

"Buyological" Alternatives

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The biostimulant market in this industry has increased exponentially over the past five years. There is no shortage of products that make claims to "stimulate phenomenal root growth" or "increase beneficial microbial activity." How do you sort out the good from the bad? What works? What doesn't? What products are cost-efficient and effective?

I have spent the past four or five years evaluating a number of these new age materials and my failures with them have far outnumbered the successes that I have experienced. I believe that we have a responsibility to try and manage our facilities with less conventional pesticides than we have in the past. In my efforts to accomplish that, I have put together a program that has allowed me to eliminate conventional fungicide applications on 10 acres of bentgrass greens on two of the courses that I manage. Although most of this evidence is anecdotal, there is some supporting university research data.¹

There was no established protocol for the independent trials that were conducted and all of the products that I have utilized over the past few years were paid for in full. I have no allegiance to any of the companies that manufacture these materials nor any relationship to speak of with the distributors from whom I make my purchases. Some marginal success was achieved with each of these products individually but not to the extent that fungicide applications could be significantly reduced and by no means elimi-

nated. However, this season several of the materials were combined under the hypothesis that a synergistic effect could be created, and at this point that seems to have occurred. The control plots and areas that were not treated displayed severe disease activity.

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This program was initiated on two separate courses. Prairie Vista opened for play in 1991 and the predominant bent cultivar on the greens and tees at this course is Penncross. The Den is a new Palmer Signature course that had its grand opening on July 13 of last year. The greens are Providence on a straight sand rootzone and the tees are a blend of Crenshaw, Southshore and Penneagle on native soil. (Dollar spot has been a severe problem on the Crenshaw.)

We use several materials in our program; a couple of them are rotated in and out of our cycle. They are listed below with application rates and frequency of application:

- 1) **Bac-Pack**
 - 1 pt per acre beginning April 15 at seven-to-ten-day intervals to first frost
 - 2 pts per acre from June 30 through August 30
- 2) **Turfshield**
(formerly BioTrek 22G)
 - 1.5 lbs per 1,000 square feet applied March 27
- 3) **CytoFe**
 - 1 gal per acre (tank-mixed with Bac-Pack)*
Frequency of application is once per month.
- 4) **Macrosorb Foliar***
 - 2 oz per 1,000 square feet
 - Applied about every 14 days—every other Bac-Pack application
- 5) **MicroGro***
 - 1 lb per acre
 - Once per month
- 6) **HHI 15-4-7 greens grade fertilizer**
 - 0.4 lbs of N/1,000 ft²—six-week intervals (new greens)
 - 2.5 lbs of N/1,000 ft² per growing season (old greens)

The original plan was to reduce the number of fungicide applications that were made to greens and tees in years past. We were able to make it until late July before greens needed to be treated with a conventional fungicide. The 10 acres of tees were

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included in initial applications but it became necessary to make routine fungicide applications to the tees. One of the factors contributing to this was the amount of dollar spot in the Crenshaw. Experience has taught us that this is not the ideal bentgrass for the climatic conditions that are typical of central Illinois. Once it became obvious that the tees were not going to hold up, we dropped them out of the trial and focused on the greens. One of the concerns was the effect of fungicide applications on the microbial population, perhaps a factor to evaluate next season by more closely examining biomass in the profile.

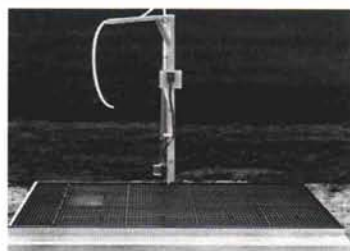
It is recommended that some of these biorationals be applied in the evening to avoid photodecomposition from UV rays. Last season, we made our applications in the evening, but this year all of our applications have been pre-

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dawn and have been lightly syringed in. We have seen better results this season than we did last, and hope that our efficacy continues to increase next season.

We do not generally utilize pgr's as part of our maintenance regime. However, during early July we had several events and local tournaments, including a site visit by Mr. Palmer for a round of golf. Our normal maintenance routine is to topdress very lightly every Monday, double cut Tuesday, Thursday and Saturday, and cut and roll Wednesday, Friday and Sunday, with an occasional p.m. cut to further increase green speed. We are a public course with undulating greens so our goal is to have them roll consistently around 10. We felt it was necessary to try and get our greens to tournament speed so we made an application of a pgr at 0.10 ounce/1,000 ft². About four days later, we had brown patch

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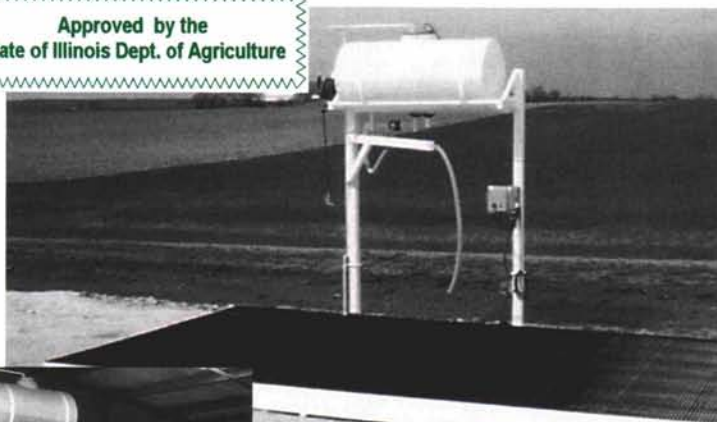


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symptoms. It was not severe, but rather what has become affectionately known in this part of the country as subliminal brown patch (Dan Dinelli, CGCS, North Shore C.C.). Environmental conditions changed shortly after the symptoms appeared and the greens remained healthy and growth was vigorous. However, for the remainder of the month we were subjected to several days, 15, with daytime highs near 95 degrees and overnight lows above 70 degrees accompanied by high humidity. This type of weather used to be unseasonable but unfortunately it is becoming more typical in this area of the country.

On July 26, the greens at The Den were treated with Spotrete Thiram to control brown patch that had finally exceeded acceptable threshold levels. This application was made towards the end of the

extended heat wave. On this same date, we treated the greens at Prairie Vista with a combination of

The ideal interval rate seems to be in the seven-to-ten-day range. On two occasions at Prairie Vista, we allowed 13 days between applications and each time we began to see some disease symptoms.

Heritage and a chlorothalonil product to control brownpatch, anthracnose and some dollar spot

that started to appear. To date, these greens have received no additional fungicide applications.

The ideal interval rate seems to be in the seven-to-ten-day range. On two occasions at Prairie Vista, we allowed 13 days between applications and each time we began to see some disease symptoms. Each time we saw a little dollar spot, it was on the perimeters of the green or on the fringe, where we believed that coverage may have been the problem. It also appears necessary to include some type of nitrogen source with the biological. It may be doing nothing more than assisting the plant to grow out of the symptoms, but when an N source was not included, the material was less effective.

It is unrealistic to expect to sustain quality turfgrass without the use of conventional pesticides. I would like to be able

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to write that we have completely eliminated them from our management program, but that has not yet occurred. As the season winds down, we will evaluate our application schedule and materials used and make the changes we feel are necessary to continue our quest to eliminate conventional fungicides. One of the goals for next season is to determine why the program was ineffective on the tees. The difference in cultivars was one contributing factor, but the Penncross greens were almost disease-free for the entire season, while dollar spot continued to be a problem on the Penncross tees. This will be the greatest area of focus for next season's program.

I would close by saying that this type of program may not

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work for everyone. Both of these courses are fairly rural and immature, and air movement and greens drainage are more than adequate. The program fits well with our other IPM and cultural practices, factors that will certainly vary at every golf course. Even though we are upscale public facilities, green speed is not a major concern. There are times we skip mowings, bump up heights of cut, back off on the frequency of mowings, all elements that contribute to the overall health and vigor of the turf. These are also practices that may be unacceptable at many facilities. 

¹Nelson, Eric B. *Field Evaluation of Microbial Inoculants*. Cornell University, Department of Plant Pathology, Ithaca, N.Y. 1998.



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