

## Turfgrass Weed Control for Professional Managers

Patrick E. McCullough, Extension Weed Scientist

Use Stage and Herbicide	Turfgrasses	WSSA Group	Broadcast Rate/Acres		REI	Remarks and Precautions
			Amount of Formulations	Pounds Active Ingredients		
<b>Pre-emergence Herbicides</b>						
Applications must be made prior to weed emergence or poor control will result. Recommended dates of application for crabgrass and other annual grasses are February 15 - March 5 in south Georgia and March 1-20 in north Georgia. Recommended dates for annual bluegrass and selected winter annual weeds are September 1-15 in north Georgia and October 1-15 in south Georgia.						
<i>atrazine</i> (Aatrex) 4L (Aatrex) 90DG (Aatrex) 80W	dormant bermudagrass, centipedegrass, St. Augustinegrass, zoysiagrass	5	1.0-2.0 qts. 1.1-2.2 lbs. 1.2-2.5 lbs.	1.0-2.0 1.0-2.0 1.0-2.0	See Label	<i>Atrazine</i> provides both pre-emergence and post-emergence control of annual broadleaf weeds. Control of summer annual grasses is weak. Aatrex formulations are labeled for applications from October 1 to April 15. Avoid applications during green-up. For bermudagrass, <i>atrazine</i> should be applied only to dormant turf. DO NOT overseed 4 months before or 6 months after treatment. DO NOT apply within the active root zone of azaleas, camellias, boxwoods, etc. DO NOT apply more than 1.0 lb. ai/A on hybrid bermudagrasses or residential turfgrass. <i>Atrazine</i> is a Restricted Use Herbicide. Refer to <i>atrazine</i> - POST-EMERGENCE.
<i>benefin</i> (Balan) 2.5G (Other trade names)	Ky. bluegrass, bermudagrass, centipedegrass, tall fescue, St. Augustinegrass, zoysiagrass	3	80.0-120.0 lbs.	2.0-3.0	12 H	Controls annual grasses and selected broadleaf weeds. An additional application may be made 8 weeks after the initial treatment for continued weed control. DO NOT apply to newly sprigged grasses until these turfs are well established. DO NOT use on golf course greens. DO NOT apply Balan 2.5G in the spring to fall planted turfgrasses. Delay reseeding for 6 weeks after application for the low rate, and for 12-16 weeks at the high rate.
<i>benefin</i> + <i>oryzalin</i> (XL) 2G	bermudagrass, centipedegrass, tall fescue, St. Augustinegrass, zoysiagrass	3 + 3	100.0-150.0 lbs.	1.0-1.5 <i>benefin</i> + 1.0-1.5 <i>oryzalin</i>	24 H	Controls annual grasses and selected broadleaf weeds. DO NOT apply to newly sprigged grasses until well established. DO NOT apply to golf course greens. DO NOT make a spring application to fall planted turfgrasses. Delay reseeding for 6 weeks (low rate) and for 12-16 weeks (high rate) after application.
<i>benefin</i> + <i>trifluralin</i> (Team Pro) 0.86G  (Team) 2G	Ky. bluegrass, bermudagrass, centipedegrass, tall fescue, St. Augustinegrass, zoysiagrass	3 + 3	174.0-349.0 lbs.  100.0-150.0 lbs.	0.75-1.5 <i>benefin</i> + 0.75-1.5 <i>Trifluralin</i>  1.3-2.0 <i>benefin</i> + 0.7-1.0 <i>trifluralin</i>	See Label	Team Pro is a dry fertilizer-based product that contains 0.43% <i>benefin</i> and 0.43% <i>trifluralin</i> . The fertilizer analysis will depend upon the respective company marketing the product. Controls summer annual grasses and annual bluegrass. Split applications of 233 lb./A followed 10 weeks later by an additional 233 lb./A may also be used. DO NOT apply to newly sprigged grasses until well established. DO NOT apply to putting greens. Delay reseeding for 8 weeks (low rate) and for 12-16 weeks (high rate) after application.
<i>bensulide</i> (Bensumec) 4LF (Pre-San) 7G	Ky. bluegrass, bentgrass bermudagrass, centipedegrass, tall fescue, St. Augustinegrass, zoysiagrass	8	1.9-3.1 gals. 107.0-180.0 lbs.	7.5-12.5 7.5-12.5	See Label	Controls annual grasses and selected broadleaf weeds. Apply high rate in fall for annual bluegrass control. Apply a light irrigation immediately after treatment. DO NOT apply to newly sprigged grasses. Delay reseeding for 4 months after treatment. May be used on bermudagrass and bentgrass greens.
<i>bensulide</i> + <i>oxadiazon</i> (Goosegrass/Crabgrass Control) 5.25% + 1.31% G	Ky. bluegrass, bentgrass, bermudagrass, tall fescue, zoysiagrass	8 + 14	115.0 lbs.	6.0 <i>bensulide</i> + 1.5 <i>oxadiazon</i>	See Label	Controls summer annual grasses. Apply a light irrigation after treatment. DO NOT use on newly sprigged grasses until well established. Delay reseeding for 5 months after treatment. Recommended for professional applicator use. May be used on bermudagrass and bentgrass greens under conditions of heavy goosegrass infestations. See label for precautions concerning use on putting greens.

Supplemental 2(e) label recommendations may be available for some listed pesticides. It is the end-user's responsibility to consult the manufacturer or websites like [www.CDMS.net](http://www.CDMS.net) for additional recommendations.

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Use Stage and Herbicide	Turfgrasses	WSSA Group	Broadcast Rate/Acres		REI	Remarks and Precautions
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<b>Pre-emergence Herbicides - continued</b>						
<i>dimethenamid</i> (Tower) 6 L	Ky. bluegrass, bahiagrass, bermudagrass, centipedegrass, tall fescue, St. Augustinegrass, seashore paspalum, zoysiagrass	15	21.0-32.0 fl. oz.	1-1.5	12 H	Controls annual grasses and broadleaf weed control. Tower may be applied to tees; fairways, roughs, and any other maintained turf areas on golf courses (except putting greens). In a single application, DO NOT apply more than the equivalent of 32 fl. oz./A. For extended weed control, sequential applications can be made 5-8 weeks between applications. DO NOT apply more than 64 fl. oz./year of Tower. Tower may be applied in a sequential use program with other herbicides that control emerged weeds.
<i>dimethenamid</i> 0.75% + <i>pendimethalin</i> 1% (Freehand) 1.75G	bermudagrass, centipedegrass, kikuyugrass, St. Augustinegrass seashore paspalum	15 + 3	100.0-200.0 lbs.	1.75-3.5	12 H	Apply for pre-emergence control of annual grassy weeds, annual broadleaf weeds, and sedges in established tolerant warm-season turfgrasses. Freehand may be applied to lawns, parks, golf courses, sod farms, athletic fields, and other turf areas. DO NOT apply more than 200 lb./A in a single application. DO NOT apply more than 400 lb./A/year. DO NOT apply to golf greens. Make initial applications when soil temperatures are 55°F or higher and delay winter overseeding for at least 3 months after applications. DO NOT apply to cool-season grasses.
<i>dithiopyr</i> (Dimension 1EC) (Dimension Ultra 40% WSP) (each 5.0 oz. water soluble bag contains 0.125 lb. of <i>dithiopyr</i> ) (Dimension 2 EW)	Ky. bluegrass, buffalograss, bermudagrass, carpetgrass, centipede, tall fescue, St. Augustinegrass, seashore paspalum, zoysiagrass,	3	2.0 qts. 0.95 lb. 2.0 pts.	0.5 0.38 0.5	See Label	Provides pre-emergence control of annual grasses and certain annual broadleaf weeds. Dimension will also provide post-emergence control of crabgrass (when treated prior to the tillering stage of growth). Apply as a spring or fall application. For split applications, use Dimension 1EC up to 1.5 qt./A/application, Dimension 2EW up to 1.5 pt./A/application or Dimension Ultra at 0.625 lb./A/application. Bermudagrass can be overseeded with perennial ryegrass 6-8 weeks after a Dimension application. For other turfgrass areas do not reseed, overseed or sprig treated areas for 2.5-4 months after treatment (see label).
<i>flumioxazin</i> (Sureguard) 51WDG (Sureguard 4SC)	bermudagrass (dormant)	14	8.0-12.0 oz.	0.23-0.38	12 H	Provides pre-emergence control of annual broadleaf weeds and annual grasses including crabgrass, goosegrass, and annual bluegrass. <i>Flumioxazin</i> also provides early post-emergence control of annual bluegrass and annual broadleaf weeds. Applications should be limited to dormant bermudagrass only. Late fall applications to partially green bermudagrass can aid in transition to dormancy. DO NOT apply to golf greens or actively growing turfgrasses. DO NOT apply more than 24oz./A/year. The addition of a non-ionic surfactant is recommended for post-emergence applications.
<i>indaziflam</i> (Specticle Flo 0.62L) (Specticle G 0.0224%)	bahiagrass, bermudagrass, buffalograss, centipedegrass, St. Augustinegrass, seashore paspalum, zoysiagrass	29	3.0-10.0 fl. oz. 100.0-200.0 lbs.	0.015-0.05 0.022-0.044	12 H	Apply for pre-emergence control of annual bluegrass, crabgrass, goosegrass, annual sedges, and broadleaf weeds in warm-season grasses. Use only on established turf. DO NOT apply to desirable cool-season grasses, golf greens, or within 15 feet of golf greens. <i>Indaziflam</i> may affect sensitive grasses downslope from treated areas, DO NOT use on slopes uphill and adjacent to bentgrass or bermudagrass golf greens. DO NOT apply more than 18.5 fl. oz. of Specticle Flo/A in a 12-month period. DO NOT exceed 6 fl. oz/A in a single application to centipedegrass and St. Augustinegrass. Other labeled warm-season grasses may be treated with up to 10 oz. of product per acre in a single application. DO NOT apply more than 400 lb./A of Specticle G per year. See label for further information before using the herbicide.
<i>isoxaben</i> (Gallery) 75DF	Ky. bluegrass, bermudagrass, buffalograss, centipedegrass, tall fescue, St. Augustinegrass, zoysiagrass	21	0.66-1.33 lbs.	0.5-1.0	12 H	Controls a broad spectrum of annual broadleaf weeds. Apply in the late summer or early spring prior to annual broadleaf weed seed germination. Established turf may be overseeded 60 days following a Gallery application. DO NOT use on putting greens.

Supplemental 2(ee) label recommendations may be available for some listed pesticides. It is the end-user's responsibility to consult the manufacturer or websites like [www.CDMS.net](http://www.CDMS.net) for additional recommendations.

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<b>Pre-emergence Herbicides - continued</b>						
<i>mesotrione</i> (Tenacity) 4.0 lbs./gal.	Ky. bluegrass, centipedegrass, tall fescue St. Augustinegrass (grown for sod),	27	4.0-8.0 fl. oz.	0.125-0.25	12 H	Provides pre-emergence control of crabgrass, yellow foxtail, and certain annual broadleaf weeds such as carpetweed and chickweed sp. Tenacity may be tank-mixed with pre-emergence herbicides such as Barricade for extended control of crabgrass and foxtail. Tenacity may also be applied at the time of seeding Ky. bluegrass, centipedegrass, or tall fescue. It may also be applied after new seedlings have been mowed 2 times or 4 weeks after emergence (whichever is longer). DO NOT exceed 4 fl. oz/A on St. Augustinegrass sod. Tenacity may cause temporary whitening of turfgrass foliage (see label). If Tenacity is tank-mixed with <i>atrazine</i> or <i>simazine</i> for use on St. Augustinegrass or centipedegrass use only 4.0 fl. oz. of Tenacity and 0.5 lbs. ai/A of either <i>atrazine</i> or <i>simazine</i> . Zoysiagrass, bermudagrass, and seashore paspalum are sensitive to Tenacity. DO NOT use on golf course putting greens and maintain a 5-foot buffer between treated areas and putting greens.
<i>metolachlor</i> (Pennant Magnum) 7.62 lbs./gal.	bermudagrass, centipedegrass, St. Augustinegrass, zoysiagrass	15	1.3-2.6 pts.	1.25-2.5	24 H	Controls annual sedge, yellow nutsedge, and certain annual grass weeds. Split applications at intervals of 6-8 weeks will extend control. In sod fields DO NOT apply more than 4.2 pt./A/year. For other turf sites, the maximum annual rate is 2.6 pt./A. DO NOT use on putting greens.
<i>oryzalin</i> (Surflan) 4AS (Harrier) 85WDG	bermudagrass, buffalograss, centipedegrass, tall fescue, St. Augustinegrass, zoysiagrass	3	1.5-2.0 qts. 1.75-2.4 lbs.	1.5-2.0 1.5-2.0	24 H	Controls annual grasses and selected broadleaf weeds. Apply 2.0 qt./A for summer annual grass control, or apply 1.5 qt./A and apply an additional 1.5 qt./A 8-10 weeks after the initial application. Split applications are recommended for improved goosegrass control and for tall fescue. DO NOT apply to newly sprigged grasses until well established. DO NOT apply to golf course greens. DO NOT make a spring application to fall planted turfgrasses. Surflan is recommended for use on healthy, established turf. Delay reseeding for 3-4 months after application.
<i>oxadiazon</i> (Ronstar) 2G (Oxadiazon) 2G	Ky. bluegrass, bermudagrass, buffalograss, tall fescue, St. Augustinegrass, seashore paspalum, zoysiagrass	14	100.0-200.0 lbs.	2.0-4.0	12 H	Controls annual grasses and selected broadleaf weeds. DO NOT apply more than 3.0 lb. ai/A on St. Augustinegrass. May cause temporary discoloration of bermudagrass and St. Augustinegrass which is normally outgrown in 2-3 weeks. DO NOT apply to wet turf. Delay reseeding for 4 months after treatment. DO NOT apply to centipedegrass or golf course greens or tees. Ronstar 50WSP and Oxadiazon 50WSB are labeled only on bermudagrass, St. Augustinegrass and zoysiagrass. Ronstar 2G may be used immediately prior to or immediately after sprigging bermudagrass or zoysiagrass at 2.0-3.0 lb. ai/A to control various annual weeds. Ronstar 2G may also be applied 10-14 days after sprigging seashore paspalum. Ronstar 50WSP and Oxadiazon 50WSB may be applied immediately prior to or after sprigging bermudagrass. <i>Oxadiazon</i> is not labeled for use on home lawns.
(Ronstar) 50WSP (Oxadiazon) 50WSB (Starfighter) 3.17 L	bermudagrass, St. Augustinegrass, zoysiagrass		4.0-6.0 lbs. 2.5-3.8 qts.	2.0-3.0 2.0-3.0		
<i>oxadiazon</i> (1.0%) + <i>prodiamine</i> (0.2%) (Regalstar II) (Regalstar G)	Ky. bluegrass, bermudagrass, centipedegrass, tall fescue, St. Augustinegrass, zoysiagrass	14 + 3	200.0 lbs.	2.0 <i>oxadiazon</i> + 0.4 <i>prodiamine</i>	See Label	Controls annual grasses. Regalstar II is formulated on a 38-0-0 ureaform nitrogen carrier. Regalstar G does not contain fertilizer. Apply to dry foliage. Delay applications to newly sprigged bermudagrass until after stolons have rooted and the grass has filled in. DO NOT apply to putting greens.
<i>pendimethalin</i> (Pendulum) 2G (Pendulum) 3.3 EC (Pendulum AquaCap) 3.8 CS	Ky. bluegrass, bermudagrass, centipedegrass, tall fescue, St. Augustinegrass, zoysiagrass	3	75.0-150.0 lbs. 3.6-7.2 pts. 3.1-6.3 pts.	1.5-3.0 1.5-3.0 1.5-3.0	24 H	Controls annual grasses and selected broadleaf weeds. DO NOT use on newly sprigged turfgrasses. Not recommended for turfgrass that has been severely thinned due to winter stress. DO NOT reseed within 3 months of application. Use the low rate for tall fescue and KY bluegrass. The high rate may be used on warm season grasses. On newly seeded or sodded areas, delay application until after the fourth mowing. In established turfgrasses that have been reseeded, delay application until grass seedlings have been mowed 4 times. (This may be up to 3 months from the date of seeding.) Refer to label for information on split applications.

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<i>prodiamine</i> (Barricade) 65WDG (ProClipse) 65 WDG (Cavalcade) 65 WDG (StoneWall) 65 WDG  (Barricade) 4L (RegalKade) 0.5G (RegalKade) 0.37G	Ky. bluegrass, bermudagrass, buffalograss, centipedegrass, tall fescue, St. Augustinegrass, seashore paspalum, zoysiagrass	3	1.15 lbs.  1.5 pts. 100.0-300.0 lbs. 135.0-406.0 lbs.	0.75  0.75 0.5-1.5 0.5-1.5	See Label	Controls annual grasses and broadleaf weeds. DO NOT apply to newly seeded, sprigged or sodded turfgrasses. On fall-seeded turfgrasses, delay the application for 60 days after seeding or until after the second mowing, whichever is longer time period. Split applications, each at one-half the maximum annual labeled rate, at a 60-day interval, may also be used. DO NOT apply to golf course putting greens or tees. RegalKade and RegalKade 37 are formulated on a 32-3-12 dry fertilizer carrier. Barricade 65WDG at 0.58-1 lb./A may be applied 8-10 weeks before overseeding perennial ryegrass into bermudagrass fairways. Reseeding restrictions can range from 4-12 months, depending upon the product and rate used, reseeding method and environmental conditions. Refer to the individual product label for additional information.
<i>prodiamine</i> + <i>imazaquin</i> + <i>simazine</i> (Coastal) 1.68 + 0.73 + 2.59 lbs./gal.	bermudagrass, centipedegrass, St. Augustinegrass, zoysiagrass	2 +3+5	48.0-64.0 oz	0.63-0.84  0.27-0.37  0.97-1.3	12 H	Provides control of annual grasses and broadleaf weeds. Apply this product anytime from Sept 15 thru May 31 with the exception of just prior to and during spring transition. Do NOT apply if spring transition is imminent or expected within 3-4 weeks unless delayed green up and/or temporary yellowing can be tolerated. For fall and winter applications – 64 fl. oz/A is recommended. For spring applications – 48 fl. oz/A is recommended if spring transition is expected within a month. Higher labelled rates may be used if spring transition is at least 4-6 weeks away or has already occurred. DO NOT exceed the maximum of 113 fl. oz/A/year. DO NOT apply if spring transition is imminent or expected within 3-4 weeks as delayed greenup and temporary yellowing may occur. DO NOT use after May 31st.
<i>pronamide</i> (Kerb T/O) 50WSP (Kerb) 3.3SC	bermudagrass, centipedegrass, St. Augustinegrass, seashore paspalum, zoysiagrass	3	1.0-2.0 lbs. 1.25-3.5 pts.	0.5-1.0 0.5-1.44	24 H	Pre-emergence or post-emergence applications of Kerb will control annual bluegrass. May also be used in spring to slowly remove (4 to 6 weeks) overseeded perennial ryegrass from warm-season turfgrasses. For this purpose, apply Kerb at the 50% spring green-up warm-season turfgrass growth stage. A light overhead irrigation is necessary to move Kerb into the weed root zone if no rainfall occurs within 24-48 hours. DO NOT apply Kerb to any cool-season turfgrass. DO NOT apply to areas that will be overseeded with cool-season turfgrasses within 90 days of treatment. Kerb is a Restricted Use Herbicide.
<i>simazine</i> (Princep) 90DF (Princep Liquid) 4L (Wynstar) 90DF	bermudagrass, centipedegrass, St. Augustinegrass, zoysiagrass	5	1.1-2.2 lbs. 1.0-2.0 qts. 1.1-2.0 lbs.	1.0-2.0 1.0-2.0 1.0-1.8	12 H	Apply <i>simazine</i> in October or November for pre-emergence control of winter annual weeds. Apply December through February for late post-emergence control of winter annuals. Apply low rate for annual bluegrass control; or high rate for winter annual broadleaf control. DO NOT overseed with desirable turfgrass within 4 months before or 6 months after treatment. DO NOT apply more than 1.0 lb. ai/A on newly sprigged turfgrass or on hybrid bermudagrass. See label for potential application rate restrictions on sites with and without irrigation.
<i>sulfentrazone</i> + <i>prodiamine</i> (Echelon) 4SC	Ky. bluegrass, bermudagrass, buffalograss, carpetgrass, centipedegrass, tall fescue, seashore paspalum, zoysiagrass	14 + 3	18.0-36.0 fl. oz.	0.56-1.125	12 H	Controls annual grasses, certain annual broadleaf weeds, annual sedges, <i>kyllinga</i> sp., and yellow nutsedge. Use in established turfgrasses. May be applied after the second mowing of seeded grasses provided the grass has developed a uniform stand and a good root system. The high rate of 36.0 fl. oz/A is recommended only for use on bermudagrass. This product can provide post-emergence control of some, small annual broadleaf weeds. DO NOT apply to newly installed sod until the sod has rooted and exposed edges have grown in. DO NOT add an adjuvant or surfactant to the spray solution. In sod fields DO NOT apply Echelon within 3 months of harvest. Echelon is not labeled for use on golf course putting greens.

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<b>Post-emergence Herbicides</b>						
2,4-D (Weedar 64) 3.8 lbs./gal. (Other trade names)	Ky. bluegrass, bermudagrass, centipedegrass, tall fescue, zoysiagrass	4	See Label	0.5-2.0	See Label	Amine formulations of 2,4-D are non-volatile and are safer than ester formulations to use near ornamentals. Apply to small and actively growing broadleaf weeds as a summer or winter treatment. To control wild garlic/onion, use 2.0 lbs. ai/A plus surfactant. Make first application in late November or early December and follow with a second application in February or March. Repeat this schedule for 3 consecutive years to control this weed. DO NOT apply 2,4-D to St. Augustinegrass. DO NOT apply more than 0.5 lb. ai/A of 2,4-D to centipedegrass. DO NOT allow spray drift to contact the foliage of ornamentals.
2,4-D + MCP + dicamba (Three-way) (Trex-San) (Triplet) (Other trade names)	Ky. bluegrass, bermudagrass, tall fescue, zoysiagrass	4 + 4 + 4	See Label	0.75 + 0.4 + 0.08	See Label	Several commercial formulations are available. Refer to individual labels for the recommended amount of formulated product. Controls a broader spectrum of broadleaf weeds than 2,4-D alone. DO NOT spray when turfgrass is emerging from winter dormancy. Low rates of Triplet products may be used on St. Augustinegrass or centipedegrass. Avoid applications if air temperatures are greater than 85°F. Delay reseeding for 4 weeks after treatment.
2,4-D + MCP + 2,4-DP (Triamine) (Dissolve)	Ky. bluegrass, bermudagrass, centipedegrass, tall fescue, St. Augustinegrass, zoysiagrass	4 + 4 + 4	See Label	See Label	See Label	Refer to individual labels for recommended amount of formulated product. Controls a broader spectrum of weeds than 2,4-D alone. DO NOT spray if air temperatures are greater than 85°F and when warm-season turfgrasses are growing under stress conditions. Delay reseeding for 4 weeks after treatment. Avoid applications when warm-season turfgrasses are emerging from winter dormancy.
2,4-D + clopyralid + dicamba (Millennium Ultra)	Ky. bluegrass, bermudagrass, tall fescue, zoysiagrass	4 + 4 + 4	2.0-3.0 pts.	--	48 H	Controls a broader spectrum of weeds than 2,4-D alone. DO NOT mow 1-2 days before or after application. Delay application to newly seeded grasses until after 3-4 mowings. Delay reseeding for 3-4 weeks after application. DO NOT spray when air temperatures are greater than 90°F. Not recommended for use on centipedegrass and St. Augustinegrass. Avoid applications during the spring transition of warm-season turfgrasses. Not labeled for use on residential turfgrasses.
2,4-D + fluroxypyr + dicamba (Escalade)	Ky. bluegrass, bermudagrass, tall fescue, zoysiagrass	4 + 4 + 4	2.0-3.0 pts.	--	48 H	Controls a broader spectrum of weeds than 2,4-D alone. DO NOT mow 1-2 days before or after application. Delay application to newly seeded grasses until after 3-4 mowings. Delay reseeding for 3-4 weeks after application. DO NOT spray when air temperatures are greater than 90°F. Not recommended for use on centipedegrass and St. Augustinegrass. Avoid applications during the spring transition of warm-season turfgrasses.
2,4-D + triclopyr (Turflon II Amine) 2.8 + 1.1 lbs./gal.	Ky. bluegrass, tall fescue	4 + 4	1.0-2.0 qts.	0.7+0.3 to 1.4+0.6	See Label	Controls a broader spectrum of weeds than 2,4-D alone. NOT RECOMMENDED for warm-season grasses. Apply in spring or fall months when weeds are actively growing. Newly seeded turf should be mowed 3 times before application. DO NOT reseed until 3 weeks after application. Repeat applications are recommended for corn speedwell, ground ivy, woodsorrel, parsley-piert and wild violets.
2,4-D + triclopyr + sulfentrazone + dicamba (T-Zone) 1.75 + 0.5 + 0.06 + 0.2 lbs./gal.	Ky. bluegrass, dormant bahagrass, dormant bermudagrass, ryegrass, tall fescue, dormant zoysiagrass	4 + 4 + 14 + 4	2.0-4.0 pts.	0.44+0.125+ 0.015+0.05 to 0.88+0.25+ 0.03+0.1	24 H	Apply to cool-season turfgrasses for broadleaf weed control and suppression. Apply to fully DORMANT bermudagrass, bahagrass, or zoysiagrass only. DO NOT apply to bentgrass or greens, T-Zone is labeled for yellow nutsedge suppression. Add more sulfentrazone with this product to increase activity on sedges. DO NOT apply when temperatures are greater than 85°F or if turf is under stress from drought, heat, or disease.

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<b>Post-emergence Herbicides - continued</b>						
<p><i>2,4-D</i> + <i>halauxifen</i> + <i>fluroxypyr</i> (GameOn) 1.95 + 0.02 + 0.27 lbs./gal.</p>	<p>Ky. bluegrass, bentgrass, bermudagrass, tall fescue, ryegrass, zoysiagrass</p>	<p>4+4 +4</p>	<p>3.0-4.0 pts.</p>	<p>0.73 + 0.008 + 0.1 to 0.97 + 0.01 + 0.13</p>	<p>24 H</p>	<p>GameOn provides post-emergence control of annual and perennial broadleaf weeds in established turfgrass and ornamental grasses in golf courses, industrial sites, cemeteries, commercial sod farms, and unimproved turfgrass areas. Not for use on residential turf. DO NOT retreat for 21 days after initial treatment. The use of this herbicide in the spring when bermudagrass is breaking dormancy may delay green up of the turfgrass. Grass clippings from mowing within 2 weeks after application must be left onsite or discarded. DO NOT treat bentgrass or bermudagrass with GameOn when the mowing height is less than 1/2 inch. Hybrid bermudagrass can be more sensitive to injury than common bermudagrass. DO NOT apply more than 3 pt./A of GameOn to these grasses unless temporary turfgrass injury can be tolerated. DO NOT apply more than 4 pt./A per application and more than a total of 8 pints per year.</p>
<p><i>amicarbazone</i> (Xonerate) 70WDG (Xonerate) 2SC</p>	<p>Ky. bluegrass, bahiagrass, creeping bentgrass, bermudagrass, buffalograss, centipedeagrass, fine fescue, kikuyugrass, perennial ryegrass, seashore paspalum,</p>	<p>5</p>	<p>1.0-10.0 oz.</p>	<p>0.04-0.18</p>	<p>12 H</p>	<p>Provides post-emergence control of annual bluegrass and broadleaf weeds in creeping bentgrass, tall fescue, perennial ryegrass, and warm-season turfgrasses. Make applications when air temperatures range 50-80°F and DO NOT make applications to cool-season grasses in summer or fall due to increased injury. DO NOT apply to desirable roughstalk bluegrass turf. DO NOT exceed 10 oz./A/year of the WDG or 29 fl. oz/A of the 2SC formulation.</p>
<p><i>atrazine</i> (AAtrex) 4L (AAtrex) 90DG (AAtrex) 80W</p>	<p>dormant bermudagrass, centipedeagrass, St. Augustine, zoysiagrass</p>	<p>5</p>	<p>1.0-2.0 qts. 1.1-2.2 lbs. 1.2-2.5 lbs.</p>	<p>1.0-2.0 1.0-2.0 1.0-2.0</p>	<p>See Label</p>	<p>Apply to dormant bermudagrass for annual bluegrass and winter annual broadleaf weed control. DO NOT apply during bermudagrass green-up. AAtrex formulations may be applied from October 1-April 15. DO NOT apply over the root zone of ornamental shrubs. For spurweed, apply in December or January. For Florida betony, apply in late October and follow with a second treatment in late February. DO NOT apply more than 1 lb. ai/A to hybrid bermudagrass or to residential turf. AAtrex is a Restricted Use Herbicide.</p>
<p><i>bentazon</i> (Basagran T/O) 4.0 lbs./gal. (Lescogran) 4.0 lbs./gal.</p>	<p>Ky. bluegrass, bermudagrass, centipedeagrass, tall fescue, St. Augustinegrass, zoysiagrass</p>	<p>6</p>	<p>1.5-2.0 pts.</p>	<p>0.75-1.0</p>	<p>48 H</p>	<p>Apply to emerged, actively-growing yellow nutsedge. Use 2.0 pt./A and repeat the application 7-14 days later. Thorough spray coverage is essential for acceptable control. DO NOT mow 3 days before or after application. Other weeds controlled include annual sedges and dayflower. Add a crop oil concentrate at 2.0 pt./A to the spray mix. <i>Bentazon</i> is not recommended for use on putting greens.</p>
<p><i>bromoxynil</i> (Buctril) 2.0 lbs./gal</p>	<p>Ky. bluegrass, bermudagrass, tall fescue, St. Augustinegrass, zoysiagrass</p>	<p>6</p>	<p>1.5 pts.</p>	<p>0.375</p>	<p>24 H</p>	<p>Labeled for use on non-residential turfgrasses. May be used on newly sprigged or newly seeded grasses. Apply as a summer or winter treatment to control seedling annual broadleaf weeds. Buctril is a contact herbicide and uniform spray coverage is essential.</p>

Supplemental 2(ee) label recommendations may be available for some listed pesticides. It is the end-user's responsibility to consult the manufacturer or websites like [www.CDMS.net](http://www.CDMS.net) for additional recommendations.

## Turfgrass Weed Control for Professional Managers

Patrick E. McCullough, Extension Weed Scientist

Use Stage and Herbicide	Turfgrasses	WSSA Group	Broadcast Rate/Acres		REI	Remarks and Precautions
			Amount of Formulations	Pounds Active Ingredients		
<b>Post-emergence Herbicides - continued</b>						
<i>carfentrazone</i> (QuickSilver) T&O 1.9 lbs./gal.  (Quicksilver) 1.03 lbs./gal.	Ky. bluegrass, bermudagrass, centipedegrass, tall fescue, St. Augustinegrass, seashore paspalum, zoysiagrass  water-soluble 5 ml bag	14	0.9-2.1 fl. oz.  0.8-2.0 fl. oz.  5 ml/2,000 ft <sup>2</sup>	0.013-0.031	Until Dry	Controls numerous broadleaf weeds including plantains, chickweeds, dandelion, thistles, lawn burweed, henbit, corn speedwell, purslanes and spotted spurge. QuickSilver may also be applied to newly-seeded, sodded or sprigged turfgrasses. To expand the weed spectrum, QuickSilver may be tank-mixed with numerous other post-emergence herbicides. Aim formulations are registered for use only on seed and sod farms. Add a non-ionic surfactant at 0.125-0.25% v/v to the spray mix.
<i>carfentrazone</i> (0.04 lb./gal.) + 2,4-D (0.52 lb./gal.) + <i>MCP</i> P (0.2 lb./gal.) + <i>dicamba</i> (0.05 lb./gal.) (SpeedZone - Southern)	Ky. bluegrass, bermudagrass, centipedegrass, tall fescue, St. Augustinegrass, seashore paspalum, zoysiagrass	14 + 4 + 4 + 4	2.0-5.0 pts.	--	48 H	Controls a wide range of broadleaf weeds, including spotted spurge. May be applied after the second mowing in newly-established cool-season turfgrasses, or 4 weeks after sprigging or sodding of warm-season turfgrasses. DO NOT reseed until 1 week after application. DO NOT apply at air temperatures greater than 90°F. DO NOT apply during the spring green-up of St. Augustinegrass. DO NOT apply to Floratam, BitterBlue and other improved varieties of St. Augustinegrass.
<i>carfentrazone</i> (0.04 lb./gal.) + <i>MCP</i> A (2.21 lbs./gal.) + <i>MCP</i> P (0.44 lb./gal.) + <i>dicamba</i> (0.22 lb./gal.) (PowerZone)	Ky. bluegrass, bermudagrass, tall fescue, zoysiagrass	14 + 4 + 4 + 4	2.0-6.0 pts.	--	48 H	Controls a wide range of broadleaf weeds, including spotted spurge. May be applied after the second mowing in newly-established cool-season turfgrasses, or 4 weeks after sprigging or sodding of warm-season turfgrasses. DO NOT reseed until 2 weeks after application. DO NOT apply at air temperatures greater than 90°F.
<i>carfentrazone</i> (0.05 lb./gal.) + 2,4-D (1.53 lbs./gal.) + <i>MCP</i> A (0.48 lb./gal.) + <i>dicamba</i> (0.14 lb./gal.) (SpeedZone)	Ky. bluegrass, bermudagrass, tall fescue, zoysiagrass	14 + 4 + 4 + 4	2.0-5.0 pts.	--	48 H	Controls a wide range of broadleaf weeds, including spotted spurge. May be applied after the second mowing in newly-established cool-season turfgrasses, or 4 weeks after sprigging or sodding of warm-season turfgrasses. DO NOT reseed until 2 weeks after application. DO NOT apply at air temperatures greater than 90°F.

Supplemental 2(ee) label recommendations may be available for some listed pesticides. It is the end-user's responsibility to consult the manufacturer or websites like [www.CDMS.net](http://www.CDMS.net) for additional recommendations.

## Turfgrass Weed Control for Professional Managers

Patrick E. McCullough, Extension Weed Scientist

Use Stage and Herbicide	Turfgrasses	WSSA Group	Broadcast Rate/Acres		REI	Remarks and Precautions
			Amount of Formulations	Pounds Active Ingredients		
<b>Post-emergence Herbicides - continued</b>						
<i>chlorsulfuron</i> (Corsair) 75DF	Ky. bluegrass, bermudagrass, centipedegrass, St. Augustinegrass, zoysiagrass	3	1.0-5.33 oz.	0.05-0.25	See Label	Particularly effective for the control of "clump-type" tall fescue. Labeled only as spot treatment in lawns, but may be applied as a broadcast application on golf courses. Add a non-ionic surfactant at 0.25-0.33 fl. oz/gal of spray mix. DO NOT apply to ryegrass or tall fescue being grown as a turfgrass.
<i>clpyralid</i> (Lontrel) 3.0 lbs./gal.	Ky. bluegrass, bermudagrass, buffalograss, centipedegrass, tall fescue, St. Augustinegrass, zoysiagrass	4	0.25-1.33 pts.	0.09-0.5	12 H	Effectively controls numerous broadleaf weeds that belong to the aster and legume families. Control of other broadleaf weed species is poor. Sold in combination with <i>triclopyr</i> as Confront. <i>Clpyralid</i> is not labeled for use on residential turfgrasses.
<i>dicamba</i> (Vanquish) 4.0 lbs./gal.  (XetendiMax) 2.9 lbs./gal.	Ky. bluegrass, bermudagrass, buffalograss, centipedegrass, tall fescue, St. Augustinegrass, zoysiagrass	4	0.5-1.0 pts.  4.1-44.0 fl. oz.	0.25-0.5  0.1-1.0	24 H	Apply to small and actively-growing broadleaf weeds as a summer or winter treatment. Provides better control of henbit, knotweed, lespedeza, clovers, docks and woodsorrel than 2,4-D. Repeat treatment if necessary. DO NOT apply to St. Augustinegrass. DO NOT use over the root zone of ornamental trees and shrubs.  <b>Xtendimax</b> is labeled for sod farms for the control of annual and perennial broadleaf weeds. DO NOT broadcast-apply more than 44 fl. oz/A/growing season. Applying more than 16 fl. oz/A to buffalograss or St. Augustinegrass may result in excessive stunting or discoloration. DO NOT make re-treat applications in these areas for 30 days until previous applications have been activated in the soil by rain or irrigation. DO NOT use on residential sites.
<i>diclofop-methyl</i> (Illoxan) 3EC	bermudagrass (golf courses only)	1	1.0-1.4 qts.	0.75-1.0	See Label	Illoxan may be used for goosegrass control on bermudagrass golf courses. Use the high rate for goosegrass with one to two tillers. Lower rates may be used on smaller goosegrass. DO NOT mow for 24-36 hours after application. Control requires 2-3 weeks. May cause temporary phytotoxicity (7-10 days). DO NOT mix with other pesticides or fertilizers as control will be reduced. DO NOT overseed treated areas for at least 2 months after the last application. Illoxan is a Restricted Use Pesticide.
<i>diquat</i> (Reward) 2.0 lbs./gal.	dormant bermudagrass	22	1.0-2.0 pts.	0.25-0.5	24 H	Controls certain winter annual broadleaf weeds, such as little barley, annual bluegrass, henbit and Carolina geranium in dormant bermudagrass in lawns, parks and golf courses. A non-ionic surfactant at 0.25% v/v should be added to the spray mix. Apply only to dormant bermudagrass.
<i>ethofumesate</i> (Prograss) 1.5EC	Ky. bluegrass, dormant bermudagrass, tall fescue, perennial ryegrass	8	See Label	See Label	12 H	Apply Prograss in fall for pre- and post-emergence control of annual bluegrass in perennial ryegrass and tall fescue. Prograss can be applied to dormant bermudagrass in the fall 1-2 weeks after emergence of perennial ryegrass for the control of annual bluegrass. An additional application at 1.0 lb. ai/A at 21-28 day intervals may be required to maintain control. The initial treatment may cause immediate browning of bermudagrass that is not completely dormant. DO NOT apply Prograss after Jan. 15 to overseeded bermudagrass. Applications after this date can severely delay bermudagrass growth in the spring. Prograss is not labeled for use on golf course putting greens.
<i>ethofumesate</i> (Prograss) 1.5EC + <i>atrazine</i> (numerous formulations)	St. Augustinegrass	8 + 5	2.0 gals. + 2.0 lbs.	3.0 + 2.0	See Label	Prograss + <i>atrazine</i> may be used to control bermudagrass in St. Augustinegrass. Make the first application in mid-March when bermudagrass initiates green-up. Repeat this application 30 days later. Application timing is critical for control. Temporary St. Augustinegrass stunting may occur. Avoid improper overlapping of the spray pattern.

Supplemental 2(ee) label recommendations may be available for some listed pesticides. It is the end-user's responsibility to consult the manufacturer or websites like [www.CDMS.net](http://www.CDMS.net) for additional recommendations.



## Turfgrass Weed Control for Professional Managers

Patrick E. McCullough, Extension Weed Scientist

Use Stage and Herbicide	Turfgrasses	WSSA Group	Broadcast Rate/Acres		REI	Remarks and Precautions
			Amount of Formulations	Pounds Active Ingredients		
<b>Post-emergence Herbicides - continued</b>						
<i>fenoxaprop</i> (Acclaim Extra) 0.57 lb./gal.	Ky. bluegrass, fine fescue, tall fescue, perennial ryegrass, zoysiagrass	1	13.0-39.0 fl. oz.	0.06-0.17	24 H	Controls annual grasses. Apply in late spring or early summer to weedy grasses in the 3-leaf (low rate) to 5-tiller (high rate) growth stage. Repeat application at 14 days if weed regrowth has occurred and no turfgrass injury is present. DO NOT tank mix Acclaim with <i>phenoxy</i> containing herbicides. Fescues and ryegrasses may be seeded immediately after application. Acclaim may be used on newly plugged zoysiagrass and seedling fescues and perennial ryegrasses that are 4 weeks old. Acclaim Extra + Turflon Ester tank-mixtures can be used to control bermudagrass in tall fescue and zoysiagrass.
<i>flazasulfuron</i> (Katana) 25 WG	bermudagrass, centipedegrass, seashore paspalum, zoysiagrass	2	0.25-3.0 oz.	--	12 H	<i>Flazasulfuron</i> (Katana) is a selective herbicide for removal of overseeded cool-season grasses as well as control of annual and perennial grasses, sedges, and broadleaf weeds in bermudagrass, zoysiagrass, and certain other warm-season turfgrasses. <i>Flazasulfuron</i> has post-emergence and some pre-emergence activity and may be used on golf courses (fairways, roughs, and tees) and the following non-residential turf areas: industrial parks, tank farms, sod farms, seed farms, cemeteries, professionally managed college and professional sports fields, and commercial lawns for control of cool-season grasses and weeds from tolerant grasses. The maximum yearly application rate is 9.0 oz./A. Use only on labeled turfgrasses or severe injury may result. DO NOT apply to newly seeded, sodded, or sprigged Turfgrass until well established. Allow at least 2 weeks from the last application to the time of overseeding when applied at 1.5 oz./A. Allow 4 weeks for rates above 1.5 oz./A.
<i>florasulam</i> (Defendor) 0.42 lb./gal.	Ky. bluegrass, bahiagrass, bentgrass, bermudagrass, centipedegrass, tall fescue, perennial ryegrass, St. Augustinegrass, seashore paspalum, zoysiagrass	2	4.0 fl. oz.	0.013	4 H	Apply for post-emergence control of annual and perennial broadleaf weeds in established turfgrass, including residential lawns, golf courses, sports fields, sod farms and commercial turfgrass areas. Apply with a non-ionic surfactant when <i>florasulam</i> is applied alone. Make applications in a minimum of 20 gal./A of spray solution. DO NOT apply more than 12 fl. oz./A/year. DO NOT make repeat treatments within 4 weeks of initial applications. DO NOT apply to golf greens.
<i>fluazifop-butyl</i> (Fusilade II) 2.0 lbs./gal.	tall fescue, zoysiagrass	1	3.0-6.0 fl. oz.	0.05-0.10	12 H	Use to control common and hybrid bermudagrass in zoysiagrass and tall fescue. Tank mix with Turflon Ester to improve control of bermudagrass. In zoysiagrass, apply 3.0-4.0 fl. oz./A plus 0.25% v/v non-ionic surfactant. Make the first application around June 1 and repeat every 20-30 days. Reduce the rate to 2.0-3.0 fl. oz./A in the late summer. In tall fescue, apply 5.0-6.0 fl. oz./A plus 0.25% v/v non-ionic surfactant in the spring (April-May) as bermudagrass begins to green-up. Repeat the application in September-October. DO NOT apply to tall fescue during the hot summer months. Some injury (discoloration) will occur on tall fescue for up to 14 days after application.
<i>flumioxazin</i> (Sureguard) 51WDG	dormant bermudagrass	14	8.0-12.0 oz.	0.23-0.38	12 H	Provides pre-emergence control of annual broadleaf weeds and annual grasses including crabgrass, goosegrass, and annual bluegrass. <i>Flumioxazin</i> also provides post-emergence control of annual bluegrass and annual broadleaf weeds. Applications should be limited to dormant bermudagrass only. Late fall applications to partially green bermudagrass can aid in transition to dormancy. DO NOT apply to golf greens or actively growing turfgrasses. DO NOT apply more than 24 oz./A/ year. The addition of a non-ionic surfactant is recommended for post-emergence applications.

Supplemental 2(ee) label recommendations may be available for some listed pesticides. It is the end-user's responsibility to consult the manufacturer or websites like [www.CDMS.net](http://www.CDMS.net) for additional recommendations.

## Turfgrass Weed Control for Professional Managers

Patrick E. McCullough, Extension Weed Scientist

Use Stage and Herbicide	Turfgrasses	WSSA Group	Broadcast Rate/Acres		REI	Remarks and Precautions
			Amount of Formulations	Pounds Active Ingredients		
<b>Post-emergence Herbicides - continued</b>						
<i>fluroxypyr</i> (Spotlight) 1.5 lbs./gal.	Ky. bluegrass, bermudagrass, centipedegrass, tall fescue, St. Augustinegrass, zoysiagrass	4	0.67-1.33 pts.	0.125-0.25	12 H	Controls numerous broadleaf weeds including common purslane, chickweeds, white clover, ground ivy, and woodsorrel. Apply to newly seeded turf after 2-3 mowings or to established turf. To broaden weed spectrum, Spotlight can be mixed with other labeled turf herbicides. Use Spotlight on bermudagrass and St. Augustinegrass only at 0.67 pt./A and only if some injury can be tolerated. Not recommended for use on golf course putting greens
<i>foramsulfuron</i> (Revolver) 0.19 lb./gal	bermudagrass, zoysiagrass	2	8.8-26.2 fl. oz.	0.013-0.04	12 H	Apply Revolver for: a) control of undesirable cool-season grasses (including tall fescue); b) control of emerged annual bluegrass 1 week before overseeding bermudagrass with perennial ryegrass; c) post-emergence control of goosegrass in late spring and early summer; and d) spring transition of bermudagrass overseeded the previous fall with cool-season turfgrasses. For tillered goosegrass, make 2 applications at the high rate 7-14 days apart. A tank-mix of Revolver at 26.2 fl. oz. + <i>MSMA</i> (normal rate) applied twice 3-4 weeks apart will control dallisgrass. Late summer and early fall applications of this tank-mix usually provide better control than earlier applications. DO NOT apply Revolver within 2 weeks of sprigging. Revolver is rainfast within 2 hours of application.
<i>glufosinate</i> (Finale) 1.0 lb./gal.	dormant bermudagrass	10	3.0-6.0 qts.	0.75-1.5	12 H	Controls numerous winter annual broadleaf weeds and annual bluegrass in completely dormant Bermudagrass. DO NOT apply during spring green-up.
<i>glyphosate</i> (Roundup Pro) 4.0 lbs./gal.	dormant bermudagrass	9	0.75 pt.	0.375	4 H	APPLY ONLY TO DORMANT BERMUDAGRASS. Controls annual bluegrass. Apply in 5-20 gals. water/A. DO NOT apply during green-up or to actively growing bermudagrass.
<i>halosulfuron</i> (SedgeHammer) 75DF (Prosedge) 75DF	Ky. bluegrass, bermudagrass, centipedegrass, tall fescue, St. Augustinegrass, seashore paspalum, zoysiagrass	2	0.67-1.33 oz.	0.031-0.062	12 H	Controls yellow and purple nutsedge, and suppresses green kyllinga. A second application may be needed 6 to 10 weeks after the initial application. Apply at the 3-8 leaf nutsedge growth stage. Add a non-ionic surfactant at 0.5% v/v (2.0 qt./100 gal). DO NOT mow 2 days before or after application. DO NOT apply to golf course putting greens.
<i>imazaquin</i> (Image) 70DG	bermudagrass, centipedegrass, St. Augustinegrass, zoysiagrass	2	8.6-11.4 oz.	0.37-0.5	12 H	Controls nutsedges, wild garlic, and selected broadleaf weeds. Add a non-ionic surfactant at 1.0 qt./100 gals. The addition of <i>MSMA</i> (bermudagrass only) will aid in control of nutsedges and escaped weedy grasses. Two applications per year, at an interval of 6-8 weeks, will be needed to control purple nutsedge. DO NOT apply when turfgrass is emerging from winter dormancy. Image will severely injure fescues and ryegrasses. DO NOT apply to newly planted or sprigged lawns or golf greens.
<i>imazaosulfuron</i> (Celero) 75WDG	Ky. bluegrass, bentgrass, bermudagrass, centipedegrass, fescue, ryegrass, St. Augustinegrass, zoysiagrass	2	8.0-14.0 oz.	0.38-0.66	12 H	Provides post-emergence control of annual and perennial sedges, kyllinga, and broadleaf weeds. Celero is labeled for residential and non-residential turfgrass including golf courses, sod farms, sports fields, parks, and lawns. Apply with a non-ionic surfactant at 0.25% v/v. Make second treatments no sooner than 21 days after the initial treatment. DO NOT apply more than 14 oz./A/application. DO NOT apply to golf greens.

Supplemental 2(ee) label recommendations may be available for some listed pesticides. It is the end-user's responsibility to consult the manufacturer or websites like [www.CDMS.net](http://www.CDMS.net) for additional recommendations.

## Turfgrass Weed Control for Professional Managers

Patrick E. McCullough, Extension Weed Scientist

Use Stage and Herbicide	Turfgrasses	WSSA Group	Broadcast Rate/Acres		REI	Remarks and Precautions
			Amount of Formulations	Pounds Active Ingredients		
<b>Post-emergence Herbicides - continued</b>						
<i>MCPA</i> (51%) + <i>fluroxypyr</i> (6%) + <i>dicamba</i> (4%) (Change Up)	Ky. bluegrass, bentgrass, bermudagrass, carpetgrass, centipedegrass, tall fescue, ryegrass, St. Augustinegrass, zoysiagrass	4+4+4	2.0-3.0 pts.	See Label	48 H	Apply for broadleaf weed control in warm and cool-season grasses in residential lawns, nonresidential lawns, sod, and golf turf. DO NOT apply to golf greens and tees. DO NOT use on "Floritam," "Bitterblue," and other improved St. Augustinegrass varieties. Avoid applications during excessively hot or dry periods. DO NOT mow for 1-2 days before and after applications. DO NOT apply to newly seeded grasses or when temperatures are greater than 90° F if turf injury is unacceptable.
<i>MCPA</i> + <i>MCPP</i> + <i>2,4-DP</i> (Triamine II) (Tri-Ester II) (Trimec Encore)	Ky. bluegrass, bermudagrass, centipedegrass, tall fescue, St. Augustinegrass, zoysiagrass	4+4+4	See Label	See Label	See Label	Refer to individual labels for recommended amount of formulated product. Controls a broader spectrum of weeds than <i>2,4-D</i> alone. DO NOT spray at air temperatures greater than 85°F, and when warm-season turfgrasses are growing under stress conditions. Delay reseeding for 4 weeks after treatment. Trimec Encore is not labeled on St. Augustinegrass.
<i>MCPA</i> + <i>triclopyr</i> + <i>dicamba</i> (Cool Power) (HorsePower)	Ky. bluegrass, bermudagrass, tall fescue, zoysiagrass	4+4+4	See Label	See Label	See Label	Controls a broader spectrum of weeds than <i>2,4-D</i> alone. Cool Power is an ester formulation of <i>MCPA</i> + <i>triclopyr</i> + <i>dicamba</i> primarily for use during the cool winter months. HorsePower contains <i>amine</i> formulations of these herbicides. DO NOT mow 1-2 days before or after application. Delay application to newly seeded grasses until after 3-4 mowings. Delay reseeding for 3-4 weeks after application. Avoid applications during the spring transition of warm-season turfgrasses.
<i>MCPA</i> + <i>MCPP</i> + <i>dicamba</i> (Tri-Power)	Ky. bluegrass, bermudagrass, tall fescue, zoysiagrass	4+4+4	See Label	See Label	See Label	Controls a broader spectrum of weeds than <i>2,4-D</i> alone. DO NOT mow 1-2 days before or after application. Delay application to newly seeded grasses until after 3-4 mowings. Delay reseeding for 3-4 weeks after application. Avoid applications during the spring transition of warm-season turfgrasses unless a slight delay in green-up can be tolerated.
<i>MCPP</i> + <i>2,4-D</i> + <i>dicamba</i> (Trimec Southern)	Ky. bluegrass, bermudagrass, centipedegrass, tall fescue, St. Augustinegrass, zoysiagrass	4+4+4	See Label	0.7 + 0.4 + 0.08	48 H	Controls a broader spectrum of weeds than <i>2,4-D</i> alone. DO NOT spray when turfgrass is emerging from winter dormancy. Avoid application if air temperatures are greater than 85°F. Delay reseeding for 4 weeks after application. Refer to label for rates for St. Augustinegrass and centipedegrass.
<i>methiozolin</i> (PoaCure) SC 2.3 lbs./gal.	Ky. bluegrass, bentgrass bermudagrass, fescue, ryegrass, seashore paspalum, zoysiagrass	Not Classified	0.2-0.4 gal.	0.46-0.92	See Label	PoaCure is a pre- and post-emergence herbicide that will selectively control annual bluegrass and roughstalk bluegrass in various established golf course turf including creeping bentgrass putting greens and fairways, and other turf areas consisting of various cool and warm season turfgrasses. Provides pre-emergence control of crabgrass and goosegrass, and certain broadleaf weeds. Apply between 0.2 to 0.4 gal./A when the average daily temperature is between 50° and 80° F, when both <i>Poa</i> weeds and turfgrasses are actively growing. DO NOT apply when summer air temperatures are consistently above 85° F or immediately following stressful summer weather. Not for use on turf being grown for sale or other commercial use as sod or seed production. DO NOT exceed 1 gal./A/year. See label for recommendations regarding application regimens.

Supplemental 2(ee) label recommendations may be available for some listed pesticides. It is the end-user's responsibility to consult the manufacturer or websites like [www.CDMS.net](http://www.CDMS.net) for additional recommendations.

## Turfgrass Weed Control for Professional Managers

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Use Stage and Herbicide	Turfgrasses	WSSA Group	Broadcast Rate/Acres		REI	Remarks and Precautions
			Amount of Formulations	Pounds Active Ingredients		
<b>Post-emergence Herbicides - continued</b>						
<i>metribuzin</i> (Sencor) 75 Turf	bermudagrass	5	0.67 lb.	0.5	See Label	<b>Dormant bermudagrass:</b> Apply to emerged winter annual weeds. Make only one application per season. <b>Actively growing bermudagrass:</b> Apply to bermudagrass that is actively growing and not under stressed conditions. Controls goosegrass and selected annual weeds. DO NOT make more than two applications per season. Sencor may cause temporary discoloration. Delay mowing treated areas for at least 3 days.
<i>metribuzin</i> (Sencor) 75 Turf + MSMA (Several trade names)	bermudagrass	5+17	2.6 dry oz. + See Label	0.125 + 2.0	See Label	This tank mix provides better control of goosegrass than the use of MSMA alone. Apply ONLY to established bermudagrass that is actively growing and not under stressed conditions. Two applications spaced 7-10 days apart may be necessary for acceptable control.
<i>metsulfuron</i> (Manor) 60DF (Blade) 60DF (Various) 60DF	Ky. bluegrass, bermudagrass, centipedegrass, St. Augustinegrass, zoysiagrass	2	0.25-1.0 oz.	0.009-0.037	See Label	Controls a wide range of broadleaf weeds, 'Pensacola' bahiagrass, and wild garlic/onion. May also be used hasten the spring transition of bermudagrass overseeded with perennial ryegrass to bermudagrass. Add a non-ionic surfactant at 0.25% v/v. DO NOT exceed 0.5 oz. on centipedegrass or Kentucky bluegrass. DO NOT overseed for 8 weeks after application, or plant woody ornamentals in treated areas for one year after application. Not recommended for use on tall fescue.
<i>metsulfuron</i> + <i>sulfentrazone</i> (Blindside) 66WDG (6%+66%)	bermudagrass, centipedegrass, tall fescue, St. Augustinegrass, zoysiagrass	2+14	3.25-10.0 oz.	0.13-0.41 (0.01+0.12 to 0.038+0.375)	12 H	Apply for selective post-emergence control of annual grasses, broadleaf weeds, and sedges in established turf areas including, but not limited to, residential, commercial and institutional lawns, athletic fields, commercial sod farms, golf course fairways, and golf course roughs. Best weed control results will be obtained when no rainfall or irrigation occurs within 24 hours after application. If no rainfall or irrigation occurs within 7 days after applications in the amount of 0.5 inches, then irrigation of at least 0.5 inches is recommended. DO NOT apply to tall fescue at temperatures greater than 75° F. DO NOT apply to centipedegrass during spring transition. Use the lowest rate for tall fescue. DO NOT apply to golf course putting greens, collars, or tees. DO NOT use on turfgrass other than those listed on the label or turfgrass under stress. See product label for further information before use.
<i>MSMA</i> (Bueno 6) 6.0 lbs./gal. (Daconate 6) 6.0 lbs./gal. (Other trade names)  <i>DSMA</i> (DSMA Liquid) 3.6 lbs./gal. (Weed-E-Rad 360) 3.6 lbs./gal. (Other trade names)	Ky. bluegrass, bermudagrass, tall fescue	17	2.7 pts.  1.0 gal.	2.0  3.6	See Label	These herbicides control emerged annual grasses, bahiagrass, and dallisgrass and provide fair control of nutsedge. Multiple applications spaced 7-10 days apart are needed for acceptable control. Temporary discoloration of turf will occur. May be applied to newly sprigged bermudagrass at the above rates. On new stands of fescue, apply 1/2 rate after 3 mowings. Add a surfactant according to label directions. Zoysiagrass cultivars vary in tolerance to MSMA. 'Meyer' is more tolerant than 'Emerald' or 'Matrella'. DO NOT apply to centipedegrass or St. Augustinegrass.

Supplemental 2(ee) label recommendations may be available for some listed pesticides. It is the end-user's responsibility to consult the manufacturer or websites like [www.CDMS.net](http://www.CDMS.net) for additional recommendations.

## Turfgrass Weed Control for Professional Managers

Patrick E. McCullough, Extension Weed Scientist

Use Stage and Herbicide	Turfgrasses	WSSA Group	Broadcast Rate/Acres		REI	Remarks and Precautions
			Amount of Formulations	Pounds Active Ingredients		
<b>Post-emergence Herbicides - continued</b>						
<i>penoxsulam</i> + <i>sulfentrazone</i> + <i>2,4-D</i> + <i>dicamba</i> (Avenue South)	bermudagrass, buffalograss, centipedegrass, Kentucky bluegrass, ryegrass, seashore paspallum, St. Augustinegrass, tall fescue, zoysiagrass	2+4+14	3.0-6.0 pts.	--	48 H	Provides post-emergence control of annual and perennial broadleaf weeds in established residential and non-residential turf including lawns, parks, golf courses, sports facilities, and sod farms. DO NOT apply this product to golf greens, collards, tees, bentgrass, carpetgrass, dichondra, legumes, and lawns where desirable clovers are present. Applications made when ambient temperatures are above 90°F (85°F for St. Augustinegrass) may cause undesirable turf injury. Environmental conditions and spray tank, liquid fertilizers, and tank mixtures containing other emulsifiable concentrates may reduce the selectivity on turfgrass. DO NOT collect grass clippings for use as mulch around plants. DO NOT broadcast apply to bare ground or paved surfaces.
<i>pinoxaden</i> (Manuscript) 0.42EC	bermudagrass, St. Augustinegrass, zoysiagrass	1	9.6-19.2 fl. oz.	0.0315-0.63	48 H	Provides post-emergence control of grassy weeds including crabgrass, dallisgrass, torpedograss, and tropical signalgrass. Make two applications 14 to 21 days apart. DO NOT apply more than 19.2 fl. oz./acre per calendar year. Spot treatments may be applied by mixing 9.6 fl. oz. of Manuscript in 20 gallons of water per acre for treating an area up to 10,000 sq. ft. Apply in combination with Adigor spray adjuvant or methylated seed oil at 0.5% v/v. Applications to St. Augustinegrass are restricted to sod production and only if temporary injury can be tolerated. Manuscript may be used on bermudagrass and zoysiagrass.
<i>prodiamine</i> + <i>imazaquin</i> + <i>simazine</i> (Coastal) 1.68 + 0.73 + 2.59 lbs./gal.	bermudagrass, centipedegrass, St. Augustinegrass, zoysiagrass	2 +3+5	48.0-64.0 oz	0.63 to 0.84  0.27 to 0.37  0.97 to 1.3	12 H	Provides control of annual grasses and broadleaf weeds. Apply this product anytime from Sept 15 thru May 31 with the exception of just prior to and during spring transition. Do NOT apply if spring transition is imminent or expected within 3-4 weeks unless delayed green up and/or temporary yellowing can be tolerated. For fall and winter applications – 64 fl. oz/A is recommended. For spring applications – 48 fl. oz/A is recommended if spring transition is expected within a month. Higher labelled rates may be used if spring transition is at least 4-6 weeks away or has already occurred. DO NOT exceed the maximum of 113 fl. oz/A/year. DO NOT apply if spring transition is imminent or expected within 3-4 weeks as delayed greenup and temporary yellowing may occur. DO NOT use after May 31st.
<i>pronamide</i> (Kerb T/O) 50WSP (Kerb) 3.3SC	bermudagrass, centipedegrass, St. Augustinegrass, zoysiagrass	3	1.5-3.0 lbs.	0.75-1.5	24 H	<i>Pronamide</i> will control emerged annual bluegrass, corn speedwell, and common chickweed. Increase rate as annual bluegrass approaches maturity. <i>Pronamide</i> acts slowly (3-5 weeks) on seedling to mature annual bluegrass. DO NOT apply to any cool season grass. A light overhead irrigation is necessary to move Kerb into the weed root zone if not rainfall occurs within 24-48 hours. Kerb is a Restricted Use Herbicide.
<i>pyrimisulfan</i> (Vexis) 0.025%  (Akron) 1.24%	Ky. bluegrass, bahiagrass, bentgrass, bermudagrass, buffalograss, centipedegrass, tall fescue, ryegrass, St. Augustinegrass, seashore paspalum, zoysiagrass	2	174.0 lbs.  3.4-4.7 pts.	0.04	12 H	Apply for post-emergence control of sedges, kyllinga, rushes, and broadleaf weeds. Labeled for use in residential lawns, ornamental turf sites, non-crop areas, and sod farms. Moisture on leaf surface is not required. Temperatures below 50 F will reduce weed control activity. For best results, water-in granules within 48 hours after treatment. Apply in early fall for control of winter annual weeds including henbit, chickweed, and false dandelion. DO NOT exceed 360 lb./A/year.  Akron: For harder-to-control weeds, two applications at the 3.4 pts./acre rate 30 days apart should be considered.

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## Turfgrass Weed Control for Professional Managers

Patrick E. McCullough, Extension Weed Scientist

Use Stage and Herbicide	Turfgrasses	WSSA Group	Broadcast Rate/Acres		REI	Remarks and Precautions
			Amount of Formulations	Pounds Active Ingredients		
<b>Post-emergence Herbicides - continued</b>						
<i>quinclorac</i> (Drive 75DF) (Drive XLR8) 1.5 SL	Ky. bluegrass, bermudagrass, tall fescue, seashore paspalum, zoysiagrass	4	1.0 lb. 64.0 fl. oz.	0.75	12 H	Provides excellent control of crabgrass, barnyardgrass and clovers with 1 application. Multiple applications will also provide control of torpedograss. Add methylated seed oil at 1.5 pts./A to the spray mix. DO NOT mow 2 days before or after application. Drive may also be applied before, at, and during seedling emergence of bermudagrass, tall fescue and zoysiagrass. DO NOT add an adjuvant until 28 days after emergence. Apply under conditions of good soil moisture. For best results do not irrigate for 24 hours after application. DO NOT apply to bahiagrass, carpetgrass, St. Augustinegrass or centipedegrass. DO NOT apply to exposed feeder roots of ornamental trees and shrubs.
<i>quinclorac</i> (0.75 lb./gal) + <i>2,4-D</i> (1 lb./gal) + <i>dicamba</i> (0.125 lb./gal.) (Qunicept)	Bentgrass, bermudagrass, buffalograss, Ky. bluegrass, ryegrass, tall fescue, zoysiagrass	4+4+4	7.0-8.0 pts.	0.66+0.88 + 0.1-0.75 + 1+0.125	48 H	Apply to residential and nonresidential cool-season turfgrasses for broadleaf weed control and suppression or control of grassy weeds. Apply lower rates on bermudagrass and zoysiagrass and DO NOT apply to Golf Greens. Controls young barnyardgrass, crabgrass, and foxtails but repeat applications may be needed for complete control of mature plants. DO NOT apply at temperatures greater than 90° F or if turf is under stress from drought, heat, or disease.
<i>rimsulfuron</i> (TranXit GTA) 25DF	bermudagrass, centipedegrass, zoysiagrass	2	1.0-2.0 oz.	0.016-0.032	See Label	May be used: a) to control annual bluegrass before overseeding bermudagrass with perennial ryegrass or <i>Poa Trivialis</i> ; b) to control annual bluegrass and certain weeds in non-overseeded bermudagrass, centipedegrass and zoysiagrass and c) to remove perennial ryegrass or <i>Poa trivialis</i> from bermudagrass in the late spring. Add a non-ionic surfactant at 0.25% v/v. Apply 10-14 days in late summer or early fall before overseeding bermudagrass. DO NOT apply after overseeding, or to bentgrass putting greens. To hasten spring transition on overseeded bermudagrass, apply at the 60 to 75% green-up growth stage of bermudagrass, or approximately 2-3 weeks before transition is desired. DO NOT apply to residential lawns, cool-season turfgrasses or to newly sprigged or sodded bermudagrass.
<i>sethoxydim</i> (Segment) 1.0 lb./gal.	centipedegrass, fine fescue	1	1.5-2.25 pts.	0.19-0.28	12 H	Apply <i>sethoxydim</i> only to centipedegrass and fine fescues (creeping red, Chewings, hard fescue). Other turfgrasses, including tall fescue, will be severely injured by <i>sethoxydim</i> . Controls annual grasses and suppresses bahiagrass growth. Apply no sooner than 3 weeks after green-up. DO NOT exceed 1.5 pt./A on seedling centipedegrass. DO NOT mow 7 days prior to or after application. Two applications per season may be utilized in seedling and established centipedegrass. For bahiagrass suppression, repeat treatment 10-14 days after the first application.
<i>sulfentrazone</i> (Dismiss) 4.0SC (Spartan) 4F	Ky. bluegrass, bermudagrass, centipedegrass, tall fescue, St. Augustinegrass, seashore paspalum, zoysiagrass	14	4.0-12.0 fl. oz.	0.125-0.375	12 H	Controls nutsedge(s), annual sedges, kyllinga species and a wide range of broadleaf weeds. Apply to established grasses, or to newly established grasses (seeded or sodded) after the second mowing. Treated areas may be reseeded or sodded 3 months after application. Overseeding with perennial ryegrass may be done 6 weeks after application if slight injury to ryegrass can be tolerated. DO NOT apply Dismiss within 3 months of sod harvest. Dismiss is not recommended for use on golf course putting greens. Spartan is labeled for use only on seed and sod farms.
<i>sulfentrazone</i> + <i>carfentrazone</i> (Dismiss NXT) 3.5 lbs./gal.	Ky. bluegrass, bermudagrass, centipedegrass, tall fescue, St. Augustinegrass, seashore paspalum, zoysiagrass	14	5.1-15.3 fl. oz.	0.14-0.4	12 H	Controls nutsedges, annual sedges, kyllinga species and a wide range of broadleaf weeds. Apply to established grasses, or to newly established grasses (seeded or sodded) after the second mowing. Treated areas may be reseeded or sodded 3 months after application. Overseeding with perennial ryegrass may be done 2 to 4 weeks after application if slight injury to ryegrass can be tolerated. Dismiss NXT is not labeled for use on golf course putting greens, collar, or tees.

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## Turfgrass Weed Control for Professional Managers

Patrick E. McCullough, Extension Weed Scientist

Use Stage and Herbicide	Turfgrasses	WSSA Group	Broadcast Rate/Acres		REI	Remarks and Precautions
			Amount of Formulations	Pounds Active Ingredients		
<b>Post-emergence Herbicides - continued</b>						
<i>sulfentrazone</i> (0.06 lb./gal.) + <i>2,4-D</i> (1.4 lbs./gal.) + <i>MCP</i> P (0.5 lb./gal.) + <i>dicamba</i> (0.22 lb./gal.) (Surge)	Ky. bluegrass, bermudagrass, tall fescue, zoysiagrass	14+4+4+4	2.75-4.0 pts.	--	48 H	Controls a wide range of broadleaf weeds, including spotted spurge. This product will also provide some suppression of small, actively-growing yellow nutsedge. May be applied after the second mowing in newly-established cool-season turfgrasses, or 4 weeks after sprigging or sodding warm-season turfgrasses. DO NOT reseed until 3 weeks after application. DO NOT apply at air temperatures greater than 90°F, or during the spring transition of warm-season turfgrasses.
<i>sulfentrazone</i> (0.06 lb./gal.) + <i>quinclorac</i> (0.5 lb./gal.) + <i>2,4-D</i> 0.88 lb./gal + <i>dicamba</i> (0.09 lb./gal) (Q4 Plus)	Ky. bluegrass, bermudagrass, buffalograss, ryegrass, zoysiagrass	14+4+4+4	7.0-8.0 pts.	0.05+0.04+ 0.77+0.08 - 0.06+0.5+0.88 +0.09	48 H	Apply to warm and cool-season turfgrasses for broadleaf weed control and suppression or control of grassy weeds. DO NOT apply to bentgrasses or greens. Controls young barnyardgrass, crabgrass, and foxtails but repeat applications will be needed for complete control of mature plants. DO NOT apply at temperatures greater than 90°F or if turf is under stress from drought, heat, or disease.
<i>sulfosulfuron</i> (Certainty) 75DF	bermudagrass, centipedegrass, St. Augustinegrass, zoysiagrass	2	0.75-1.25 oz.	0.035-0.07	12 H	Controls nutsedges, annual sedges, <i>kyllinga</i> species, annual bluegrass, tall fescue, and certain broadleaf weeds in warm-season turfgrasses. Add a non-ionic surfactant at 0.25 v/v to the spray mix. Avoid mowing for 1-2 days before and after application. For nutsedges repeat the application at 4 to 10 weeks if regrowth is observed. Certainty may be applied 7-10 days before overseeding bermudagrass with perennial ryegrass. Certainty is not recommended for use on putting greens.
<i>thiencarbazone-methyl</i> 10% + <i>foramsulfuron</i> 20% + <i>halosulfuron</i> 31% (Tribute Total) 61% WDG	bermudagrass	2+2+2	1.0-3.2 oz.	0.006-0.02	12 H	Provides selective, post-emergence control of annual and perennial grassy weeds, sedges and <i>kyllingas</i> , and broadleaf weeds growing in well-established bermudagrass. Use only on commercial and residential turf including golf courses (excluding greens and overseeded tees), residential and commercial lawns, sports fields, cemeteries, parks, campgrounds, recreational areas, roadsides, school grounds, and sod farms. For post-emergence control of dallisgrass in well-established bermudagrass, use 3.2 oz./A and include the addition of a methylated seed soil and ammonium sulfate. Make an application in late summer / early fall while the weeds are still actively growing and not under stress. Follow up with a second application after 4-6 weeks. Tribute Total also controls annual bluegrass, overseeded ryegrass, creeping bentgrass, and other weeds. See label for further information.
<i>thiencarbazone</i> + <i>iodosulfuron</i> + <i>dicamba</i> Celsius 68 WG	bermudagrass, centipedegrass, St. Augustinegrass, zoysiagrass	2+4	2.5-4.9 oz.	See Label	24 H	This product is intended for commercial application (licensed applicators only) to residential lawns, commercial lawns, golf courses, sports fields, parks, campsites, recreational areas, residential lawns, roadsides, school grounds, cemeteries, sod farms to control annual and perennial broadleaf weeds and grasses in warm-season grasses. For certain weeds, a second application made 2-4 weeks later may be needed for complete weed control (see label). Total amount of product applied in a calendar year must not exceed 7.4 oz./A. See label before use. DO NOT apply to areas with desirable carpetgrass or bahiagrass.

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## Turfgrass Weed Control for Professional Managers

Patrick E. McCullough, Extension Weed Scientist

Use Stage and Herbicide	Turfgrasses	WSSA Group	Broadcast Rate/Acres		REI	Remarks and Precautions
			Amount of Formulations	Pounds Active Ingredients		
<b>Post-emergence Herbicides - continued</b>						
<i>thiencarbazon</i> + <i>iodosulfuron</i> + <i>dicamba</i> Celsius XTRA0	bermudagrass, centipedegrass, St. Augustinegrass, zoysiagrass	2	5 to 10 oz	.005 to 0.1	12H	Apply for postemergence weed control in residential lawns, non-crop areas, sod farms, and commercial turf including golf courses, athletic fields, and non-residential lawns. Controls numerous grasses, broadleaf weeds, and sedges in tolerant turfgrasses. Do not apply more than 15 oz/acre per year. Do not apply more than 10 oz/acre per treatment.
<i>topramezone</i> (Pylex) 2.8 lbs./gal	Ky. bluegrass, centipedegrass, fine fescue, tall fescue perennial ryegrass,	27	1.0-2.0 fl. oz.	0.023-0.046	12 H	Apply for post-emergence control of crabgrass, goosegrass, foxtails, clovers, and other broadleaf weeds. Repeat applications with <i>triclopyr</i> in late summer will suppress bermudagrass in tall fescue. Labeled use areas include commercial lawns, golf courses, sod farms, parks, residential turf, and athletic fields. Apply with crop oil concentrate or methylated seed oil at 0.5-1% v/v. Treatments may be made before seeding tolerant turfgrass species, but DO NOT apply within 28 days after seeding. DO NOT apply more than 2 fl. oz./A/application. DO NOT apply more than 4 fl. oz./A (0.089 lb. ai/A) per year. DO NOT apply to golf greens.
<i>triclopyr</i> (Turflon Ester Ultra) 4.0 lbs./gal.	tall fescue, zoysiagrass	4	1.0-2.0 pts.	0.5-1.0	12 H	Controls wild violet, ground ivy, yellow woodsorrel, and selected other broadleaf weeds. Tank mix with recommended rates of Fusilade II or Acclaim Extra to suppress bermudagrass in tall fescue and zoysiagrass. Repeat the application 3-4 times at intervals of 4 weeks. DO NOT apply to other turfgrass species, unless injury can be tolerated. Areas treated with Turflon Ester can be reseeded 3 weeks after application.
<i>triclopyr</i> + <i>clopyralid</i> (Confront) 2.25 + 0.75 lbs./gal.	bermudagrass, centipedegrass, Ky. bluegrass, tall fescue, zoysiagrass	4+4	1.0-2.0 pts.	0.3+0.1 - 0.6+0.2	48 H	Controls a wide range of broadleaf weeds. Repeat the application in approximately 4 weeks if necessary. Repeat treatments will also be necessary for the control of violets and woodsorrel. Newly seeded turf should be mowed 2-3 times before treatment. DO NOT water for 6 hours after application or apply at air temperatures greater than 85°F. DO NOT apply to exposed roots of shallow rooted trees and shrubs. DO NOT reseed for 3 weeks after application. Not labeled for use on residential turfgrasses.
<i>trifloxysulfuron-sodium</i> (Monument) 75DG	bermudagrass, zoysiagrass	2	0.33-0.56 oz.	0.015-0.026	12 H	Controls nutsedges, green kyllinga, annual bluegrass, tall fescue, torpedograss and certain broadleaf weeds in established bermudagrass and zoysiagrass. Monument is not recommended for use on other turfgrass species. Not labeled for use on home lawns. Add a non-ionic surfactant at 0.25-0.5% v/v to the spray mix. Monument at rates of 0.1-0.3 oz./A may be used as a spring transition aid for the removal of perennial ryegrass and <i>Poa trivialis</i> . Avoid mowing for 1-2 days before and after application. For nutsedge repeat the application at 4-6 weeks if regrowth is observed. DO NOT overseed bermudagrass with cool-season turfgrasses for 3 weeks after application.
<b>Turf Renovation</b>						
<i>glyphosate</i> (Roundup Pro) 4.0 lbs./gal.	Existing vegetation	9	1.0-5.0 qts.	1.0-5.0	4 H	Apply to areas that are being renovated (establishment of desirable turfgrass) to kill existing vegetation. Refer to Roundup Pro label for recommended rates for specific species. Apply to actively growing bermudagrass when seedheads appear. Repeat treatment may be required for complete control. Tillage or renovation techniques (vertical mowing, coring, slicing) should be delayed for 7 days after treatment. Avoid contact of spray with ornamentals.
<b>Pre-emergence Herbicides – Golf Course Putting Greens</b>						
<i>bensulide</i> (Bensumec) 4LF (Pre-San) 7G	bentgrass, bermudagrass	8	1.9-3.1 gals. 107.0-180.0 lbs.	7.5-12.5 7.5-12.5	See Label	Controls annual grasses and selected broadleaf weeds. Apply high rate in fall for annual bluegrass control. Apply a light irrigation immediately after treatment. DO NOT apply to newly sprigged grasses. Delay reseeding for 4 months after treatment.
<i>bensulide</i> + <i>oxadiazon</i> (Goosegrass/Crabgrass Control) 5.25% + 1.31% G	bentgrass, bermudagrass	8+14	115.0 lbs.	6.0 <i>bensulide</i> + 1.5 <i>oxadiazon</i>	See Label	Controls summer annual grasses. Apply a light irrigation after treatment. DO NOT use on newly sprigged grasses until well established. Delay reseeding for 5 months after treatment. On putting greens overseeded with perennial ryegrass or <i>Poa Trivialis</i> apply 1/2 the maximum labeled rate to dry turf. Apply an additional application at 1/2 the maximum labeled rate to dry turf 10 to 14 days later. See label before use on putting greens.

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## Turfgrass Weed Control for Professional Managers

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Use Stage and Herbicide	Turfgrasses	WSSA Group	Broadcast Rate/Acres		REI	Remarks and Precautions
			Amount of Formulations	Pounds Active Ingredients		
<b>Pre-emergence Herbicides – Golf Course Putting Greens - continued</b>						
<i>pronamide</i> (Kerb T/O) 50WSP	bermudagrass	3	1.0-2.0 lbs.	0.5-1.0	24 H	Pre-emergence or post-emergence applications of Kerb will control annual bluegrass. Apply to non-overseeded bermudagrass greens. Do not apply closer than 90 days before overseeding cool-season grasses unless deactivation with activated charcoal is planned. To deactivate Kerb with activated charcoal, such as Gro-Safe, use 10 lbs. charcoal/1,000 sq. ft. Reseed no sooner than 7 days after charcoal application. A light overhead irrigation is necessary to move Kerb into the weed root zone if no rainfall occurs within 24 hours. DO NOT apply Kerb to any cool-season turfgrass. Kerb is a Restricted Use Herbicide.
<i>siduron</i> (Tupersan) 50 WP	creeping bentgrass	7	4.0-24.0 lbs.	2.0-12.0	4 H	May be applied at the time of seeding or to established creeping bentgrass for crabgrass spp. control. <i>Siduron</i> does not control goosegrass or annual bluegrass. Irrigate within 3 days of application with 0.5 inch of water/A if rainfall does not occur. Tupersan at 1.0 lb./1,000 sq. ft. may be used as band treatment along the perimeter of creeping bentgrass putting greens to suppress stolon growth of bermudagrass. Make the initial application in the March/April time frame. Repeat applications can be made at 4-5 week intervals.
<b>Post-emergence Herbicides – Golf Course Putting Greens</b>						
<i>carfentrazone</i> (QuickSilver) 1.9 lbs./gal. (QuickSilver) 1.03 lbs./gal. (water-soluble 5 ml bag)	bentgrass	14	6.7 fl. oz.  use 3-4 5 ml bags/2,000 sq. ft	0.1	Until Dry	Apply to creeping bentgrass putting greens and tees for the control of silvery-thread moss ( <i>Byrum argenteum</i> ). Repeat the application in 2 weeks. Add a non-ionic surfactant at 0.25% v/v. Apply at a spray volume of > 100 GPA. Transitory injury (yellowing) may occur when applied to bentgrass stressed from high air temperatures (greater than 90°F.), disease and soil moisture stress.
<i>foramsulfuron</i> (Revolver) 0.19 lb./gal.	bermudagrass	2	8.8-26.2 fl. oz.	0.013-0.04	12 H	Apply Revolver for: a) control of emerged annual bluegrass 2 weeks before overseeding bermudagrass with perennial ryegrass, b) post-emergence control of goosegrass in late spring and early summer, c) post-emergence control of annual bluegrass in non-overseeded putting greens, and d) spring transition of bermudagrass overseeded the previous fall with cool-season turfgrasses. For tillered goosegrass, make 2 applications at the high rate 7-14 days apart. DO NOT apply Revolver within 2 weeks of sprigging. Revolver is rainfast within 2 hours of application. Revolver must be allowed to dry on bermudagrass foliage before traffic is allowed through treated areas. Revolver is NOT recommended for use on creeping bentgrass greens.
<i>mecoprop</i> (MCP4 Amine)	bentgrass, bermudagrass	4	2.5 pts.	1.25	See Label	Apply to small and actively growing broadleaf weeds as a summer or winter treatment. Avoid spray drift to ornamentals tree, shrub or flower foliage. DO NOT water for 24 hours after application. Delay mowing 2-3 days before or after application. DO NOT apply during conditions of drought, high temperatures greater than 90°F, or very wet weather. Weekly applications at 1/2 recommended rates will provide better control of knotweed than a single application at normal use rates. DO NOT reseed for 3-4 weeks after application.
<i>rimsulfuron</i> (TranXit GTA) 25DF	bermudagrass	2	1.0-2.0 oz.	0.016-0.032	See Label	May be used: a) to control annual bluegrass before overseeding bermudagrass with perennial ryegrass or <i>Poa Trivialis</i> ; b) to control annual bluegrass in non-overseeded bermudagrass, and c) to remove perennial ryegrass or <i>Poa Trivialis</i> from bermudagrass greens in the late spring. Add a non-ionic surfactant at 0.25% v/v. Apply 10-14 days in late summer or early fall before overseeding bermudagrass. DO NOT apply after overseeding, or to bentgrass putting greens. To hasten spring transition on overseeded bermudagrass, apply at the 60-75% green-up growth stage of bermudagrass, or approximately 2-3 weeks before transition is desired. Irrigate within 2 hours of a TranXit application and then follow normal irrigation schedule. TranXit is NOT recommended for use on creeping bentgrass putting greens.

Supplemental 2(ee) label recommendations may be available for some listed pesticides. It is the end-user's responsibility to consult the manufacturer or websites like [www.CDMS.net](http://www.CDMS.net) for additional recommendations.

## Turfgrass Weed Control for Professional Managers

Patrick E. McCullough, Extension Weed Scientist

Use Stage and Herbicide	Turfgrasses	WSSA Group	Broadcast Rate/Acres		REI	Remarks and Precautions
			Amount of Formulations	Pounds Active Ingredients		
<b>Post-emergence Herbicides – Golf Course Putting Greens - continued</b>						
<i>MCPP</i> + <i>2,4-D</i> + <i>dicamba</i> (Trimec Bentgrass)	bentgrass	4+4+4	2.7 pts.	0.5 + 0.15 + 0.06	See Label	Apply to small and actively-growing broadleaf weeds when air temperatures are less than 80°F. DO NOT water for 24 hours after application. DO NOT apply if bentgrass is showing the effects of environmental stresses.
<i>sulfosulfuron</i> (Certainty) 75WDG	bermudagrass, centipedegrass, St. Augustinegrass, seashore paspalum, zoysiagrass	2	0.75-2.0 oz.	0.04-0.09	12 H	<i>Sulfosulfuron</i> controls nutsedges, annual sedges, kyllinga species, tall fescue, and certain broadleaf weeds in warm-season turfgrasses. Add a non-ionic surfactant at 0.25% v/v to the spray mix. Avoid mowing for 1-2 days before and after application. For nutsedge, repeat the application at 4-10 weeks if regrowth is observed. <i>Sulfosulfuron</i> may be applied 7-10 days before overseeding bermudagrass with perennial ryegrass. DO NOT use on putting greens. DO NOT use on tall fescue or other cool-season grasses.
<i>trifloxysulfuron-sodium</i> (Monument) 75DG	bermudagrass	2	0.33-0.56 oz.	0.015-0.026	12 H	Controls nutsedges, annual sedges, kyllinga species, and certain broadleaf weeds in established bermudagrass putting greens. Applications should be made to actively-growing bermudagrass after 100% spring green-up. Monument is not recommended for use on creeping bentgrass. Add a non-ionic surfactant at 0.25-0.5% v/v to the spray mix. Monument at rates of 0.1-0.3 oz./A may be used as a spring transition aid for the removal of perennial ryegrass and <i>Poa trivialis</i> . Avoid mowing for 1-2 days before and after application. For nutsedges repeat the application at 4-6 weeks if regrowth is observed. DO NOT overseed bermudagrass with cool-season turfgrasses for 3 weeks after application.

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