

POSTEMERGENCE HERBICIDES (Refer to Herbicide Label for Specific Turf Species Use Listing)¹

COMMON NAME (lbs ai/acre)	TRADE NAME (product rate/acre)	WEEDS CONTROLLED	TURFGRASS USE	COMMENTS
Amicarbazone (0.044 to 0.175)	Xonerate 70WDG (1 to 4 oz)	Annual bluegrass, some broadleaf weeds (refer to the label), blanket crabgrass	All warm-season turfgrasses. Most cool-season turfgrasses established for at least 6 months.	For selective <i>Poa annua</i> control in creeping bentgrass, up to 4 applications spaced 7 days apart at 1 oz/acre each are used starting in late winter 2 to 4 following active <i>Poa</i> growth when temperatures are between 50 & 75F. On overseeded ryegrass, apply once regrowth resumes in late winter at 2 to 4 oz/acre. Repeat in 2 to 3 weeks. Repeat applications should be perpendicular to the initial, minimizing overlaps in at least 20 GPA. Adding a NIS is optional. Bentgrass areas can be reseeded 7 days following the last application. Treat only when temperatures are between 50 and 80 F. Three to 5 oz/acre may be used in St. Augustinegrass for blanket crabgrass control. Maximum use rate per season is 10 total oz/acre. Do not use mefluidide before or tank-mixed with amicarbazone. Read label closely before using on tall fescue or Ky. bluegrass. Triazolone herbicide.
2,4-D Amine (½ to 1 lb) See product label.	Several Brands	Many broadleaf weeds including matchweed, dandelion, pennywort, (dollarweed), wild garlic/onion, clover, chickweed, pearlwort, plantains, buttonweed. 2,4-DB alone will not adequately control leguminous weeds.	Bahiagrass Bermudagrass Kentucky bluegrass Ryegrass Tall fescue Zoysiagrass	Apply when weeds are young and actively growing. Repeat application in 10 to 14 days may be necessary for complete control. Use lower rates (0.5 lb ai/A) on 'Tifgreen' and 'Tifdwarf' Bermudagrass. Amine formulations should be used near ornamentals as volatile ester formulations have drift and volatility problems. Use low rate on centipedegrass, bluegrass, fescue, and carpetgrass. Not recommended on St. Augustinegrass. For hard-to-control perennial broadleaf weeds like buttonweed, white clover, henbit, and chickweed, formulations containing dicamba and a wetting agent will increase control. Repeat in 3 to 6 weeks. Low volatile ester formulations at the high rate are best for wild garlic/onion control. For this, apply in December and early March. Repeat in 3 weeks. Phenoxy herbicides.
2,4-D + 2,4-DP (0.7 to 0.9 each) See product label.	Weedone DPC (3 to 4 pts)			
dicamba (⅔ to ½ lbs) See product label.	Vanquish 4S (¼ to 1 pts) plus others	White clover, spurge, woodsorrel, dichondra, wild onions, henbit, knotweed, lespezeza, docks, + others		Avoid drift. Often effective on weeds not controlled by 2,4-D such as henbit, knotweed, clovers, lespezeza, docks, and woodsorrel, therefore, is used in many 2- and 3-way mixtures. Do not apply within the root zone of ornamentals as dicamba may leach and damage desirable plants. Repeat applications 10 to 14 days apart may be needed for complete control but may also result in some turf injury. Check label for use on greens; may be used on bentgrass tees & fairways. Use low rate on cool-season grasses. Benzoic acid herbicide.
dicamba (⅔ lbs) + 2,4-D, MCP, MCPA, 2,4-DP (½ to ¾ lbs) &/or clopyralid, triclopyr, fluroxypyr, quinclorac, carfentrazone, sulfentrazone, pyraflufen	Many brands contain these mixtures. See product label for specific rates.	Same as for dicamba, also matchweed, clover, spurge, pennywort and others.		Same as for dicamba. Refer to product label for rates as herbicide ratios vary between brands. Use only on actively growing, non-stressed turf. Use low rates on cool-season grasses. Check label for use on golf greens. Mecomec 4 (¾ fl oz/1000 sq.ft.) and MCP-4 amine (¾ fl oz/1000 sq.ft.) are MCP formulations labeled for greens. Triplet (¾ fl oz/1000 sq.ft.), Bentgrass Selective (1 fl oz/1000 sq.ft.), and Trimec Bentgrass (1 fl oz/1000 sq.ft.) are MCP + 2,4-D + dicamba formulations for greens, yellowing may occur.

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carfentrazone (0.0022 to 0.031 lbs)	QuickSilver 1.9 EC (0.55 to 2.1 fl oz)	Broadleaf weeds such as chickweed, white clover, dandelion, spurge, corn speedwell and plantain		Weed control is best when applied to small actively growing weeds (1-4 inches in height). This product is a contact herbicide with little to no residual activity. Can be used on centipedegrass and St. Augustinegrass (use low rate). For more advanced weeds and broader weed spectrum, this product can be tank mixed with 2,4-D, dichloprop, dicamba, MCPP, MCPA and atrazine. Use rates less than 1 fl oz/a when in combination with other herbicides. Maximum rate is 2.1 fl oz/a and a maximum of 3 broadcast applications per year per application site. Do not apply to hybrid bermudagrass or carpetgrass.
clopyralid (0.09 to 0.5 lbs)	Lontrel T&O 3L (¼ to 1.33 pts)	Broadleaf weeds, especially legumes such as clovers, vetch, and medic. Also for dock, speedwell, ragweed, and plantain.		Contains no 2,4-D. Safe on all warm- and cool-season turfgrasses but use high rates only on cool-season turfgrasses. Available for bentgrass fairways. Expect short-term phytotoxicity to warm-season grasses. Aster & legumes are especially susceptible. Not labeled for golf greens or tees or for residential turf. Do not use treated clippings for mulching and compost. Use only on grass mowed >½-inch. Picolinic acid herbicides.
clopyralid + triclopyr (0.09-0.19 + 0.28-0.56)	Confront 3L (1 to 2 pts)			
fluroxypyr (0.125 to 0.5 lbs)	Spotlight 1.5L (0.66 to 2.66 pts)	Broadleaf weeds such as white/hop clover, ground ivy, chickweed, henbit, dandelion, plantain, purple deadnettle, woodsorrel, annual lespedeza and other broadleaf weeds		Weed control spectrum increases when tank-mixed with 2,4-D, MCPP, triclopyr, &/or dicamba. Note label rate restrictions for use on bentgrass, St. Augustinegrass, zoysiagrass and centipedegrass. Safe on most warm- and cool-season turfgrasses. Not labeled for golf greens or tees. Avoid treating to exposed suckers or exposed roots of trees and ornamentals. Do not use on newly seeded turfgrasses until they have been mowed at least twice. Pyridine herbicide. Bastion T, Battleship III, Chaser Ultra 2 Selective Herbicide, Escalade 4.4L and Escalade Low Odor 4.4L are pre-tank mixtures of fluroxypyr plus 2,4-D, 2,4-DP, MCPP, MCPA, triclopyr &/or dicamba.
fluroxypyr + triclopyr (0.5 to 1.0 lb)	Tailspin 1.33L (3 to 6 pts)	Numerous broadleaf weeds such as black medic, clover, woodsorrel, Vetch spp. plantain, Buttonweed, Veronica spp.	Cool-season turfgrasses only	See comments for fluroxypyr and triclopyr. Not for use on greens or tees. Controls many tough broadleaf weeds. Some injury to bentgrass may occur.
iodosulfuron + dicamba + thien carbazole (0.11 to 0.21 lbs)	Celsius 68WDG (2.5 to 4.9 oz)	Broadleaf weeds like medic, geranium, clover, speedwell, dandelion, dollarweed, doveweed, burweed, spurge, others + carpetgrass.	Bermudagrass, Buffalograss, Centipedegrass, St. Augustinegrass, Zoysiagrass	Maximum yearly use rate of 7.4 oz/acre. Not for golf greens or collars or non-established turf. Do not use on desirable bahiagrass or cool-season turfgrasses. Do not use within 14 days of overseeding with ryegrass or sprigging with bermudagrass, or 30 days prior to seeding bermuda or zoysiagrass. For dallisgrass suppression, tank-mix (up to 0.11 oz) with foramsulfuron (Revolver 0.19L) at 2 fl oz per gallon water. Spot treat in late summer, repeat in 14 days.
foramsulfuron + halosulfuron + thien carbazole-methyl (0.038 to 0.121 lb)	Tribute Total 61WDG (1 to 3.2 oz)	Early crabgrass, goosegrass plus many annual broadleaf weeds, sedges/kyllinga, ryegrass, fescue clumps, dallisgrass suppression,	Bermudagrass Zoysiagrass	For dallisgrass suppression, late summer (Sept. Oct.) treatments are best. Two applications at the high rate, 30 days apart are needed. Repeat for at least 1 additional year. Good soil moisture at the time of treatment is needed. Add MSO or NIS at 0.25% v/v. Sulfonyleurea, sulfonylaminocarbonyl triazolinone.

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flumioxazin (0.375 lbs)	SureGuard 51WDG (12 oz/acre)	Winter annual broadleaf weeds, preemergence crabgrass	Dormant bermudagrass	A contact product for dormant bermudagrass for rapid nonselective winter annual broadleaf control with subsequent preemergence crabgrass control. Best winter annual broadleaf control is with early winter (Nov. & Dec.) applications. Best preemergence crabgrass control are with late winter applications. Allow 8 weeks after application before seeding or sodding. BroadStar 0.25G is a granular formulation. Dicarboximide herbicide.
penoxsulam (0.01 to 0.06 lbs)	LockUp + others	Broadleaf weeds including FL Betony, ground ivy, chickweed, oxalis, bittercress, pigweed, killings, broadleaf plantain,	most warm- & cool-season grasses except bahiagrass, fairways & roughs only	A granular postemergence broadleaf herbicides that will be custom blended by distributors. Depending on the formulation, the medium rate will be 0.03 lbs ai/acre applied twice, 4 weeks apart. Will be mixed with dicamba or 2,4-D + dicamba. Sapphire will be a liquid formulation of penoxsulam available only in the Western USA specifically for English daisy control.
pyraflufen-ethyl (0.00097 to 0.0055 lbs)	Octane 0.177L (0.7 to 4 oz)	Broadleaf weeds including dandelion, henbit, chickweed, clovers, knotweed, spurges, wild garlic and many others. Often an additive with other broadleaf herbicides to provide broader weed control spectrum and to hasten results.	Bentgrass Bermudagrass Centipedegrass Fine Fescue Kentucky bluegrass Ryegrass Tall Fescue Zoysiagrass	Safe on most warm- and cool-season turfgrasses. Use rate is 0.7 to 2.5 fl.oz./acre when in tank mix combinations with other broadleaf herbicides; 1 to 4 fl oz per acre if used alone. Weed control spectrum increases when tank-mixed with 2,4-D, dicamba, MCPA, triclopyr, fluroxypyr, and various combination of these. Do not apply to golf course tees or greens or to desirable carpetgrass or clovers. Do not use on newly seeded turfgrasses until they are established. Treated areas may be seeded or overseeded 1 day following application. Avoid drift onto ornamentals, trees, and shrubs. Professional use only.
sulfentrazone (0.125 to 0.375)	Dismiss 4F, Spartan 4F (1/4 to 3/4 pts)	Broadleaf weeds including dandelion, henbit, clovers, chickweed, spurges, speedwells, wild garlic and many others. Also suppresses and controls annual sedges, purple and yellow nutsedge and kyllingas	Bahiagrass Bentgrass Bermudagrass Buffalograss Carpetgrass Centipedegrass Fine Fescue Kentucky bluegrass Ryegrass Seashore Paspalum Tall Fescue Zoysiagrass	Safe on most warm- and cool-season turfgrasses. Maximum use rate on bentgrass, perennial ryegrass, fine and tall fescue is 4 fl oz/acre. Weed control spectrum increases when tank-mixed with 2,4-D and dicamba. Do not apply to golf course tees or greens. Do not apply directly to landscape ornamental or ornamental beds. Do not apply with surfactants unless compatibility test have been previously demonstrated as compatible and safe on grass type. Reseeding, overseeding, and sprigging can be performed three months after application due to product inhibiting establishment. Overseeding with ryegrass needs to be delayed 4 to 6 weeks after application but only if slight injury can be tolerated. Do not use on newly seeded turfgrasses until they have been mowed at least twice. Recommended that sod be established for at least 6 weeks before application and not within 3 months of a harvest. Spartan 4F is intended for sod and seed farms. Surge 2.18L is a pre-tank mixture of sulfentrazone plus 2,4-D, MCPA and dicamba. Echelon 4SC is a pre-tank mix of sulfentrazone + prodiamine. Dismiss South provides similar weed control as Dismiss with the addition of purple nutsedge.
sulfentrazone + imazethapyr (0.29 to 0.45 lbs)	Dismiss South 4F (9.5 to 14.4 oz)			

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sulfentrazone + quinclorac (0.75 to 1.5)	Solitaire 75WG (1 to 2 lb)	Numerous broadleaf weeds, yellow nusedge, crabgrass, & foxtail. Refer to label for complete listing.	Bermudagrass, Bluegrass, Buffalograss, Centipedegrass, Perennial ryegrass, Seashore paspalum, Tall fescue, Zoysiagrass	Refer to comments for sulfentrazone and quinclorac. Not for use on golf greens, collars, or tees. A one month seeding restriction follows use. High rate is for warm-season turfgrasses.
carfentrazone + quinclorac (0.35 to 0.79)	Square One 70WDG (8 to 18 oz)	Numerous broadleaf weeds, yellow nusedge, crabgrass, & foxtail. Refer to label for complete listing.	All cool- and warm-season turfgrasses except St. Augustinegrass	Refer to comments for carfentrazone and quinclorac. Not for use on golf greens, collars, or tees. Can be used 1 day prior to or 7 days following seeding. High rates are for warm-season turfgrasses.
sulfentrazone + metsulfuron (0.134 to 0.413)	Blindside 66WG (3.25 to 10 oz)	Numerous broadleaf weeds esp. dollarweed, ground ivy, doveweed, wilt violet and some sedges (not Purple). Refer to label for complete listing.	Bermuda, Centipedegrass, Ky. bluegrass, St. Augustinegrass, Tall fescue, Zoysiagrass	Refer to comments for sulfentrazone and metsulfuron. Not for use on golf greens, collars, or tees. A one month seeding restriction follows use. Rate range for cool-season grasses is 3.25 to 6.5 oz product per acre and 6.5 to 10 oz per acre for warm-season grasses.
triclopyr alone, (½ to 1 lb)	Turflon Ester 4L (1 to 2 pts)	Broadleaf weeds; partial bermudagrass & kikuyugrass suppression	Bahiagrass Bermudagrass Kentucky bluegrass	Use high rates only on cool-season turfgrasses. Even at low rates, expect short-term phytotoxicity to warm-season grasses. Repeat applications spaced 4 weeks apart are necessary for hard-to-control broadleaf weeds such as speedwell, parsley piert, violets, ground ivy, and woodsorrel. Newly established turf should be mowed 3 times before application. Picolinic acid herbicide.
triclopyr +2,4-D (¼ to ½) + (½ to 1 lb)	Turflon II Amine (1 to 2 qts) Chaser 3L (1 to 2 qts)		Ryegrass Tall fescue Zoysiagrass	
MSMA/DSMA/CMA (1.0 to 2.0 lbs)	Several brands and formulations	Crabgrass, crowfootgrass, bahiagrass, nutsedge, dallisgrass, thin paspalum, alexandergrass, sandspur, annual broadleaf weeds	Bermudagrass	Repeat (2 to 4) applications at 7-10 day intervals are necessary, especially as weeds mature. Turf discoloration may occur, especially on `Tifdwarf' and `Tifgreen.' Use reduced rates on these cultivars. Apply when soil moisture is adequate. A nonionic surfactant is necessary but read the label for specific instructions regarding this. Multiple applications 5 to 7 days apart are required for dallisgrass and bahiagrass control. Do not use on desirable St. Augustinegrass, centipedegrass or bahiagrass. Use low rates on zoysiagrass. Of the three, CMA causes less discoloration to turfgrasses and should be the product of choice on cool-season grasses such as Ky. bluegrass, bentgrass fairways, and tall fescue. Organic arsenical herbicides. NOTE: The USEPA has cancelled all arsenical herbicides, effective in 2013.

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MSMA (1.0 lbs) + metribuzin ($\frac{3}{8}$ to $\frac{1}{4}$ lbs)	Several brands + Sencor 75DF (0.16 to 0.33 lbs)	Crabgrass, goosegrass, dallisgrass, nutsedge, thin paspalum		The tank mix provides better goosegrass control than MSMA alone. Do not apply to turf under stress. Do not apply to tees, greens, or closely mowed turf. Do not add surfactant with this combination. Do not apply within the root zone of shallow rooted ornamentals. Some degree of short-term phytotoxicity can be expected, especially when applied during hot temperatures. Two applications 7 to 10 days apart may be necessary, especially with mature weeds. NOTE: The USEPA has cancelled all arsenical herbicides, effective in 2013.
MSMA (1.0 lbs) + foramsulfuron (0.039 lbs)	Several brands + Revolver 0.19L (27 oz)	Dallisgrass		Two strategies are used. One is to tank mix MSMA + Revolver at the indicated rates and apply twice, 10 days apart. The other is to alternate MSMA followed by Revolver 7 days later and then MSMA 7 days after the Revolver treatment. NOTE: The USEPA has cancelled all arsenical herbicides, effective in 2013.
metribuzin ($\frac{1}{4}$ to $\frac{1}{2}$ lb)	Sencor 75DF (0.33 to 0.66 lb)	Goosegrass, annual broadleaf weeds		Same as for MSMA + metribuzin above. Use higher rate on dormant bermudagrass for winter annual weed control. Use low rate on actively growing bermudagrass. Triazine herbicide.
diclofop-methyl ($\frac{3}{4}$ to 1 lbs)	Illoxan 3EC (1 to 1.4 qts)	Goosegrass, ryegrass		For use only on golf courses. Young goosegrass plants are easiest to control. The high rate is needed for older plants. Larger, mature goosegrass will not be adequately controlled. Do not mow 24-36 hours after applying. Control takes 2-3 weeks. May cause temporary (7 to 10 days) phytotoxicity. Treat only well established and actively growing turf. Wait 6 weeks before overseeding after the last application. Tank mixing with MSMA, 2,4-D, or metribuzin increases turf burn and may reduce weed control. Restricted Use Pesticide. Aryl-oxy phenoxy herbicide.
ethofumesate (1 to $1\frac{1}{2}$ lb)	Prograss 1.5 EC (2.66 to 4 qt) Prograss 4 SC (2 to 3 pts)	Annual bluegrass, chickweed		Provides annual bluegrass control in dormant bermudagrass overseeded with perennial ryegrass. The first application at 2.66 qts/a should be 30 to 45 days following overseeding. The second should be 21 to 28 days later. Do not apply after January 15. May cause premature dormancy if green bermudagrass is treated. Not labeled for golf greens. May injure poorly rooted, shaded or wet bentgrass fairways sites. Unclassified herbicide.
pronamide (1 to $1\frac{1}{2}$ lbs) metsulfuron (0.02 lb) rimsulfuron (0.0075 to 0.03) foramsulfuron (0.013 to 0.039) trifloxysulfuron (0.005 to 0.015)	Kerb 50W (2 to 3 lbs) Manor/Blade 60 DF (1 oz) TranXit 25DG (0.5 to 2 oz) Revolver 0.19L (8.8 to 27 oz) Monument 75 WG (0.11 to 0.33 oz)	Annual bluegrass, ryegrass clumps, <i>Poa trivialis</i> , spring transition, various broadleaf weeds		Use only on bermudagrass or possibly zoysiagrass. Refer to the label for timing intervals of applications prior to overseeding. Do not apply on or up-slope to desirable bentgrass or overseeded turf as these may run. Movement is encourage when saturated soils are treated and/or heavy (>0.25 in) rainfall occurs within 48 hours of application. Time required for control increases as weeds mature, therefore apply in late fall for optimum results. For slow (3 to 6 weeks) transition, use the low rate of each herbicide listed. For quick transition (1 to 2 weeks), use TranXit, Revolver, Katana, or Monument at the high rate in mid-May. Treated plants do not show herbicide symptoms until air temperatures are consistently above 60F. Pronamide is a Restricted Use Pesticide. Amide and sulfonyleurea herbicides.

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flazasulfuron (0.012 to 0.047)	Katana 25DG (0.75 to 3 oz)			
rimsulfuron (0.015 to 0.0625 lbs)	TranXit GTA 25WSP (1 to 4 oz)	Annual bluegrass		Apply 7 to 10 days prior to overseeding. Also used for non-selective control of annual bluegrass and ryegrass in non-overseeded bermudagrass. Treat in fall to early winter for best results. Sulfonylurea herbicide.
simazine (1 lb)	Princep T&O 4L (1 qt)	Annual bluegrass, most winter annual broadleaf weeds		Do not exceed use rates. For winter annual weed control, apply 1 qt/A in early fall (after Oct. 15) and repeat in early winter. Do not apply on or upslope to desirable overseeded turf &/or golf greens. Do not use on bermudagrass during spring 'green-up' or summer unless temporary yellowing and stunting of bermudagrass can be tolerated. Triazine herbicide.
foramsulfuron (0.013 to 0.039)	Revolver 0.19L (8.8 to 27 oz)	All cool-season grasses including ryegrass, fescue, bluegrasses, etc., henbit, goosegrass		Controls all cool-season grasses, and for transition, plus henbit and goosegrass (at higher rates). Bermudagrass and zoysiagrass (Meyer) are tolerant. Labeled for all commercial situations such as golf courses, athletic fields, lawns, and sod farms. Refer to the label for timing intervals of applications prior to overseeding. Sulfonylurea herbicide.
bispyribac-sodium (0.022 to 0.132 lb)	Velocity 17.6SC (6 to 12 oz)	Selective Poa annual and Poa trivialis control in overseeded ryegrass and bentgrass fairways	Bermudagrass fairways overseeded with ryegrass, Bentgrass fairways	Apply between Feb. 1 and March 15 when daytime/nighttime temperatures are 70/50 F at 6 to 12 oz/acre in 25 to 50 gallons of water. Use higher labeled rates as Poa matures. Higher rates, however, may cause short-term ryegrass chlorosis. Reapply in 21 to 42 days if Poa regrowth is observed. Treated ryegrass should be overseeded before Oct. 15 th at ≥ 300 lbs seed/acre. No surfactant or adjuvants are needed. On bentgrass fairways, apply 2 to 6 oz/acre weekly in spring/summer only when the bentgrass is actively growing. For Poa trivialis control, apply 4 to 9 oz/acre weekly. For all scenarios, use lower rates when higher weed populations are present to prevent voids from developing. Pyrimidinyl benzoic acid family.
glyphosate (0.375 lbs)	Roundup Pro 4L (¾ pt)	Annual bluegrass, Winter broadleaf weeds	Dormant bermudagrass	Apply only to fully dormant bermudagrass (no green stolons or leaf tissue visible, typically January 15 to 25 in SC). Apply glyphosate in 5 to 20 GPA. Do not apply to desirable green turf. Add a nonionic surfactant to diquat and clethodim at 0.25% v/v (1 qt/100 gal). Do not apply to desirable cool-season turf species. Envoy will not control broadleaf weeds. The Envoy label is a state 24 (c) Special Local Need Label for sod production.
glyphosate + diquat (3.55 to 6.7 lbs)	QuickPRO 76 WG (4.5 to 9 oz)			
glufosinate (¾ lbs)	Finale 1SC (3 qts)			
diquat (¼ to ½ lbs)	Reward 2L (1 to 2 pts)			
clethodim (0.25 lbs)	Envoy 0.94 EC (34 oz/a)			
metribuzin (0.25 to 0.5)	Sencor 75 Turf (0.33 to 0.67 lbs)			Use QuickPRO only in areas where bermudagrass and bahiagrass are desirable ground covers. Rates greater than 9 oz/a may result in injury or delayed green-up in highly maintained areas. Apply in 10 to 80 gallons of water per acre Use lower rate for annuals and higher rate for perennials.

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asulam (2.0 lbs)	Asulox 3.34L (5 pts)	Crabgrass, goosegrass, sandspur	Bermudagrass, St. Augustinegrass sod production	Do not apply to freshly mowed turf or turf under stress. On Bermudagrass use on 'Tifway' only. Do not use a surfactant. Asulox is for professional applicators only and only for sod production when used on St. Augustinegrass. Carbamate herbicide.
atrazine/simazine (1 to 2 lbs)	Several Brands. Read the label for rates	Many broadleaf weeds including matchweed, oxalis, pennywort, Florida betony and some annual sedges.	Centipedegrass St. Augustinegrass Zoysiagrass	For hard to control weeds, make the first application in late fall and follow with another 4 to 6 weeks later. If weeds persist, follow atrazine applications with dicamba in 4 to 6 weeks. Some turf injury can be expected with this. Two applications of atrazine are allowed per year. Effectiveness will be reduced as weeds mature. Do not apply within the root zone of ornamentals. Triazine herbicides. Prompt 5L provides additional activity on hard-to-control weeds.
atrazine + bentazon (½ to ¾ lbs)	Prompt 5L (1.8 to 2.4 pts)			
metsulfuron (0.01 to 0.04 lb)	Manor 60DF Blade 60DF Escort 60DF (¼ to 1 oz)	Bahiagrass, foxtails, broadleaf weeds including chickweed, clover, dandelion, plantain, purslane, spurge, woodsorrel, wild onion/garlic	Bermudagrass Centipedegrass St. Augustinegrass Zoysiagrass	Note the low use rate. As weeds mature, the rate must be increased. A nonionic surfactant at 0.25 % by volume (1qt/100 gal) increases control. Do not use beneath desirable trees or ornamentals or on desirable 'Pensacola' bahiagrass. Escort is labeled for 'rough' turf such as roadsides, utility lines, and railroads while Manor and Blade are for fine turf including bermudagrass, St. Augustinegrass, zoysiagrass, centipedegrass, Ky. bluegrass and fine fescue. Do not apply to desirable tall fescue or ryegrass. Some bahiagrass varieties ('Common,' 'Argentine,' & 'Paraguayan') are not completely susceptible. Sulfonylurea herbicide.
dicamba (⅜ to ¼ lbs)	Vanquish 4S (¼ to ½ pts)	White clover, spurge, woodsorrel		Avoid drift. Do not apply within the root zone of ornamentals. Use low rates on St. Augustinegrass. Treat when temperatures are #80 F to minimize turf damage. Benzoic acid herbicide.
dicamba + 2,4-D, 2,4-DP, MCPA, and/or MCPP (⅜ + ¼ to ½ lbs)	Several brands contain these mixtures	White clover, spurge, woodsorrel, pennywort plus other broadleaf weeds.		Observe same precaution as dicamba above. Refer to product label for rates. A second application on centipedegrass 7-14 days later may be needed. Use low rates on St. Augustinegrass. A tank mix of atrazine at 1 lb ai/A + 2,4-D & dicamba at 0.2 lb ai/A each provides good control with minimum turf damage when temperatures are #80 F. Phenoxy herbicides. All 2,4-D containing formulations are limited to a maximum number of 2 broadcast applications per treatment site per year.
bromoxynil (\ to ½ lb)	Bucril 2L (1 to 2 pts)	Many young broadleaf weeds	Bentgrass Bermudagrass Ky. bluegrass St. Augustinegrass Tall fescue	Labeled only for non-residential turf, seed and sod production. Contact herbicide, therefore, thorough coverage is necessary. Safe on seedling or sprigged turf with less drift potential than phenoxy herbicides. Tank mixing with 2,4-D, dicamba, &/or MCPP will provide increased control but should be used only on established turf. May also be used on bermudagrass, bentgrass, Ky. bluegrass, tall fescue, & ryegrass but not centipedegrass. Restricted Use Pesticide. Nitrile herbicide.
sethoxydim (0.19 to 0.28 lbs)	Vantage 1L, Segment 1L (1½ to 2¼ pts)	Crabgrass, goosegrass and other annual grasses suppression of dallisgrass	Centipedegrass Fine Fescue	Apply before weeds mature. Repeat applications are necessary to suppress bermudagrass or bahiagrass. Safe on centipedegrass seedlings after the third mowing. Vantage has oil concentrate pre-added. Cyclohexendione herbicide.

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clethodim (0.125 to 0.25 lbs)	Envoy 0.94 EC (17 to 34 fl.oz.)	Common bermudagrass, other grasses such as johnsongrass, barnyardgrass	Centipedegrass Sod Production	This is a 24 (c) Special Local Need Label. Add non-ionic surfactant at 0.25% v/v (1 qt/100 gal). Apply only to actively growing, non-stressed turf. Repeat application 3 to 4 weeks apart may be necessary to suppress bermudagrass. Some discoloration to centipedegrass will occur at the higher rate. Cyclohexendione herbicide.
imazapic (0.063 to 0.125 lb)	Plateau 70 DG (1.43 to 2.86 oz or 1 to 2 water soluble packs)	Bahiagrass, crabgrass, Yellow and Purple nutsedges, annual sedge & <i>Kyllinga</i> species		For centipedegrass grown as sod, on golf courses, and other recreation areas. Not for use on home lawns. The highest rate may cause turf reddening. Repeat applications may be needed for tough to control perennial weeds such as bahiagrass. See label for mixing instructions of water soluble packs.
chlorsulfuron (0.05 to ¼ lb)	Corsair 75DF, TFC 75DF (1 to 5.3 oz)	Broadleaves, wild garlic, tall fescue, perennial ryegrass in bentgrass fairways	Bermudagrass Bahiagrass Bentgrass fairways Fine fescue Kentucky bluegrass	Especially effective for tall fescue clump control. Spot treat tall fescue & perennial ryegrass when in established Kentucky bluegrass, bentgrass fairways, or fine fescue using a hand-held sprayer delivering 1 gallon of spray solution per 1,000 sq.ft. Spray only to wet the tall fescue blades. Avoid excess-application. Repeat treatment may be needed in 60 days. Slow acting. Do not use underneath desirable shrubs or trees. Not for use in sod production. Read and follow all label directions before use. Sulfonylurea herbicide.
ethofumesate (3.0 lb)	Prograss 1.5EC (2 gal) Prograss 4SC (3 qts)	Common bermudagrass control/suppression	St. Augustinegrass	Timing is critical. Spring applications should start in the Carolinas in mid March. Repeat in 30 days. Tank mixing with atrazine or simazine at 2 lb ai/A significantly increases suppression. Temporary St. Augustinegrass stunting may result. Do not overlap. Unclassified herbicide.
fenoxaprop (0.06 to 0.17 lb)	Acclaim Extra 0.94 L (8 to 23 oz)	Annual weedy grasses, bermudagrass suppression	Annual bluegrass Bentgrass fairways Fine fescue Kentucky bluegrass Perennial Ryegrass Tall fescue Zoysiagrass	Young, actively growing weeds are easiest to control. Apply in late spring or early summer to actively growing weedy grasses. Do not apply to moisture- or heat-stressed turf or weeds. Repeat in 2 to 3 weeks for complete control. Control is reduced if applied within 14 days after a broadleaf herbicide. For bermudagrass suppression in tall fescue or zoysiagrass, begin treatment after spring green-up of the bermudagrass at 1½ pts/A and repeat at 3-week intervals. Seedlings should be at least 4 weeks old before treatment. Do not mow for 24 hrs after application, nor tank-mix with phenoxy herbicides. Not labeled for golf greens. The addition of triclopyr ester (Turflon Ester) at 1 pt/a may increase control but should not be used on warm-season grasses unless temporary phytotoxicity is acceptable. Aryl-oxy phenoxy herbicide.
fluziafop-butyl (0.05 to 0.1 lbs)	Fusilade T&O II 2EC (3 to 6 oz)	Annual grasses, bermudagrass suppression	Tall fescue Zoysiagrass	Add nonionic surfactant at 0.25% v/v. Begin treatment on zoysiagrass at 3 to 4 fl.oz./A in early June. Repeat application every 4 weeks. On tall fescue, make first application in spring after bermudagrass green-up at 5 to 6 fl.oz./A and a second application in early fall. Turf discoloration may occur for up to 14 days after application. Do not apply to tall fescue during hot, dry weather. Adding triclopyr ester (Turflon Ester) at 1 pt/a may increase control but should not be used on warm-season grasses unless temporary phytotoxicity is acceptable. Aryl-oxy phenoxy herbicide.

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quinclorac (0.75 lb)	Drive 75 DF (1 lb) Drive XLR8 1.5L (0.5 gal)	Crabgrass, signalgrass, torpedograss, barnyardgrass, foxtail, kikuyugrass, broadleaf weeds such as pennywort, speedwells, dandelion, black medic, white clover, violets	Annual bluegrass Annual ryegrass Bentgrass fairways Buffalograss Common bermuda Kentucky bluegrass Perennial ryegrass Tall fescue Zoysiagrass	At least 2 application 3 weeks apart are needed for control of perennial weeds. Multiple applications will be needed for torpedograss/kikuyugrass control. Good soil moisture should be present before treatment. Creeping bentgrass, hybrid bermudagrass, & fine fescue have intermediate tolerance. May be applied before, at , and during seedling emergence of bermudagrass, tall fescue, and zoysiagrass. Do not apply to desirable bahiagrass, centipedegrass, St. Augustinegrass, or dichondra. Tank mixing with N or Fe may lessen turf discoloration. Add a crop oil concentrate (2 pts/a) or methylated seed oil (1.5 pts/a) to increase performance but not until 28 days after seedling emergence. Not labeled for golf greens or collars. Avoid application and drift onto ornamentals. Quinolinecarboxylic Acid herbicide.
mesotrione (0.125 to 0.25 lb)	Tenacity 4L (4 to 8 oz)	Bentgrass, crabgrass, goosegrass, foxtail, nimblewill, lovegrass, barnyardgrass, yellow	Ky Bluegrass, Tall fescue, Perennial ryegrass, Centipedegrass, Fine fescue, St. Augustinegrass	For golf, sod, and commercial properties. Tenacity provides selective control of bentgrass in Ky. bluegrass and other turfgrass listed when treated twice, 3 weeks apart. Both products control nimblewill, crabgrass, goosegrass and other grasses if treated before seedhead emergence. Also used prior to seeding listed cool-season turfgrasses for preemergence crabgrass control. Use low rate on St. Augustinegrass sod. Add a nonionic surfactant at 0.25% v/v. Bentgrass, bermudagrass, zoysiagrass, Poa annua, kikuyugrass, and seashore paspalum have low tolerance. For tufted lovegrass control in zoysiagrass sod production, use 2 oz/acre Tenacity plus 0.25 lb ai/acre atrazine twice, 10 days apart. For dallisgrass, Japanese Stiltgrass, and nimblewill suppression with Pylex, apply 1 to 1.33 fl oz/acre with 3 applications 3 to 4 weeks apart. Pylex can be used on taller-mowed bentgrass at 0.5 to 1 oz/acre to control crabgrass/goosegrass and to suppress bermudagrass. Short term turfgrass phytotoxicity (whitening) may occur with either product. Mix with triclopyr ester to reduce this whitening & to increase grassy weed control. Triketone (callistemon) herbicide family.
topramezone (0.11 to 0.044 lb)	Pylex 2.8 SC (0.5 to 2.0 oz)	nutsedge, Buttercup, buckhorn plantain, carpetweed, clover, chickweed, dandelion, dock, FL betony & pusley, ground ivy, henbit, lawn burweed, oxalis, pigweed, speedwell, Canada thistle, wild violet.		
mecoprop (MCP) alone (½ to 1 lb) or plus 2,4-D and dicamba	See comment	Postemergence annual broadleaf weeds	Bentgrass	Same as for dicamba. Refer to product label for rates as herbicide ratios vary depending on brands. Use only on actively growing, non-stressed turf. Check label for use on golf greens. Mecomec 4 (¾ fl oz/1000 sq.ft.) and MCP-4 amine (¾ fl oz/1000 sq.ft.) are MCP formulations labeled for greens. Triplet (¾ fl oz/1000 sq.ft.), Bentgrass Selective (1 fl oz/1000 sq.ft.), and Trimec Bentgrass (1 fl oz/1000 sq.ft.) are MCP + 2,4-D + dicamba formulations for greens. Do not apply to stressed greens. Phenoxy herbicides.

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paclobutrazol (0.25 to 0.375)	Turf Enhancer 50WP (0.5 to 0.75 lb/acre or 0.28 oz/1000 ft ²) Trimmit/Turf Enhancer 2 SC (16 to 24 oz/acre or 0.55 fl.oz/1000ft ²)	<i>Poa annua</i> var. <i>reptans</i> (perennial biotype) conversion/ management in bentgrass golf greens		Root absorbed. Apply 30 days apart at higher rate 2 or 3 times in fall (September to early Dec.) plus 2 or 3 times in very early spring (late Feb. to mid April) when bentgrass is actively growing. Increased Poa control often occurs at the lower rate if a sterol inhibitor fungicide (DMI) such as Banner Maxx at 1 oz/1000 sq.ft. is applied 2 weeks following each paclobutrazol applications. Do not use if <i>Poa annua</i> populations exceed 70% as severe stand thinning or discoloration may result. Do not apply within 4 weeks of anticipated cold or hot weather. Note: This program is designed as a <u>gradual transition or conversion</u> from <i>Poa annua</i> to bentgrass. <u>Repeat applications over several years will be required.</u> Treated Poa will appear noticeably lighter green in color while treated bentgrass may appear 'grainy.' Apply only to actively growing bentgrass. Type II PGR.
trinexapac-ethyl (0.05 to 0.11)	Primo MAXX 1L (6 to 14 oz/acre or 0.14 to 0.32 fl.oz./1000ft ²)	<i>Poa annua</i> var. <i>reptans</i> (perennial biotype) conversion/ management in bentgrass golf greens		Foliar absorbed. The 6 oz/a rate is for golf greens while 11 oz/a is for fairways. A 7 oz/a rate may be used for bentgrass/ <i>Poa annua</i> mixed greens while up to 14 oz/a can be used if conversion to bentgrass is desired & temporary discoloration can be tolerated. Good golf green quality has been maintained with 2 to 6 oz/1000 ft ² every 2 to 4 weeks. Type II PGR.
siduron (11 to 22 lbs)	Tupersan 50WP (22 to 44 lbs)	Postemergence bermudagrass suppression		Granular formulations also are available. Used alone or in combination with ethofumesate (Prograss) or flurprimidol (Cutless). Control is generally best with spring (March + April + May + early June) and fall (late September + October + November) applications when the bentgrass is actively growing and the bermudagrass is not. Substituted urea herbicide.
ethofumesate + flurprimidol (see remarks)	Prograss 1.5EC + Cutless 50W (see remarks)	Postemergence bermudagrass suppression;		Apply 1 st application (March-April) when bermudagrass is breaking dormancy at 1.5 (Prograss) + 0.75 (Cutless) lb ai/A; 2 nd application 6 weeks later at 0.38 + 0.19 lb ai/a followed by 3 rd and 4 th applications spaced 3 weeks apart. Repeat applications are needed to maintain suppression. Approximately 30% bentgrass discoloration & thinning may follow high rate but should recover within 3 weeks.
carfentrazone (0.031 to 0.1)	Quicksilver 1.9 L (2.1 to 6.7 oz)	Postemergence moss suppression (<i>Bryum argenteum</i>)		Reduce surface moisture and shade as these favor moss persistence; raise the mowing height. Quicksilver at 6.7 oz/acre at 100 GPA when air temperatures are <85F provides excellent silver thread moss suppression with good bentgrass/ <i>Poa annua</i> tolerance. Do not apply to desirable hybrid bermudagrass. Repeat this every 2 weeks until complete control occurs. Other, but less effective chemical options include Daconil Weather Stik 6L at 4 to 8 oz product per 1000 sq.ft. in 5 to 10 gallons of water; Apply when temperatures are >80F (preferably, >85F); Ironizer (4-0-0-18) granular at 225 oz per 1000 sq.ft.; Iron sulfate alone at 32 oz/1000 sq.ft. or combined with ammonium sulfate at 48 oz/1000 sq.ft. Only use iron containing products when temperatures are cool. Other contact, burn-down products may also work.

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ethofumesate (0.5 to 0.75 lb)	Prograss 1.5EC (3 to 4 pts) Prograss 4SC (1 to 1.5 pts)	Annual bluegrass	Creeping bentgrass fairways & Ky. bluegrass fairways & roughs; Tall fescue	Treat young (1 to 5 leaf stage) weeds in fall. Use lower rate on closer mowed turf. Will not adequately control mature plants or perennial biotypes. Multiple applications spaced 3 weeks apart may be necessary. Do not use on turf less than 8 weeks old nor reseed within 6 weeks after application. Bentgrass that is shaded, poorly drained (wet), and cold often experience herbicide damage. Unclassified herbicide.

¹**Comments:** Active only on emerged, visible weeds. Best results occur when weeds are young. Temperatures above 85-90EF may result in phytotoxicity (yellowing) to the turf. Repeat applications may be required for acceptable control. These should be timed 10 to 14 days apart. Do not mow within 48 hrs after application for most chemicals. Most postemergence herbicides require the use of a spreader-sticker, adjuvant, crop oil, or wetting agent. Read the label before adding these as many herbicides are pre-packaged with them already added. Most postemergence herbicides need to dry on the leaf surface before irrigation or rainfall occurs.