



Using Biostimulants for Pre-Stress Conditioning

There has been a lot of buzz in recent months about the **PRE-STRESS CONDITIONING** of cool season turfgrasses and the importance of managing carbohydrates for improved turfgrass health. These issues are vitally important and have not received enough attention from the turfgrass research community over the years. However, in their defense, funding sources and products that provide the turf with beneficial inputs have both been limited. The time has come to initiate more research projects that are designed to quantify turfgrass responses to products capable of enhancing pre-stress conditioning and separate the 'wheat from the chaff' with regard to claims and actual results. Pre-stress conditioning and managing carbohydrates are interconnected and co-dependent in many ways. Products that enhance the conservation of carbohydrates and support their efficient utilization for various metabolic processes (in cool and warm season species) are the keys for managing turf in a proactive, pre-stress conditioning mode.

By providing turfgrasses with an enhanced ability to build carbohydrates for plant health maintenance prior to the onset of stress (regardless of the type, i. e. mechanical, environmental, nutritional, etc.); the level of stress, when it finally does occur, is not nearly as detrimental to the plant compared to what happens without pre-conditioning.

In 2009, Floratine Products Group (FPG) funded several studies at universities in different geographic locations. Two of these studies (conducted at Virginia Tech and Purdue University) were identical and were designed to evaluate the effect that applications of four FPG products would have on the ability of creeping bentgrass to 'heal' following core cultivation. It was determined that the evaluation of mechanical stress was the most 'controlled' stress induced phenomenon that could be evaluated. The turf was only treated prior to the core cultivation (pre-stress), and in both studies, the pre-stress applications resulted in turf that was better able to accommodate the mechanical stress, i.e. the holes closed up more quickly and the turf had enhanced quality compared to both the untreated turf and turf that was treated with a nutritional 'standard'. These results are available on the FPG website along with my summary and interpretation of those results. The reproducibility of the results from two different geographic locations was significant and speaks volumes to the authenticity of the research that was conducted.

In another study conducted at Michigan State University, the issue of enhanced turfgrass health as a result of the applications of FPG products containing biostimulants was tested and resulted in better basal anthracnose disease control. Fungicides without FPG products provided acceptable disease control, but the combination of FPG and fungicide resulted in better control and an improvement in overall turf quality. The FPG website has links to this information so that you can print it off and keep it at hand.

The picture is becoming clearer that low rates of nitrogen applications (foliar) and the use of products containing biostimulants helps the turf become pre-conditioned to an array of stresses (mechanical, environmental, and those associated with disease). This improved 'plant health' condition not only helps the turf endure stresses, but any control associated with the application of fungicidal products, increases the efficacy of these materials.

The bottom line is that controlling growth with judicious and timely nitrogen applications plus keeping NPK in the proper ratio, using the appropriate plant growth regulators at the right time, and making applications of products containing biostimulants that enhance many metabolic reactions, provides the turf with an enhanced ability to maintain good carbohydrate levels. Applications using the above strategy also insure that the turf has been pre-conditioned so it can better tolerate stresses when they occur.

As we approach the new growing season in the regions where cool season turfgrasses are the predominate species, it is imperative that a pro-active management style be used. Make applications of those materials that will provide pre-stress conditioning and help in the maintenance of carbohydrate reserves. Have a great season and another issue of Dr. Tom's Corner will be in front of you in the not too distant future.