

# A Practical Comparison of Bentgrass/Annual Bluegrass Growth Regulators



*There are five turfgrass growth regulators on the market at this time: Turf Enhancer, Embark, Proxy, Primo and Cutless. When conversing with golf course superintendents through the years, I have learned that they are achieving a fair amount of success on bentgrass/annual bluegrass with all of them. Each superintendent has his or her favorite that is used exclusively. I rarely find an individual who uses more than one for different purposes. Their usual comments run something like this: “I’ve used (growth regulator) during early April for the past several years. I like the way it suppresses annual bluegrass seed heads. And I think it toughens the turf in preparation for summer.” Most people have a limited understanding of what is happening to the growth of the bentgrass or annual bluegrass that is causing the good results. I think, if they did, they would be able to use growth regulators in more situations and with greater precision in getting the desired results. In this article, I want to give you a hopefully beneficial description of what each of the five products does to turfgrass growth.*

It is best to think of the five products being in two categories regarding their speed of activity. Embark and Primo act so rapidly that you can see the complete stoppage of leaf elongation the next day. Their effects are strongest the first week and gradually wear off by the fourth week after application. Turf Enhancer, Cutless and Proxy also act rapidly, but they do not stop leaf elongation. Rather, they cause newly growing leaf blades to not elongate much and thus be shorter at maturity. Proxy can double the number of leaves per shoot. Turf Enhancer increases the number by about 20%. And Cutless does not increase leaves per shoot. The results of this growth shift are not immediately obvious, since it takes a few days for the new shorter leaves to grow enough to be seen. Only a slight effect is seen the first week after application. The third week is usually the time of greatest and most noticeable effect with gradually reducing effects to as much as eight weeks after application. I hope you can see that the approach to man-

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*These photos, all taken five-six weeks after treatment, depict the effects of various turf growth regulators on annual bluegrass. From top to bottom: untreated control showing normal growth of Poa annua in unmowed turf; results when treating Poa annua with Primo; the effects of Turf Enhancer; how Proxy restricts the growth of Poa annua.*



aging your bentgrass/annual bluegrass should be different between these two categories of growth regulators.

Embark and Primo are now being marketed for application at low rates and greater frequencies. The long-term result is a population of shorter leaves due to gentle stoppage of leaf elongation every month or so. This repeated stoppage of leaf elongation stimulates tillering, which results in a younger turf with respect to the presence of new shoots. It is no wonder that bentgrass turf becomes more stress-tolerant, since it is younger and more resilient. At these low rates of application, Embark and Primo restrict annual bluegrass growth for only a week or two. Embark has always been known for its suppression of seed head development while Primo briefly stops seed head stem elongation.

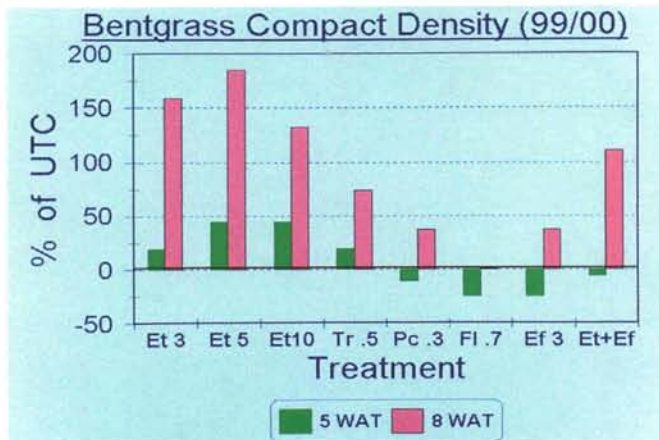
The effects of Turf Enhancer, Cutless and Proxy last so long that only a few applications are recommended per growing season. A six- to eight-week effective period takes you through April and May toward June

(or through May and June toward July in northern Illinois), which is past the time of greatest annual bluegrass seed head production. Turf Enhancer causes bentgrass to grow more prostrately with only a slight increase in the number of leaves per shoot. I have never found an increase in tillering. It restricts severely the growth of annual bluegrass for three to four weeks. This is why conversion toward 100% bentgrass has been effective among superintendents with Turf Enhancer. Cutless is outright damaging to annual bluegrass. Use Cutless if you want to maximize a speedy conversion to 100% bentgrass. Proxy has the most subtle effects of the four products. This is why some people report not noticing its effectiveness. But its effects are the most beneficial for those of you who have decided to manage annual bluegrass instead of futilely trying to get rid of it. The long-term effect of shorter leaves and more leaves per shoot with bentgrass, which already has a high shoot density, is a more finely textured, more finely grained, and more dense canopy. This effect can be found

beyond four weeks after application. The long-term effect of shorter leaves and more leaves per shoot with annual bluegrass, together with severely oppressed seed head development, is a population of very compact, tufted plants that are of higher turfgrass quality and far less visible and less competitive in the turf.

There is growing interest with the use of the combination of Primo and Proxy. This combination was first reported by me three years ago. This looks promising. I have found that the fast stoppage of leaf elongation by Primo does not restrict the long-term growth of short leaves and increased leaves per shoot caused by Proxy. You can get both the immediate and long-term effects of the two products.

Once you get familiar with and gain skill with turfgrass growth regulators for fine turf, you can use them like an artist uses paint and brush to give you beautiful turf with greater utility and requiring less mowing.



These graphs demonstrate degree of turf compactness, decrease in seed head production and overall turf quality when treating *Poa annua* with various turf growth regulators.

Et = Proxy,  
Tr = Primo,  
Pc = Turf Enhancer,  
Fl = Cutless,  
Ef = Progress.

