

# Using Plant Growth Retardants

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**Question?** *Seems like everyone is using plant growth retardants on their greens. Does this provide a benefit and are there any long-term negative effects from this?*

**Answer.** An interesting research article was recently published in HortScience (vol. 35:755-759) by Matt Fagerness, Fred Yelverton, John Isgrigg and Rich Cooper addressing this issue. They applied either Primo 1EC (trinexapac-ethyl) at 2.9 or 5.8-oz product/acre or TGR 2SC (paclobutrazol) at 8, 16, or 32-oz product/acre every four weeks to the same Penncross bentgrass plots for a total of one year. In addition, they compared the effects of the PGRs to those from three mowing heights (0.125, 0.157 and 0.189 inches). Both of these PGRs inhibit gibberellic acid (GA), a plant hormone responsible for regulating cell elongation in shoot tissue.

First for the PGR effects. The PGRs did have a positive effect on ball roll in that they maintained more consistent ball roll over a whole day compared to just mowing in the morning and seeing a progressive slower ball roll by late afternoon due to shoot growth. This, for tournaments, would be positive as players in late evening would more closely enjoy similar ball roll as those playing immediately following mowing in morning. Primo 1EC at 5.7 oz/a was most consistent in providing this. However, over the long term, PGRs did not increase ball roll speed (or distant) compared to mowing, and if anything, PGRs negatively affected ball roll, especially in summer. One would have to weigh the advantages TGR provides in terms of selective *Poa annua* suppression over a slight increase in ball roll provided by Primo. From a long-term perspective, several superintendents have been using PGRs on their greens for three or more years without any major problems.

Lowering the mowing height to 0.125-inch consistently increased ball roll. Averaged over the year, ball roll was 11.3 ft, 8.5 ft, and 7.8 ft for the 0.125-inch, 0.157-inch, and 0.189-inch mowing heights, respectively. However, the 0.125-inch mowing height suffered in terms of turf quality during summer (remember, these were Penncross greens). Ball roll increase was greatest from July to December for the 0.189-inch mowing height while increases were not evident for the 0.157 and 0.125-inch heights until November. Ball roll decreased for all heights during April and May. The authors suggested the 0.157-inch height as the best compromise in providing adequate ball roll and consistent turf quality.

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