Plant Growth Regulators for Turf

By Dr. David M. Kopec

Plant growth regulators (PGRs) can be used on turfgrass to (1) reduce seed head emergence, (2) reduce clipping production and mowing frequency, (3) reduce the frequency of striping sports fields by mixing the PGR with paint, or (4) favor one grass over another. Plant growth regulators are commonly referred to as either Type I or Type II PGRs.

Type I PGRs affect turfgrass growth by stopping cell division (plant makes fewer cells). Type II PGRs inhibit cell expansion (new cells are smaller than normal).

Not all PGR products are safe on all grasses, nor will all grasses respond safely to PGRs.

Application of PGRs for turf seed head suppression on low-maintenance sites should be made prior to seed head emergence, when the grass greens up. Type I PGRs are used for this purpose.

In general, PGRs should be applied when the turf is not stressed and has been growing actively prior to the application.

For regularly mowed turfs, PGRs are used mainly for reduced mowing clippings and frequencies. Type II PGRs are often used here, although Type I PGRs are also.

Before applications in these settings, make sure you follow these guidelines.

1. Make sure the grass has been adequately growing for a few weeks (green-up is complete). You want the Kentucky bluegrass, ryegrass and tall fescue to be fully green in the spring before you apply a PGR. Bermudagrass should be green from winter, and the nighttime temperature should be in the 60s or more before applying a PGR.

2. Mow regularly at the proper mowing height for the first two to three mowings. Avoid scalping at all costs.

3. Apply the PGR. Do not mow for three to four days.

4. Mow once more to make the treated turf "even" looking.

5. Follow label directions for rate applications and repeat intervals. Applying the maximum rate at one time initially may discolor the grass more.

6. Some discoloration or tip burning may occur. An application of iron as a spray before, during, or after the PGR application often helps the appearance along with the PGR. If you apply the iron with the PGR, make sure the PGR label says it's safe to make a "tank mix" with iron.

Suppression should take effect right after the "even-up" mowing and can last anywhere from three to five weeks with Type I PGRs and from four to six weeks with Type II PGRs, under ideal conditions. Remember to follow label directions for rates and additional application restrictions.

Read the label closely to follow the guidelines for post-application irrigation. Certain PGRs are taken up primarily by the foliage and have a specific time interval when they must dry on the leaf. Others are absorbed through the roots and must be watered in via rainfall or irrigation.

Some PGRs work much better on cool season grasses, while others work better on warm season grasses. Some work on both, but the rate of product determines which grasses it controls.

DO NOT:

1. Apply PGRs to highly dormant turf.

2. Apply PGRs to heat, cold or drought stressed turf.

3. Apply over the label rate to try to extend the growth reduction period.

4. Apply large amounts of nitrogen to cause recuperation if growth reduction, burning or thinning is too severe.

5. Scalp the lawn before application of the PGR.

Displayed in the table is a partial list of commonly used PGRs on turf, their trade names and common names.

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Trade Name	Common Name	Absorption Site	Type	Turf
Telar	Chlorsulfuron	foliar/root	I	TF
Maintain	Chlorflurenol	foliar	I	many
Slo-Gro	Maleic hydrazide	foliar	I	many
Limit	Amidochlor	root	I	KB, TF, PR,FF
Embark	Mefluidide	foliar	I	many
Cutless	Flurprimidol	root	II	KB, PR, BM, ZY
Scotts TGR	Paclobutrazol	root	II	KB, PR, BM, STAG, ZY
Primo	Trinexepac-ethyl	foliar	II	many

Type I: Inhibits cell division and differentiation. Effective on seed head suppression and seed head development.
Type II: Inhibits cell division — produces dwarfed plants.
Grasses: TF = tall fescue, KB = Kentucky bluegrass, PR = perennial ryegrass, BM = bermudagrass, ZY = zoysia, STAG = St. Augustine.