

Chemicals for Seedhead and Plant Growth Suppression (Refer to Herbicide Label for Specific Turf Species Use Listing)

Turf Use	Chemical Name (rate, lbs ai/acre)	Trade Names (rate, product)	Remarks
Bentgrass, Kentucky Bluegrass, Perennial Ryegrass, Tall and Fine Fescue Fairways, Roughs, and Commercial Areas	ethephon (3.4)	Proxy 2L (1.7 gal/acre or 5 fl oz/1000 ft ²)	Apply only to actively growing turfgrass not suffering heat, moisture, disease, or insect stress. Seven to 10 days are necessary for activity. Repeat applications can be made 4 weeks following the first for bentgrass and fescues & 7 weeks for Kentucky bluegrass & perennial ryegrass. A spreader/sticker is not needed.
	amidochlor (2.5)	Limit 4F (0.625 gal/acre)	Root absorbed. Use on nonresidential medium to low-managed turf such as cemeteries, parks, industrial and office sites and low maintenance areas (e.g., roughs, out-of-play areas) on golf courses. Water in within 5 days of application & before mowing. May cause some yellowing. Not recommended for areas of play. Also control some broadleaf weeds.
	paclobutrazol + flurprimidol + trinexapac-ethyl (0.14 to 0.28 lb)	Musketeer 1L (18 to 36 oz/acre)	For turf growth suppression, make the initial spring application at 18 to 30 oz/a with repeat applications 2 to 6 weeks later at 18 to 36 oz/a.
	prohexadione-Ca (0.031 to 0.75)	Anuew 27.5 WP (1.8 to 43.6 oz/acre)	Foliar uptake for managing growth of bermudagrass, bentgrass, Ky. bluegrass, and perennial ryegrass grown for all turf areas. Rates include: bentgrass greens at 1.8 to 7.25 oz/acre; bermudagrass at 29.1 to 43.6 oz/acre; bluegrass/ryegrass fairways/roughs at 4.5 to 29.1 oz/acre. Apply in 1 to 2 gal/1,000 ft ² , add NIS, and wait 4-hr before irrigating and 1-day before mowing.
Turfgrass Clipping Management/Turfgrass Enhancement	mefluidide (0.125 to 1.0)	Embark 2S (0.5 to 4 pts/15-150 gal water)	Foliar absorbed. Apply to common bermudagrass (4 pts/A Embark 2S), tall fescue & Ky. bluegrass (1.5 pts/A Embark 2S), and St. Augustinegrass (Embark Lite) only. Apply in spring approximately 2 weeks before seedhead appearance. Do not apply to turf within 4 growing months after seeding. Do not water-in and do not reseed within 3 days after application. Treated turf may appear less dense and temporarily discolored. Adding 1 to 2 qts of a nonionic surfactant per 100 gal of spray solution may enhance suppression; however, discoloration may also be increased. <i>Poa annua</i> seedhead control in fairways is with 0.5 pt/a in early January. Iron applications may lessen discoloration. Read and follow label recommendations before use. Miscellaneous family.
		Embark T&O 0.2S [5 pts (St. Augustinegrass)]	
	flurprimidol (0.375 to 1.5)	Cutless 50 WP (0.75 to 3.5 lb to 200 gal water or 0.28 to 1.3 oz/1,000 ft ²)	Root absorbed. Apply to bermudagrass or zoysiagrass golf course fairways, hard-to-mow and trim areas. Provides 4 to 8 week suppression. Must be uniformly applied and irrigated-in with 0.5-inch water. Flurprimidol does not completely control seedheads. Temporary turf discoloration may follow this treatment. St. Augustinegrass, bahiagrass, and common bermudagrass require the higher rate. Repeat applications every 4 weeks on Tifway bermudagrass with 1.0 lb/A will minimize turf injury. Do not use with SI/DMI fungicides.
		Cutless MEC (6 to 74 fl oz/A)	
flurprimidol + paclobutrazol + trinexapac-ethyl (0.093 to 0.23)	Musketeer 0.99L (12 to 30 fl oz/A)	Used to suppress annual bluegrass or to manage growth and clippings in bermudagrass, creeping bentgrass, Ky. bluegrass, and perennial ryegrass. Apply 12 to 18 fl oz/A on bentgrass putting greens and up to 30 fl oz/A on other turf species. Spray interval from 2 to 6 weeks depending on desirable growth suppression and rate used.	

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	trinexapac-ethyl (0.02 to 0.086)	Primo MAXX 1L (3 to 11 oz in 20 to 100 gal water)	Foliar absorbed. Use 3 oz/a for Tifdwarf bermudagrass greens and 6 oz/a for Tifgreen bermudagrass greens. Tifway & common bermudagrass fairways require 11 oz/a. Bermudagrass overseeding preparation requires 22 oz/a 1 to 5 days before overseeding and before verticutting, scalping, or spiking. One hour rain-free period is needed after application. Mowing 1 week after application improves results & appearance as will repeat applications in 3 to 4 weeks. Temporary turf discoloration may follow treatment. Do not add a surfactant. A 25 WSP formulation is also available. Cyclohexadione family.
	prohexadione-Ca (0.031 to 0.75)	Anuew 27.5 WP (1.8 to 43.6 oz/acre)	Foliar uptake for managing growth of bermudagrass, bentgrass, Ky. bluegrass, and perennial ryegrass grown for all turf areas. Rates include: bentgrass greens at 1.8 to 7.25 oz/acre; bermudagrass at 29.1 to 43.6 oz/acre; bluegrass/ryegrass fairways/roughs at 4.5 to 29.1 oz/acre. Apply in 1 to 2 gal/1,000 ft ² , add NIS, and wait 4-hr before irrigating and 1-day before mowing.
	paclobutrazol (0.5 to 1)	TGR Turf Enhancer 50WP (1 to 1.5 lb/43 to 100 gal) Trimmit 2SC (1 to 2 gal)	Root absorbed. Apply to well-maintained St. Augustinegrass or hybrid bermudagrass fairways. Used on overseeded golf greens during winter for turf enhancement and for annual bluegrass suppression. Do not apply to saturated soils and treat only dry foliage. Repeat applications 8 weeks apart may be made. Read & follow directions before use.
	flurprimidol + trinexapac-ethyl (0.06 to 0.71)	Legacy 1.52MEC (5 to 30 oz/A) Edgeless 1.51 L (30 to 60 oz/A)	A pre-tank combination of flurprimidol + trinexapac-ethyl to provide darker green turf color, improved turf quality, longer growth suppression than either product alone, <i>Poa annua</i> suppression, extended growth suppression, and less scalping/rebound effect. Used on bentgrass, Ky. bluegrass, P. ryegrass, bermudagrass, and seashore paspalum fairways and sports fields.
	prohexadione-Ca (0.031 to 0.76 lb)	Anuew TGR 27.5G (1.8 to 44 oz/a)	For use on bermudagrass, bentgrass, Ky. bluegrass, and perennial ryegrass on all managed turf sites. Low rates for bentgrass greens/tees with higher rates for fairways/roughs. Application intervals: 2 to 4 weeks for fairways/roughs; 1 to 2 weeks for greens/tees. Apply in 1 to 2 gal of water/1,000 ft ² and add a NIS to improve leaf coverage. Foliar uptake.
Foliar Suppression of Overseeded Bermudagrass	mefluidide (0.125)	Embark 2S (0.5 pts/15-150 gal water)	Foliar absorbed. Do not apply to turf within 4 growing months after seeding, and do not reseed within 3 days after application. Treated turf may appear less dense and temporarily discolored. Adding 1 to 2 qts of a nonionic surfactant per 100 gal of spray solution may enhance suppression; however, discoloration may also be increased. <i>Poa annua</i> seedhead control in fairways is with 0.5 pt/A in early January. Iron applications may lessen discoloration. Read and follow label recommendations before use.
	flurprimidol (0.375 to 1.5 lb)	Cutless 50W (0.75 to 3 lb/50 to 200 gal water)	Root absorbed. Apply to zoysiagrass or bermudagrass in late spring-early summer and/or late summer-early fall. Time the second application at least 3 months before expected dormancy. Do not apply to putting greens. Do not exceed 1.5 lb/A per application on sandy soils. Irrigate with 0.5 in. water & resume mowing 3 to 5 days after application. Do not use with SI/DMI fungicides.

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	paclobutrazol (0.25 lb)	Turf Enhancer 50WP (0.5 lb/40 to 100 gal water)	Root absorbed. Repeat applications may be made 3 weeks apart. Do not use if <i>Poa annua</i> exceeds 70%. Application should be in early January.
	flurprimidol + trinexapac-ethyl	Legacy 1.51L (5 to 10 fl oz/A)	For <i>Poa annua</i> and turf growth suppression in overseeded ryegrass (except bermudagrass putting greens). Apply in early spring and late fall to suppress annual bluegrass or to suppress turf growth and to manage clippings. Treatment intervals every 2 to 6 weeks. Use lower rates on putting greens with >50% annual bluegrass populations. Delay applications on overseeded fairways until 4 weeks after germination.
	paclobutrazol + flurprimidol + trinexapac-ethyl (0.156 to 0.31 lb)	Musketeer 1L (20 to 40 oz/a)	
<i>Poa annua</i> var. <i>reptans</i> (perennial biotype) Conversion/Management in Bentgrass Golf Greens	paclobutrazol (0.375)	Turf Enhancer 50WP (0.75 lb/acre or 0.28 oz/1000ft ²) Trimmit/Turf Enhancer 2SC (24 oz/acre or 0.55 fl.oz./1000ft ²)	Root absorbed. Apply 30 days apart 2 to 3 times in mid-fall (September to early Dec.) plus 2 to 3 times in very early spring (late Feb. to early May) when bentgrass is actively growing. Increased Poa control often occurs if a sterol inhibitor fungicide (DMI) such as Banner Maxx at 1 oz/1000 sq.ft. is applied 2 weeks following each paclobutrazol application. Do not use if <i>Poa annua</i> populations exceed 70% as severe stand thinning or discoloration may result. 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.' It is highly recommended to start at lower rates (e.g, 8 to 12 oz/a) to ensure proper coverage and application calibration before using more aggressive rates.
	ethephon (3.4 lbs)	Proxy 2SL, Ethephon 2SL (1.7 gal/A)	Make initial application before seedheads emerge. Repeat applications are needed every 10 to 21 days during seedhead emergence. Often mixed with trinexapac-ethyl PGR for improved turfgrass quality.
	flurprimidol (0.125 to 0.5)	Cutless 50W (0.25 to 0.5 lbs/acre) Cutless MEC 1.3L (6 to 24 fl oz/A)	Apply in spring or in the fall. Repeat at 3 to 4 week intervals with the final application 8 weeks before winter dormancy or summer stress. Delay reseeding for 2 weeks after application.
	paclobutrazol + flurprimidol + trinexapac-ethyl (0.10 to 0.17 lb)	Musketeer 1L (12 to 22 oz/a)	For <i>Poa annua</i> and turf growth suppression. Use lower rates if the % <i>Poa annua</i> population is >50%. Treatment interval are 2 to 4 weeks apart.
Extending the Life of Painted Lines on Sports Fields	trinexapac-ethyl	Primo MAXX 1EC (1 oz/gallon paint) Primo 25 WSB (0.5 oz/gallon paint)	Used to extend the life of painted lines which reduces labor costs. The life expectancy of painted lines is extended 7 to 14 days on cool-season grasses and up to 30 days on warm-season grasses. One gallon of paint should treat approximately 1000 sq.ft. of line surface area.

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Chemicals for Growth & Color Promotion of Bermudagrass such as Tifdwarf & Tifgreen	Gibberellic Acid (10 grams ai/A)	RyzUp/ProGibb 4% active solution (10 fl oz/A or 0.23 fl oz/1000 sq.ft.)	Apply 10 grams ai/acre weekly or 25 grams ai/acre biweekly in 25 to 100 GPA to promote the growth and prevent discoloration (e.g., purpling) during periods of cold stress and light frosts on bermudagrass such as Tifdwarf or Tifgreen. Do not apply when night temperatures exceed 65F. A combination product of indolebutyric acid + gibberellic acid is available as PGR IV.

Read and follow all label recommendations. Products listed are for use by professional turf managers only. Trade and brand names are used for information only. The South Carolina Cooperative Extension Service does not guarantee nor warrant the standard of any product mentioned; neither do they imply approval of any product to the exclusion of others which may also be suitable. The following conversions may be useful. Gal/acre x 2.938 = oz/1,000 ft²; Qt/acre x 0.7346 = oz/1,000 ft²; Pint/acre x 0.3673 = oz/1,000 ft²; lbs/acre x 0.02296 = lb/1,000 ft².