My Putting Green Grow-In Program

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If you are not a regular attendee of the annual Wisconsin Golf Turf Symposium, you're losing out on one of the most unique educational experiences in the U.S. The amount of information provided in 1 1/2 days is unsurpassed by any other conference, seminar, or symposium that you might attend.

What really grabbed my attention this year was the 10-week grow-in strategy for bentgrass putting greens. I don't doubt but that it can be done if weather cooperates and, as recommended, you begin the process on or about August 1. As I'm sure you've already guessed, the strategy presented has me concerned. I'm not sure everyone picked up on some of the nuances of the strategy that can be crucial to its success.

According to my notes, the strategy went something like this. Use starter fertilizer and something like 15-0-30 to apply about 5 lb N, 7 lb P (16 lb P2O5), and 1.4 lb K (1.7 lb K2O) preplant. Seed, dimple, and start irrigating 2 to 4 cycles of the irrigation heads every couple of hours during the day. Start mowing at 0.250 inch as soon as the bentgrass reaches the two to three-leaf growth stage. Start applying 1 lb N/week, much of it as starter. Topdress weekly and slowly drop the mowing height so you are at 0.156 inch at the end of 10 weeks. At that time, you will have applied a total of about 13 lb N, 16 lb P, and 5 lb K and the green is grown in.

My concerns with this strategy begin with the notion that after 10 weeks, grow-in is complete and the putting green is ready for play. As pointed out by Dr. Stier, it takes 12 weeks or more for bentgrass plants to mature. James Moore further expressed the view that the putting green is not ready for play until it

has a mat 1/8-inch thick or more to cushion the juvenile bentgrass and protect its crowns from physical damage. From either perspective and my personal experience, a 10-week-old putting green is not ready for play, particularly if growth of the bentgrass has been forced to the maximum by excessive N rates. My condolences to any superintendent that is forced to open greens for play after a 10-week grow-in period!

A second concern is one that Jim Moore touched upon very lightly, but merits stronger voicing. There is absolutely no way that creeping bentgrass or any other grass can begin to utilize more than a fraction of the 13 or so pounds of N applied over 10 weeks. There is sufficient information in turf literature for me to state that once the N rate exceeds about 0.2 lb/week on turf with complete ground cover, the N leaching rate becomes excessive and poses an environmental hazard. I had the opportunity to analyze drainage water from Lambeau Field when the grow-in N rate was 1.0 lb N/week. The water contained 43 ppm nitrate-N. This is more than four times higher than the allowable concentration in drinking water.

A third concern is that not everyone at the symposium picked up on the recommendation that all fertilizers applied be homogeneous and less than 50% of the N in the fertilizer be water-soluble. An immediate reaction to this is to think that the reasons are to reduce N loss via leaching. I have some reason to believe that something else is involved here. It will vary with the quality of the irrigation water, but I believe the fertilization rates advocated are pushing the limit on soluble salts. This belief arises from some strange results I got one time when applying 0.8 lb N/week during grow-in on a simulated putting green in the greenhouse. The bentgrass became chlorotic, stunted, and thinned out. The problem was only resolved by leaching the putting greens with 2 inches of water.

A fourth concern is what type of root system one has on a putting green grown as described at the symposium. What is the superintendent inheriting? My casual observation is that if you do not achieve extensive root growth during grow-in, it is very hard to achieve once the green is brought into play. A much easier task is that of maintaining a good root system. On one of our experimental putting greens that had roots the full depth of the root zone mix after grow-in and was subjected to a mowing height of 0.125 inch and traffic that simulated nearly 40,000 rounds of golf ended the season with rooting to a depth of 10 inches.

A fifth concern is the extensive use of slow-release N during grow-in. The superintendent that takes over management of the green had better be prepared to live with a reservoir of slow-release N whose effects are going to be seen for many months.

Through a series of greenhouse studies, I developed what appeared to be an effective, biologically rational, and environmentally safe putting green grow-in program. I tested some of my ideas when growing in a green in 1997. The seeding date was May 6. By September 7, the green was being mowed at 0.156 inch, the uniformity of the bentgrass stand was superb where I did not allow P deficiency to occur, the roots were growing through the intermediate sand layer, and the green was firm but resilient enough for play to begin.

My strategy was very different from that presented at the symposium. I started out with a pre-plant application of starter fertilizer at the rate of 1.5 lb N/M. The bentgrass seed was blended with Milorganite in a ratio such that putting down 1.8 lb/M seed included 0.4 lb N. The initial mowing was at 0.5 inch and took place as soon as the bentgrass achieved this height. An N fertilization program of 0.2 lb N/week was then initiated with the "magic" ingredient, feed-grade urea. I feel that use of urea allowed me to maintain control over the bentgrass growth rate and keep it reasonably uniform over time. In essence, I used the "spoon feeding" approach, putting down only as much N as I felt the grass could effectively utilize. During grow-in, there must be a healthy supply of P to ensure good root growth. This can be achieved with monthly application of 0.5 lb P/M as starter fertilizer.

The mowing height was dropped in 0.0312 (1/32)-inch increments. If there was any sign of scalping, the mowing height was immediately raised until the green could be sand topdressed. The first topdressing of the green was heavy about 1/3 inch. Thereafter, the rate varied between 1 and 2 ft3/M. A total of six topdressings were applied during grow-in.

And there you have it – my putting grow-in program.