fl.oz. of 2.18 lb./gal. (3.25-4 pt./A)	0.57-0.7 + 0.2-0.25 + 0.09-0.11 + 0.02-0.03	Broad spectrum of broadleaf weeds	Apply to established cool season perennial turfgrasses. Sequential broadcast treatment can be made 2 to 6 weeks later depending on weed growth. Make only two applications per year. DO NOT apply if air temperature exceeds 90°F.

Herbicide	Herbicide Rate		Weeds Controlled	Time of Application and Special Instructions
	Formulation per 1000 Square Feet	Lb. Active Ingredient per Acre		
ESTABLISHED KENTUCKY BLUEGRASS, FESCUES, AND RYEGRASS (cont.)				
Postemergence (cont.)				
bentazon BASAGRAN T/O	1.5 T. of 4 lb./gal.	1	Yellow nutsedge	Apply when yellow nutsedge is actively growing under good moisture conditions. Make additional applications at intervals of 10 to 14 days until nutsedge is eliminated. DO NOT make more than three applications in a single growing season. Avoid spraying adjacent trees, shrubs, and flowers. DO NOT mow 3 to 5 days before or after application. Purple nutsedge will not be controlled by this treatment. Add a crop oil concentrate to the spray mix at a rate of 2 pints per acre when making application to yellow nutsedge.
carfentrazone QUICKSILVER T&O	0.023-0.048 oz. of 1.9 lb./gal. (1-2.1 oz./A)	0.015-0.03	Numerous seedling broadleaf weeds	To expand the weed spectrum, QuickSilver may be tank-mixed with 2,4-D, 2,4-DP, and dicamba. Add a non-ionic surfactant at the rate of 1 to 2 pints surfactant per 100 gallons of spray mix.
chlorsulfuron CORSAIR 75WDG	0.06-0.12 oz. of 75WDG	0.13-0.25	Tall fescue, wild onion, wild violet	Apply as a postemergence spot treatment to established Kentucky bluegrass or fine fescue turf. Spray ONLY to wet the tall fescue blades. Avoid over-application. Repeat treatment may be needed in 60 days. DO NOT apply under desirable trees. Add a non-ionic surfactant to spray mix at rate of 1 quart per 100 gallons of spray mix.
clopyralid LONTREL T&O	0.1-0.5 fl.oz. of 3 lb./gal. (0.25-1.33 pt.)	0.09-0.5	Black medic, clovers, dandelions, vetch, other broadleaf weeds	See label for specific rate for target pest. Can cause injury to desirable legumes and composite species. DO NOT irrigate for at least 2 hours after application. DO NOT apply to residential lawn areas. DO NOT compost treated lawn clippings.
ethofumesate PROGRASS EC	3 T. of 4 lb./gal. (2 qt./A)	2	Annual bluegrass, common chickweed	Use ONLY on established perennial ryegrass. Apply in early fall (September) about the time of annual bluegrass germination. One to two additional applications at 21- to 28-day intervals may be needed to maintain control. Provides postemergence and preemergence control of listed weeds. May be used during the establishment of perennial ryegrass. See label for additional instructions.

Herbicide	Herbicide Rate		Weeds Controlled	Time of Application and Special Instructions
	Formulation per 1000 Square Feet	Lb. Active Ingredient per Acre		
ESTABLISHED KENTUCKY BLUEGRASS, FESCUES, AND RYEGRASS (cont.)				
Postemergence (cont.)				
fenoxaprop ACCLAIM EXTRA	2-5 t. of 0.57 lb. (13-38 oz./A)	0.06-0.17	Crabgrass, goosegrass, barnyardgrass, johnsongrass, common bermudagrass	Apply Acclaim in late spring or early summer to actively growing weedy grasses in the 3-leaf (low rate) to 5-tiller (high rate) growth stage. Apply with 30 to 60 gallons of water per acre at 30 to 60 psi. Add a non-ionic surfactant (1 quart per 100 gallons) if application is made using a spray pressure less than 30 psi or when spray volumes are larger than 60 gallons per acre. Spray intervals should be greater than 14 days. DO NOT apply more than 120 ounces per acre per year. Tank-mixing Acclaim with phenoxy or related herbicides will reduce grass control on larger (tillered) grasses. Acclaim will not control annual bluegrass.
halosulfuron SEDGEHAMMER 75DF	0.015-0.03 oz. of 75DF (0.67-1.33 oz./A)	0.031- 0.062	Yellow nutsedge, purple nutsedge	Apply to established tall fescue, Kentucky bluegrass, and perennial ryegrass. Apply after nutsedge has reached 3- to 8-leaf stage. Apply 2 quarts of non-ionic surfactant per 100 gallons of spray mix, but DO NOT exceed 2 pints of surfactant per acre. A second application can be made 6 to 10 weeks after the first one when nutsedge has three to eight leaves. DO NOT make more than two applications or apply more than 0.125 pound a.i. per acre.
MCPA + MCPP + 2,4-DP TRIAMINE II	See label.	See label.	Broad spectrum of broadleaf weeds	For tall fescue and Kentucky bluegrass. Refer to label for recommended rates. DO NOT use when air temperature is greater than 85°F. Delay reseeding for 4 weeks after treatment.
MCPA + MCPP + dicamba TRI-POWER	See label.	See label.	Broad spectrum of broadleaf weeds	For tall fescue and Kentucky bluegrass. Refer to appropriate label for use rates. DO NOT use when air temperature is above 85°F. Delay reseeding for 3 to 4 weeks after treatment.

Herbicide	Herbicide Rate		Weeds Controlled	Time of Application and Special Instructions
	Formulation per 1000 Square Feet	Lb. Active Ingredient per Acre		
ESTABLISHED KENTUCKY BLUEGRASS, FESCUES, AND RYEGRASS (cont.)				
Postemergence (cont.)				
MCPA + triclopyr + dicamba COOL POWER	0.91-1.29 oz. of 3.6 lb./gal.	0.94-1.31 + 0.09-0.13 + 0.09-0.13	Broad spectrum of broadleaf weeds	Read the label. When treating dormant turf, use higher rate. Turf injury will occur if application is made when turf is under stress. DO NOT reseed sooner than 3 to 4 weeks after application. DO NOT spray when air temperature is above 85°F. Cool Power contains the ester formulations primarily for use during the cool winter months.
HORSEPOWER	0.73-1.10 oz. of 4.4 lb./gal.	0.95-1.4 + 0.09-0.14 + 0.09-0.14		
metsulfuron methyl MANOR 60WDG	0.005-0.01 oz. of 60WDG (0.25-0.5 oz./A)	0.009-0.018	Bahiagrass, clover, chickweed, dandelion, spurge, wild garlic	Apply as a postemergence treatment to control target weeds in fine fescues and Kentucky bluegrass. DO NOT apply to tall fescue or ryegrass turf. Some yellowing and stunting may be observed in fine fescues and Kentucky bluegrass. Add a non-ionic surfactant to spray mix at the rate of 1 quart per 100 gallons of spray mix. Repeat treatments may be necessary in 4 to 6 weeks.
quinclorac DRIVE 75 DF	0.367 oz. of 75DF (1 lb./A)	0.75	Torpedograss suppression	Requires two applications each year. DO NOT apply more than 1.5 pound a.i. per acre in one year. Must be applied with a methylated seed oil at rate of 1.5 pints per acre to spray mix. DO NOT apply within root zone of ornamentals.
quinclorac + sulfentrazone + 2,4-D + dicamba Q4 TURF HERBICIDE	2.6-3 fl.oz of 1.54 lb./gal. (7-8 pt./A)	0.44-0.5 + 0.05-0.06 + 0.77-0.88 + 0.09-0.10	Broadleaf weeds, few grasses; suppression of yellow nutsedge	Apply to established cool season perennial grasses. Sequential treatment can be made 14 to 21 days after initial application. Make only two applications per year. DO NOT apply if air temperature exceeds 90°F.
triclopyr + clopyralid CONFRONT	0.37-0.75 fl.oz. of 3 lb./gal. (1-2 pt./A)	0.375-0.75	Broad spectrum of broadleaf weeds	Apply to tall fescue, Kentucky bluegrass, and perennial ryegrass. Repeat treatments will be necessary to control wild violets and woodsorrel. Mow newly seeded turf two to three times before treatment. DO NOT water for 24 hours after applying. DO NOT apply to exposed roots of shallow-rooted trees and shrubs. DO NOT reseed for 3 weeks after application. DO NOT apply to residential lawn areas. DO NOT compost treated lawn clippings.

Table 5. Herbicide Postemergence Recommendations for Special Problems

Herbicide	Herbicide Rate		Weeds Controlled	Time of Application and Special Instructions
	Formulation per 1000 Square Feet	Lb. Active Ingredient per Acre		
glufosinate FINALE	2.2-4.4 oz. of 1 lb./gal.	0.75-1.5	Most annual broadleaf weeds and grasses	Non-selective weed control around buildings, fencerows, parking lots, ditch banks, and other public areas.
glyphosate ROUNDUP PRO ROUNDUP ORIGINAL Generics	4-6 T. of 4 lb./gal.	3-4 (isopropyl-amine salt)	Most annual and perennial broadleaf and grass weeds such as bermudagrass, bahiagrass, johnsongrass, honeysuckle, kudzu, nutsedge, etc.	Non-selective weed control around buildings, fencerows, airports, parking areas, schools, parks, golf courses, and other public areas. Avoid drift to non-target plants. DO NOT use galvanized (zinc-coated) spray equipment. Weeds MUST be actively growing. Best results are obtained in mid to late summer. Control is slow. No residual activity. Refer to label for need and rate of surfactant.
paraquat GRAMOXONE INTEON 2.0	1.5-3 T. of 2 lb./gal.	0.5-1	Most annual broadleaf and grass weeds; top-kill of perennials	Non-selective weed control around buildings, fencerows, power plants, and other similar noncrop areas. This is a RESTRICTED USE pesticide. Avoid contact with foliage of ornamentals or other desirable plants. Add a non-ionic surfactant to spray mix at rate of 1 quart per 100 gallons of spray mix.

Table 6. Estimated Control from Preemergence Herbicides^{1, 2}

Weeds	Herbicides							
	atrazine	benefin	bensulide	benefin + oryzalin	benefin + trifluralin	dithiopyr	isoxaben	metolachlor
Annual Bluegrass	G	G	G	G	G	E	N	F
Chickweed	E	N	F	F	G	---	E	---
Clovers	G	N	N	N	---	---	G	---
Crabgrass	F	G	E	E	G	E	N	G
Dandelion	---	N	N	N	N	---	G	N
Dichondra	E	N	N	N	N	N	---	N
Florida Betony	E	N	N	N	N	N	---	N
Goosegrass	F	F	F	F	G	G	---	F
Ground Ivy	G	N	N	N	N	N	---	N
Henbit	E	N	N	N	---	---	G	---
Lawn Burweed	G	N	N	N	N	N	---	---
Lespedeza	G	N	N	N	N	N	---	---
Pennywort	G	N	N	N	N	N	G	N
Plantain	---	N	N	N	N	N	G	---
Prostrate Spurge	---	N	N	N	N	---	F	N
Woodsorrel	G	N	N	N	N	N	G	---

continued¹ E = Excellent; G = Good; F = Fair; N = No control; --- = Data not available.² Adapted from information contained in *Turf Weed Control Guidelines for Mississippi*, Mississippi State University Extension Service and Mississippi Agricultural and Forestry Experiment Station, Mississippi State, MS 39762.

Table 6. Estimated Control from Preemergence Herbicides^{1,2} (cont.)

Weeds	Herbicides						
	oryzalin	oxadiazon	oxadiazon + prodiamine	pendimethalin	prodiamine	pronamide	simazine
Annual Bluegrass	E	G	G	E	E	E	E
Chickweed	G	F	F	G	---	F	E
Clovers	N	N	---	N	---	---	F
Crabgrass	E	G	E	E	E	N	F
Dandelion	N	N	N	N	N	N	F
Dichondra	N	N	N	N	N	N	N
Florida Betony	N	N	N	N	N	N	---
Goosegrass	G	E	E	G	E	---	N
Ground Ivy	N	N	N	N	N	N	G
Henbit	N	G	---	N	---	---	E
Lawn Burweed	N	F	N	N	---	---	E
Lespedeza	N	---	N	N	N	---	F
Pennywort	N	N	N	N	N	N	N
Plantain	N	N	N	N	N	N	F
Prostrate Spurge	N	G	F	F	---	---	G
Woodsorrel	F	G	F	F	F	---	G

¹ E = Excellent; G = Good; F = Fair; N = No control; --- = Data not available.

² Adapted from information contained in *Turf Weed Control Guidelines for Mississippi*, Mississippi State University Extension Service and Mississippi Agricultural and Forestry Experiment Station, Mississippi State, MS 39762.

Table 7. Estimated Control from Postemergence Herbicides^{1, 2}

Weeds	Herbicides							
	asulam	atrazine	bentazon	clethodim	clopyralid	clopyralid + triclopyr	2,4-D	2,4-D + mecoprop
Annual Bluegrass	---	E	N	F	N	N	N	N
Bahiagrass	---	N	N	---	N	N	N	N
Chickweed	G	E	N	N	---	E	F	G
Clovers	---	G	N	N	E	E	N	G
Crabgrass	G	F	N	G	N	N	N	N
Dallisgrass	N	N	N	N	N	N	N	N
Dandelion	---	F	---	N	F	E	E	E
Dichondra	---	N	---	N	---	---	F	G
Florida Betony	---	F	---	N	---	---	N	F
Goosegrass	F	N	N	F	N	N	N	N
Ground Ivy	---	G	---	N	---	G	G	---
Henbit	---	E	---	N	---	E	F	G
Lawn Burweed	---	E	---	N	---	---	F	F
Lespedeza	---	F	N	N	---	---	F	G
Nutsedge, Purple	N	N	N	N	N	N	N	N
Nutsedge, Yellow	N	N	E	N	N	N	N	N
Pennywort	---	F	---	N	---	---	---	---
Plantain	---	F	---	N	G	F	E	G
Prostrate Spurge	---	G	---	N	N	E	N	F
Virginia Buttonweed	---	N	N	N	---	F	N	F
Wild Garlic	---	N	---	N	N	F	F	F
Woodsorrel	---	G	---	N	---	---	N	N

continued

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Table 7. Estimated Control from Postemergence Herbicides^{1,2} (cont.)

Weeds	Herbicides								
	2,4-D + dicamba	2,4-D + mecoprop + dicamba	diclofop	dicamba	fenoxa-prop	fluroxypyr	halosulfuron	imazaquin	mecoprop
Annual Bluegrass	N	N	---	N	---	---	N	N	N
Bahiagrass	N	N	N	N	N	---	N	---	N
Chickweed	G	E	N	E	N	E	---	G	G
Clovers	E	E	N	E	N	E	---	---	E
Crabgrass	N	N	---	N	E	---	N	---	N
Dallisgrass	N	N	N	N	N	---	N	N	N
Dandelion	E	E	N	G	N	F	N	F	F
Dichondra	G	G	N	G	N	---	N	---	N
Florida Betony	G	G	N	G	N	F	N	---	N
Goosegrass	N	N	E	N	G	---	N	N	N
Ground Ivy	---	G	N	---	N	G	---	---	N
Henbit	G	E	N	E	N	F	N	F	F
Lawn Burweed	G	G	N	G	N	---	---	---	N
Lespedeza	G	G	N	E	N	---	N	---	G
Nutsedge, Purple	N	N	N	N	N	---	E	E	N
Nutsedge, Yellow	N	N	N	N	N	---	E	E	N
Pennywort	---	---	N	---	N	---	N	---	N
Plantain	G	G	N	F	N	F	N	---	F
Prostrate Spurge	G	G	N	F	N	---	N	---	N
Virginia Buttonweed	G	G	N	F	N	G	N	---	N
Wild Garlic	F	F	N	F	N	---	---	E	N
Woodsorrel	F	F	N	G	N	E	N	F	F

continued¹ E = Excellent; G = Good; F = Fair; N = No control; --- = Data not available.² Adapted from information contained in *Turf Weed Control Guidelines for Mississippi*, Mississippi State University Extension Service and Mississippi Agricultural and Forestry Experiment Station, Mississippi State, MS 39762.

Table 7. Estimated Control from Postemergence Herbicides^{1,2} (cont.)

Weeds	Herbicides						
	metribuzin	metsulfuron	MSMA	MSMA + metribuzin	rimsulfuron	sethoxydim	simazine
Annual Bluegrass	G	N	N	N	E	F	E
Bahiagrass	---	E	F	F	---	F	N
Chickweed	G	G	N	N	---	N	E
Clovers	N	G	N	N	---	N	G
Crabgrass	N	N	E	E	---	G	F
Dallisgrass	N	N	E	E	---	N	N
Dandelion	N	G	N	N	---	N	F
Dichondra	N	---	N	N	---	N	N
Florida Betony	N	G	N	N	---	N	---
Goosegrass	N	N	F	E	---	F	N
Ground Ivy	G	G	N	G	E	N	N
Henbit	G	G	N	N	---	N	E
Lawn Burweed	G	---	N	N	G	N	E
Lespedeza	N	G	N	F	---	N	F
Nutsedge, Purple	N	N	F	F	---	N	N
Nutsedge, Yellow	N	N	F	F	---	N	N
Pennywort	N	N	F	E	---	N	N
Plantain	N	G	N	N	---	N	F
Prostrate Spurge	N	G	N	N	---	N	G
Virginia Buttonweed	N	---	N	N	---	N	N
Wild Garlic	N	N	N	N	---	N	N
Woodsorrel	N	G	N	N	---	N	G

continued¹ E = Excellent; G = Good; F = Fair; N = No control; --- = Data not available.² Adapted from information contained in *Turf Weed Control Guidelines for Mississippi*, Mississippi State University Extension Service and Mississippi Agricultural and Forestry Experiment Station, Mississippi State, MS 39762.

Table 7. Estimated Control from Postemergence Herbicides^{1,2} (cont.)				
Weeds	Herbicides			
	2,4-D + dicamba + fluroxypyr	bispyribac	carfentrazone	sulfosulfuron
Annual Bluegrass	N	G	N	G
Bahiagrass	N	N	N	N
Chickweed	E	E	G	G
Clovers	E	E	G	E
Crabgrass	N	N	N	N
Dallisgrass	N	N	N	N
Dandelion	E	F	G	---
Dichondra	---	---	---	---
Florida Betony	G	N	---	---
Goosegrass	N	N	N	N
Ground Ivy	G	---	G	---
Henbit	E	E	G	G
Lawn Burweed	G	G	---	---
Lespedeza	G	---	---	F
Nutsedge, Purple	N	N	N	G
Nutsedge, Yellow	N	---	N	G
Pennywort	F	N	---	---
Plantain	G	G	---	---
Prostrate Spurge	G	---	E	---
Virginia Buttonweed	F	N	N	N
Wild Garlic	---	N	---	N
Woodsorrel	G	F	---	---

¹ E = Excellent; G = Good; F = Fair; N = No control; --- = Data not available.

² Adapted from information contained in *Turf Weed Control Guidelines for Mississippi*, Mississippi State University Extension Service and Mississippi Agricultural and Forestry Experiment Station, Mississippi State, MS 39762.

Table 8. Tolerance of Established Turfgrasses to Herbicides and Properties That May Affect Water Quality ¹

ESTABLISHED TURF	HERBICIDES						
	atrazine (PRE)	bensulide (PRE)	dithiopyr (PRE)	isoxaben (PRE)	oxadiazon (PRE)	prodiamine (PRE)	simazine (PRE)
WARM SEASON							
Bahiagrass	I-S	T	---	T	---	T	I-S
Bermudagrass	I-D	T	T	T	T	T	I-D
Centipedegrass	T	T	T	T	T	T	T
St. Augustinegrass	T	T	T	T	T	T	T
Zoysiagrass	I	T	T	T	---	T	I
COOL SEASON							
Kentucky Bluegrass	S	T	T	T	---	T	S
Red Fescue	S	T	---	T	---	T	S
Tall Fescue	S	T	T	T	---	T	S
Surface-Loss Potential²	M	L	---	---	---	---	M
Leaching Potential³	M	S	---	---	---	---	M

continued

¹ Ratings are based on observations of research plots and field use of herbicides under average weather conditions for several year sby weed control workers in Alabama. Control may vary depending on factors such as time and method of application, weather conditions, size of weeds, etc. Leaching and surface-loss potential ratings are based in part on herbicide chemical characteristics and pesticide behavior models developed by USDA scientists as well as on field observations.

² The surface-loss potential indicates the tendency of the pesticide to move with sediment in runoff.

³ The leaching potential indicates the tendency of the pesticide to move in solution with water and to leach below the root zone.

KEY TO RATINGS AND ABBREVIATIONS

T = Tolerant.

I = Intermediately tolerant; use herbicide with care.

S = Sensitive; do not use this herbicide.

D = Dormant grasses tolerant to this herbicide; will kill growing plants.

--- = Information not available.

PRE = Preemergence

Surface-Loss & Leaching Potentials:

S = Small

M = Medium

L = Large

NOTE: Some of the above combinations show a tolerance rating although such usage is not currently labeled.

Table 8. Tolerance of Established Turfgrasses to Herbicides and Properties That May Affect Water Quality¹ (cont.)

ESTABLISHED TURF	HERBICIDES							
	pronamide (PRE, POST)	2,4-D (POST)	bentazon (POST)	clethodim (POST)	clopyralid (POST)	dicamba (POST)	fluroxypyr (POST)	glyphosate (POST)
WARM SEASON								
Bahiagrass	---	T	T	S	T	T	S	S
Bermudagrass	T	T	T	S	T	T	I	S
Centipedegrass	I	I	T	T	T	I	T	S
St. Augustinegrass	I	I	T	S	T	S	I	S
Zoysiagrass	I	T	T	S	T	T	T	S
COOL SEASON								
Kentucky Bluegrass	S	I	T	S	T	I	T	S
Red Fescue	S	I	T	S	T	I	I	S
Tall Fescue	S	T	T	S	T	T	T	S
Surface-Loss Potential²	L	S	S	M	---	M	---	S
Leaching Potential³	S	M	M	S	---	L	---	S

continued

¹ Ratings are based on observations of research plots and field use of herbicides under average weather conditions for several years by weed control workers in Alabama. Control may vary depending on factors such as time and method of application, weather conditions, size of weeds, etc. Leaching and surface-loss potential ratings are based in part on herbicide chemical characteristics and pesticide behavior models developed by USDA scientists as well as on field observations.

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L = Large

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Table 8. Tolerance of Established Turfgrasses to Herbicides and Properties That May Affect Water Quality ¹ (cont.)

ESTABLISHED TURF	HERBICIDES					
	halosulfuron (POST)	imazaquin (POST)	MSMA (POST)	mecoprop (POST)	metribuzin (POST)	sethoxydim (POST)
WARM SEASON						
Bahiagrass	T	I	I-S	T	I	S
Bermudagrass	T	T	T	T	T	S
Centipedegrass	T	T	S	I	S	T
St. Augustinegrass	T	T	S	I	S	S
Zoysiagrass	T	T	T	T	S	S
COOL SEASON						
Kentucky Bluegrass	T	S	T	T	S	S
Red Fescue	T	S	I	T	S	S
Tall Fescue	T	S	T	T	S	S
Surface-Loss Potential²	---	M	S	S	M	M
Leaching Potential³	---	M	S	L	M	S

¹ Ratings are based on observations of research plots and field use of herbicides under average weather conditions for several years by weed control workers in Alabama. Control may vary depending on factors such as time and method of application, weather conditions, size of weeds, etc. Leaching and surface-loss potential ratings are based in part on herbicide chemical characteristics and pesticide behavior models developed by USDA scientists as well as on field observations.

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L = Large

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2008IPM-22

For more information, call your county Extension office. It is listed in your telephone directory under your county's name.

Use pesticides **only** according to the directions on the label. Follow all directions, precautions, and restrictions that are listed. Do not use pesticides on plants that are not listed on the label.

The pesticide rates in this publication are recommended **only** if they are registered with the Environmental Protection Agency or the Alabama Department of Agriculture and Industries. If a registration is changed or cancelled, the rate listed here is no longer recommended. Before you apply **any** pesticide, check with your county Extension agent for the latest information.

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