

Growth Regulators

Shawn D. Askew, Associate Professor, Virginia Tech
P. Lloyd Hipkins, Extension Weed Scientist, Virginia Tech

Growth regulators are utilized to reduce the amount of mowing and trimming needed for maintaining turfgrass. The suggested growth regulator, applied before seedhead formation, will also inhibit the development of seedheads of cool-season turfgrasses for one season. Bermudagrass seedheads are inhibited for about 4 weeks.

Growth regulators are suggested for use on areas such as highways and other rights-of-way, industrial parks, schools, cemeteries, airports, and golf course roughs. They are particularly useful along fence lines, sloping areas, guard rails, and other areas difficult to mow and trim. A few growth regulators are available for well-maintained and extensively managed turfgrasses. These growth regulators are used for turfgrass growth suppression and/or annual bluegrass suppression.

Spring growth regulator application should be delayed until turfgrass reaches a desirable density. In many cases where mowing can be utilized, the regulator may be best applied after the first time the grass is clipped. This clipping will achieve a more neatly trimmed appearance for a longer period. Caution: the turfgrass stand does not become more dense after treatment; therefore, the turfgrass may remain at the density you see at the time of treatment. If thatch is showing through when the regulator is applied, it may continue to show for 6 to 8 weeks. Generally, after the period of turfgrass growth suppression, the foliage may even take on a darker green appearance.

The turfgrass should have a good appearance and be actively growing at the time of treatment with growth regulator. Any debris or clippings should be removed. For seedhead control, apply at least 2 weeks prior to seedhead emergence. Apply when rain is not expected for 24 hours.

Table 6.11 - Use of Growth Regulators

Application	Turfgrass Shoot Regulation	Chemical Rate/1000 sq ft	Remarks
Established rough turf (Highway rights-of-way, airports, cemeteries, parks and other cool season rough turfgrasses)	Tall Fescue and Bluegrass	mefluidide (Embark 0.4-0.6 oz of 2.0 lb/gal) OR amidochlor (Limit 1.8 oz of 4.0 lb/gal) OR mefluidide + chlorsulfuron (Embark at 0.18 oz of 2 lb/gal + Telar at 0.008 oz of 75% DF) OR imazethapyr + imazapyr (Event at 0.18 to 0.22 oz) OR imazethapyr + imazapyr + mefluidide (Event at 0.09 oz + Embark at 0.18 oz)	The introductory comments above provide useful information on where and when to apply PGRs. They are best utilized on medium- to low-managed turf but where frequent mowing has been necessary. Not used on residential turf around homes and apartments. The PGRs are most useful during the spring to reduce growth for 6 to 8 weeks. This period usually accounts for 60% of the year's total growth of fescue.
Established rough turf (Warm season turfgrass)	Bermudagrass (Common)	mefluidide (Embark PGR 1.5 oz of 2.0 lb/gal) OR flurprimidol (Cutless 50w rate varies with cultivar, see label)	Same as above. Time of application is usually later in spring after green-up and before peak period of vegetative growth. For hybrid bermudagrass, use Embark 2S at 0.4 to 0.6 oz/1000 sq ft. Flurprimidol is used on medium to high quality turfgrass. A 0.5-inch irrigation is needed within 24 hours after flurprimidol treatment.

Table 6.11 - Use of Growth Regulators (cont.)

Application	Turfgrass Shoot Regulation	Chemical Rate/1000 sq ft	Remarks
Established well-maintained turf	Bluegrass and Perennial Ryegrass in fairways and well maintained turfgrass areas	mefluidide (Embark 2S at 0.18 oz of 2 lb/gal OR Embark Lite at 1.2 to 1.8 oz of 0.2 lb/gal)	Apply in spring after greenup and before flush growth period. Embark suppresses annual bluegrass, especially seedhead development. The applications should be made prior to seedhead development in the annual bluegrass.
		flurprimidol (Cutless at 0.18 oz of 50 WP)	Apply in spring before major flush of growth but after greenup requiring mowing once or twice. This will also suppress annual bluegrass growth but allows seedhead development or flowering of the annual bluegrass.
		trinexapac (Primo at 0.75 oz of 1 lb/gal)	Apply in spring after greenup requiring mowing but before major flush of turfgrass growth. Reduce rate by 50% or more if mowing height is less than 0.5 inches (see label). Sequential applications are suggested at monthly intervals. Apply after turfgrass has been mowed. Do not apply in hot, dry weather or when turfgrass is under stress. Application rate varies with turfgrass species. Read label for further specifics. Annual bluegrass will be suppressed to a much greater extent than perennial bluegrass. Overseed this area if needed. Trinexapac is also suggested for edging along sidewalks, curbs, driveways, flower beds, fences, and parking areas. Make application at monthly intervals during active growth periods. Follow label directions.
		paclobutrazol (Fertilizer with TGR poa annua control at 2.9 lb of 0.42% or TGR turf Enhancer at 0.33 oz of 50WP)	Apply in spring after greenup occurs and mowing is required. Annual bluegrass is suppressed. Do not apply where area contains as much as 70% annual blue grass.