

Thoughts on Plant Growth Regulators

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Dr. Tom Watschke, Professor Emeritus of Turfgrass Science, Penn State University

As I travel around the world speaking to superintendents, I am often asked what the effects, if any, biostimulant products have on the efficacy of the plant growth regulators such as Primo.

For the most part, biostimulant products are quite compatible with turf growth regulators. Considerable research has been conducted over the recent years evaluating this very issue. If anything, the inclusion of biostimulant products with turf growth regulators tends to enhance the activity of the growth regulator. Research at Penn State has shown that the efficacy of Primo Maxx can be increased with the addition of certain biostimulants (to the extent that half rates can mimic the growth suppression attained when a full rate is applied without the added biostimulant).

There is some question amongst golf course superintendents with regard to whether or not biostimulant products that contain some gibberelin (GA) might compromise the efficacy of turf growth regulators that inhibit the biosynthesis of GA. The question is primarily couched in the knowledge that turf growth regulators that inhibit the biosynthesis of GA can be antidoted with applications of gibberelin. While this antidote phenomenon is essentially true, the rate of applied gibberelin used to accomplish this response would have to be very high (usually in the range of 5 grams per acre). No biostimulant product has anywhere near that concentration of GA. When field trials have been conducted to determine whether biostimulant products containing GA do, in fact, comprise the growth suppression capability of GA inhibiting growth regulators, no significant evidence has been documented that such a situation exists. That being said, it should be clear that using biostimulants containing GA at rates higher than recommended on the label or at shorter intervals than recommended, could bring about a different result than what has been found. Attached is a study conducted by Syngenta that looked at the use of plant growth regulator, Primo MAXX, with the biostimulant product, Astron. The outcomes of this study show that “Astron does not appear to have significant affect on the growth regulation characteristics of Primo MAXX when applied at rates set out in this trial.”

Another issue, particularly pertaining to the use of Primo Maxx, is that superintendents that have used the product for several years for managing clippings (primarily on fairways) are frustrated that the degree and longevity of suppression decreases over time. Often the using biostimulants that contain GA are blamed for this gradual loss of efficacy from Primo Maxx applications. The more likely scenario is, that over time, since Primo Maxx applications enhance the competitiveness of *Poa annua*, the stand of *Poa annua* being treated undergoes a population shift in the direction of increased numbers of aggressive perennial ecotypes. As a result, the ability to suppress growth by applying Primo Maxx at the same rates and timings as originally used, no longer provides the same level of growth suppression (which necessitates higher rates/shorter application intervals). Such a result is certainly not a bad thing, but must be understood in the proper context using turf growth regulators for clipping management.